WSR 14-07-021
PERMANENT RULES
DEPARTMENT OF SOCIAL AND HEALTH SERVICES
(Aging and Disability Services Administration)

[Filed March 7, 2014, 11:34 a.m., effective April 7, 2014]

Effective Date of Rule: Thirty-one days after filing.

Purpose: The rule change is needed to amend chapter 388-110 WAC to change the term "boarding home" to "assisted living facility" throughout the chapter in compliance with SHB 2056 passed in the 2011-2012 legislative session. The scope of this rule making is limited to the terminology change from "boarding home" to "assisted living facility."

Citation of Existing Rules Affected by this Order: Amending chapter 388-110 WAC.

Statutory Authority for Adoption: Chapter 18.20 RCW.

Adopted under notice filed as WSR 14-02-0005 [14-02-005] on December 19, 2013.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 12, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 12, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 12, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 12, Repealed 0.

Date Adopted: March 4, 2014.

Katherine I. Vasquez
Rules Manager

AMENDATORY SECTION (Amending WSR 04-16-063, filed 7/30/04, effective 9/1/04)

WAC 388-110-010 Scope and applicability. (1) These rules apply only to ((~~boarding homes~~)) assisted living facilities licensed under chapter 18.20 RCW, or ((~~boarding homes~~)) assisted living facilities located within the boundaries of a federally recognized Indian reservation and licensed by a tribe, that contract with the department to provide assisted living services, enhanced adult residential care, enhanced adult residential care-specialized dementia care services, or adult residential care.

(2) Only services provided to or on behalf of the assisted living services, enhanced adult residential care, enhanced adult residential care-specialized dementia care services, or adult residential care resident, and paid for fully or partially by the department shall be subject to these rules.

AMENDATORY SECTION (Amending WSR 06-05-022, filed 2/6/06, effective 3/9/06)

WAC 388-110-020 Definitions. "Adult residential care" is a package of services provided by ((~~a boarding home~~)) an assisted living facility that is licensed under chapter 18.20 RCW and that has a contract with the department under RCW 74.39A.020 to provide personal care services in accordance with Parts I and IV of this chapter.

"Applicant" means the individual, partnership, corporation or other entity which has applied for a contract with the department to provide assisted living services, enhanced adult residential care, enhanced adult residential care-specialized dementia care services, or adult residential care to state funded residents in a licensed ((~~boarding home~~)) assisted living facility.

"Assisted living services" is a package of services provided by ((~~a boarding home~~)) an assisted living facility that has a contract with the department under RCW 74.39A.010 to provide personal care services, intermittent nursing services, and medication administration services in accordance with Parts I and II of this chapter. Assisted living services include housing for the resident in a private apartment-like unit.

((~~**"Boarding home"** means the same as the definition found in RCW 18.20.020, or a boarding home located within the boundaries of a federally recognized Indian reservation and licensed by the tribe~~)) Assisted Living Facility" means any home or other institution, however named, which is advertised, announced, or maintained for the express or implied purpose of providing housing, basic services, and assuming general responsibility for the safety and well-being of the residents, and may also provide domiciliary care, consistent with this chapter to seven or more residents after July 1, 2000. However, an assisted living facility that is licensed for three to six residents prior to or on July 1, 2000, may maintain its assisted living facility license as long as it is continually licensed as an assisted living facility. "Assisted living facility" does not include facilities certified as group training homes pursuant to RCW 71A.22.040, nor any home, institution or section thereof which is otherwise licensed and regulated under the provisions of state law providing specifically for the licensing and regulation of such home, institution or section thereof. Nor shall it include any independent senior housing, independent living units in continuing care retirement communities, or other similar living situations including those subsidized by the Department of Housing and Urban Development. "Assisted living facility" may also include persons associated with the assisted living facility to carry out its duties under this chapter.

"Case manager" means the department staff person or designee assigned to negotiate, monitor, and facilitate a service plan for residents receiving services fully or partially paid for by the department.

"Contractor" means the individual, partnership, corporation, or other entity which is licensed by the department or tribe to operate the ((~~boarding home~~)) assisted living facility and contracts with the department to provide assisted living services, enhanced adult residential care, enhanced adult residential care-specialized dementia care services, or adult res-

idential care to state funded residents in a licensed ((~~boarding home~~)) assisted living facility.

"Department" means the Washington state department of social and health services (DSHS).

"Dignity" means the quality or condition of being esteemed and respected in such a way as to validate the self-worth of the resident.

"Enhanced adult residential care" is a package of services provided by ((~~a boarding home~~)) an assisted living facility that is licensed under chapter 18.20 RCW and that has a contract with the department to provide personal care services, intermittent nursing services, and medication administration services in accordance with Parts I and III of this chapter.

"Enhanced adult residential care-specialized dementia care services" is a package of service, including specialized dementia care assessment and care planning, personal care services, intermittent nursing services, medication administration services, specialized environmental features and accommodations, and activity programming. Enhanced adult residential care-specialized dementia care services are delivered only within:

(1) Contracted ((~~boarding homes~~)) assisted living facilities that are dedicated solely to the care of individuals with dementia, including Alzheimer's disease, and that meet the requirements of parts I and III of this chapter; or

(2) Designated, separate units located within contracted ((~~boarding homes~~)) assisted living facilities that are dedicated solely to the care of individuals with dementia, including Alzheimer's disease, and that meet the requirements of parts I and III of this chapter.

"Homelike" means an environment having the qualities of a home, including privacy, comfortable surroundings, and the opportunity to decorate one's living area and arrange furnishings to suit one's individual preferences. A homelike environment provides residents with an opportunity for self-expression, and encourages interaction with the community, family and friends.

"Independence" means free from the control of others and being able to assert one's own will, personality and preferences.

"Individuality" means the quality of being unique; the aggregate of qualities and characteristics that distinguishes one from others. Individuality is supported by modifying services to suit the needs or wishes of a specific individual.

"Medication administration" means the direct application of a prescribed medication, whether by injection, inhalation, ingestion, or any other means, to the body of a resident by a person legally authorized to do so.

"Personal care services" means the same as physical or verbal assistance with activities of daily living included under "personal care services" described in WAC 388-106-0010. Personal care services do not include assistance with instrumental activities of daily living described in WAC 388-106-0010, nor assistance with tasks that must be performed by a licensed health professional.

"Resident" means a person residing in ((~~a boarding home~~)) an assisted living facility for whom services are paid for, in whole or in part, by the department under a contract for assisted living services, enhanced adult residential care, enhanced adult residential care-specialized dementia care services, or adult residential care. **"Resident"** includes former residents when examining complaints about admissions, readmissions, transfers or discharges. For decision-making purposes, the term **"resident"** includes the resident's surrogate decision maker in accordance with state law or at the resident's request.

AMENDATORY SECTION (Amending WSR 04-16-063, filed 7/30/04, effective 9/1/04)

WAC 388-110-030 Contract application. (1) In order to apply for a contract with the department to provide assisted living services, enhanced adult residential care, enhanced adult residential care-specialized dementia care services, or adult residential care, an applicant must:

(a) Have a valid ((~~boarding home~~)) assisted living facility license issued by the department or tribe, or have applied for ((~~a boarding home~~)) an assisted living facility license for the ((~~boarding home~~)) assisted living facility at which the contracted services will be provided;

(b) Complete and submit a contract application on department provided forms at least ninety days before the requested effective date for the contract; and

(c) Provide information regarding any licensed care facilities with which any of the following have been affiliated within the last ten years:

(i) The applicant;

(ii) Any partner, or owner of five percent or more of the applicant; and

(iii) Any officer, director, or managerial employee of the applicant.

(2) The department must confirm that the applicant has a valid ((~~boarding home~~)) assisted living facility license issued by the department or tribe and meets the requirements of this chapter before issuing a contract.

AMENDATORY SECTION (Amending WSR 04-16-063, filed 7/30/04, effective 9/1/04)

WAC 388-110-040 Contract qualifications. (1) The department must consider separately and jointly as applicants each person and entity named in the application for a contract for assisted living services, enhanced adult residential care, enhanced adult residential care-specialized dementia care services, or adult residential care. If the department finds any person or entity unqualified, the department must deny the contract.

(2) In making a determination whether to grant a contract, the department must review and consider:

(a) The information in the application;

(b) Other documents and information the department deems relevant, including inspection and complaint investigation findings for each licensed care facility, and each care facility that was required by law to be licensed but was not, with which any of the following have been affiliated within the last ten years:

(i) The applicant;

(ii) Any partner, or owner of five percent or more of the applicant; or

(iii) Any officer, director, or managerial employee of the applicant.

(c) The history and quality of services provided by the applicant; and

(d) Funding from the legislature available to the department to purchase residential care.

(3) The applicant and the ((~~boarding home~~)) assisted living facility for which a contract is sought must comply with all requirements established by chapter 74.39A RCW, chapter 388-78A WAC and this chapter.

(4) The department shall review the qualifications of applicants for enhanced adult residential care-specialized dementia care services contracts and may select a limited number with which to enter into contracts, based on:

(a) Which applicants are best qualified to provide specialized dementia care services, as determined by the department;

(b) The need for services in the area of the state in which the applicant is located; and

(c) Other qualifications specified in this section.

(5) The department must deny, suspend, revoke or refuse to renew a contract if an applicant or contractor or any partner, officer, director, managerial employee, or owner of five percent or more of the contractor or applicant has a history of significant noncompliance with federal or state regulations, rules or laws in providing care or services to frail elders, vulnerable adults or children. The department must consider evidence of noncompliance on a case-by-case basis.

AMENDATORY SECTION (Amending WSR 04-16-063, filed 7/30/04, effective 9/1/04)

WAC 388-110-050 Change of contractor. (1) A change of contractor must occur when there is a change in the ((~~boarding home~~)) assisted living facility licensee per WAC 388-78A-2770.

(2) When a change of licensee and contractor is contemplated, the current contractor must notify the department and all residents and residents' representatives at least ninety days prior to the proposed date of change. The notice must be in writing and must contain the following information:

(a) Name of the present contractor and prospective contractor;

(b) Name and address of the boarding home being changed; and

(c) Date of proposed change.

(3) The operation of an assisted living services, enhanced adult residential care, enhanced adult residential care-specialized dementia care services, or adult residential care contract must not be changed until the new operator has entered into a contract with the department. The new contractor must comply with contract application requirements in WAC 388-110-030.

AMENDATORY SECTION (Amending WSR 04-16-063, filed 7/30/04, effective 9/1/04)

WAC 388-110-090 Administration. The contractor must:

(1) Maintain substantial compliance with all requirements of chapters 18.20 RCW, ((~~Boarding homes~~)) Assisted living facilities, and 70.129 RCW, Long-term care resident rights, and chapters 388-78A WAC, ((~~Boarding home~~)) Assisted living facilities licensing rules, and 388-105 WAC medicaid rates for contracted home and community residential care services;

(2) Permit department representatives to enter the ((~~boarding home~~)) assisted living facility without prior notification and cooperate with department representatives as they monitor the contract requirements under this chapter and conduct complaint investigations, including but not limited to observing and privately interviewing residents, and accessing resident records.

AMENDATORY SECTION (Amending WSR 06-05-022, filed 2/6/06, effective 3/9/06)

WAC 388-110-100 Discharge, social leave, and bed hold. The contractor is not required to discharge (move out) and readmit a resident for absences of less then twenty-one consecutive days. The contractor must:

(1) Note an absence in a resident's record when a resident is absent from the ((~~boarding home~~)) assisted living facility for more than seventy-two consecutive hours;

(2) Obtain department approval for payment for social leave in excess of eighteen calendar days per year;

(3) Notify the department within one working day whenever the resident:

(a) Is hospitalized;

(b) Is discharged to another ((~~boarding home~~)) assisted living facility, nursing home or other health care facility;

(c) Dies; or

(d) Is missing from the ((~~boarding home~~)) assisted living facility and his or her whereabouts are unknown.

(4) Include the department's case manager in the development of a discharge (move out) plan, and have the case manager approve the plan before any required notice of discharge is issued to the resident, except in an emergency;

(5) Notify the medicaid resident of the ((~~boarding home's~~)) assisted living facility's policies regarding bed-holds, consistent with subsections (6) and (7) of this section and WAC 388-105-0045 as soon as possible before, or as soon as practicable following hospitalization or discharge to a nursing home. The notification must include information concerning:

(a) Options for bed-hold payments, and

(b) Rights to return to the boarding home.

(6) Retain a bed or unit for a medicaid resident who is hospitalized or temporarily placed in a nursing home for up to twenty days when the medicaid resident is likely to return to the ((~~boarding home~~)) assisted living facility and the department makes payment to the ((~~boarding home~~)) assisted living facility for holding the bed or unit consistent with WAC 388-105-0045. If, prior to the end of the twenty days, the department determines, or the contractor determines and the department concurs, that the medicaid resident will likely not return to the ((~~boarding home~~)) assisted living facility:

(a) The department must terminate the bed-hold payment; and

(b) The contractor may rent that bed or unit to another resident.

(7) Not seek third-party payment for the first twenty days of retaining the bed for a medicaid resident who is hospitalized or discharged to a nursing home and for whom the department is making a bed hold payment consistent with WAC 388-105-0045.

(a) The contractor may seek third-party payment consistent with RCW 18.20.290 and chapter 388-105 WAC to hold a bed or unit for the time following the first twenty days of a medicaid resident's absence for hospitalization or nursing home care.

(b) If third-party payment is not available, the medicaid resident may return to the first available and appropriate bed or unit if the medicaid resident:

(i) Continues to meet the ((~~boarding home's~~)) assisted living facility's admission criteria; and

(ii) Chooses to return to the ((~~boarding home~~)) assisted living facility.

Reviser's note: The typographical error in the above section occurred in the copy filed by the agency and appears in the Register pursuant to the requirements of RCW 34.08.040.

AMENDATORY SECTION (Amending WSR 04-16-063, filed 7/30/04, effective 9/1/04)

WAC 388-110-120 Resident personal funds. (1) Upon the death of a resident, the contractor must promptly convey the resident's personal funds held by the ((~~boarding home~~)) assisted living facility with a final accounting of such funds to the department or to the individual or probate jurisdiction administering the resident's estate no later than forty-five calendar days after the date of the resident's death:

(a) When the personal funds of the deceased resident must be paid to the state of Washington, those funds and the final accounting shall be made payable to the secretary, department of social and health services, and sent to the Office of Financial Recovery, Estate Recovery Unit, P.O. Box 9501, Olympia, Washington 98507-9501, or such address as may be directed by the department in the future;

(b) The check and final accounting accompanying the payment must contain the name and Social Security number of the deceased individual from whose personal funds account the moneys are being paid; and

(c) The department of social and health services shall establish a release procedure for use of funds necessary for burial expenses.

(2) In situations where the resident is absent from the ((~~boarding home~~)) assisted living facility for an extended time without notifying the ((~~boarding home~~)) assisted living facility, and the resident's whereabouts is unknown:

(a) The contractor must make a reasonable effort to find the missing resident; and

(b) If the resident cannot be located after ninety days, the contractor must notify the department of revenue of the existence of "abandoned property," outlined in chapter 63.29 RCW. The contractor must deliver to the department of revenue the balance of the resident's personal funds within twenty days following such notification.

(3) Prior to the change of contractor of the ((~~boarding home~~)) assisted living facility business, the contractor must:

(a) Provide each resident with a written accounting of any personal funds held by the ((~~boarding home~~)) assisted living facility;

(b) Provide the new contractor with a written accounting of all resident funds being transferred; and

(c) Obtain a written receipt for those funds from the new operator.

AMENDATORY SECTION (Amending WSR 09-19-042, filed 9/10/09, effective 10/11/09)

WAC 388-110-140 Assisted living services facility physical requirements. (1) Licensed ((~~boarding homes~~)) assisted living facilities with an assisted living services contract are required to:

(a) Meet the physical requirements that were in effect at the time of initial contracting; or

(b) If there is a break in contract, meet the requirements in effect at the time of the new contract.

(2) The contractor must ensure each resident has a private apartment-like unit. Each unit must have at least the following:

(a) A minimum area of two hundred twenty square feet. The minimum area may include counters, closets and built-ins, but must exclude the bathroom;

(b) A private bathroom. The private bathroom must be equipped with a sink, a toilet, and a shower or bathtub. At least one wheelchair accessible bathroom with a roll-in shower that is at least forty-eight inches by thirty-six inches must be provided for every two residents whose care is partially or fully funded through the assisted living contract;

(c) A lockable entry door;

(d) A kitchen area. The kitchen area must be equipped with:

(i) A refrigerator;

(ii) A microwave oven, range or cooktop;

(iii) A counter mounted kitchen sink, with inside dimensions of at least twenty-one inches by fifteen inches, and a minimum depth of seven inches;

(iv) A storage space for utensils and supplies; and [a]

(v) A work counter surface, with a minimum usable surface area of thirty inches in length by twenty-four inches deep, a maximum height of thirty-four inches, and having a clear knee space beneath at least twenty-seven inches in height and thirty inches in length; and

(e) A living area wired for telephone and, where available in the geographic location, wired for television service.

(3) Married couples may share an apartment-like unit under an assisted living contract if:

(a) Both residents understand they are each entitled to live in a separate private unit; and

(b) Both residents mutually request to share a single apartment-like unit.

(4) The contractor must provide a private accessible mailbox for each resident whose care is partially or fully funded through the assisted living contract.

(5) The contractor must provide homelike smoke-free common areas with sufficient space for socialization designed to meet resident needs. Common areas must be available for resident use at any time provided such use does

not disturb the health or safety of other residents. The contractor must make access to outdoor areas available to all residents.

(6) The contractor must provide a space for residents to meet with family and friends outside the resident's living unit.

(7) The department may grant an exemption to the requirements of this section in accordance with WAC 388-78A-2820.

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

AMENDATORY SECTION (Amending WSR 04-16-063, filed 7/30/04, effective 9/1/04)

WAC 388-110-150 Assisted living service standards. In ((~~a boarding home~~)) an assisted living facility with an assisted living contract, the contractor must meet the requirements of parts I and II of this chapter, and for residents served under the assisted living contract:

(1) Ensure that both the physical environment and the delivery of assisted living services are designed to enhance autonomy in ways which reflect personal and social values of dignity, privacy, independence, individuality, choice and decision making of residents. The contractor must provide resident services in a homelike environment for residents who may have a range of needs and preferences.

(2) Must provide or arrange for, at no additional cost to the resident and consistent with chapter 388-78A WAC:

(a) Intermittent nursing services;

(b) Medication administration;

(c) Personal care services; and

(d) Supportive services that promote independence and self-sufficiency.

(3) Make available and offer at no additional cost to the resident generic personal care items needed by the resident such as soap, shampoo, toilet paper, toothbrush, toothpaste, deodorant, sanitary napkins, and disposable razors. This does not include items covered by medical coupons or preclude residents from choosing to purchase their own personal care items.

(4) Provide all residents with access to an on-site washing machine and dryer for resident use.

(5) Make beverages and snacks available to residents.

AMENDATORY SECTION (Amending WSR 06-05-022, filed 2/6/06, effective 3/9/06)

WAC 388-110-220 Enhanced adult residential care service standards. (1) In ((~~a boarding home~~)) assisted living facility with an enhanced adult residential care contract, the contractor must meet the requirements of parts I and III of this chapter, and for residents served under the enhanced adult residential care contract:

(a) Develop for each resident a negotiated service agreement that supports the principles of dignity, privacy, choice in decision making, individuality, and independence.

(b) Provide or arrange for, at no additional cost to the resident and consistent with the resident's negotiated service agreement and chapter 388-78A WAC:

(i) Intermittent nursing services;

(ii) Medication administration;

(iii) Personal care services; and

(iv) Supportive services that promote independence and self-sufficiency; and

(c) Not allow more than two residents per room.

(2) An enhanced adult residential care-specialized dementia care services contract is a distinct contract, separate from an enhanced adult residential care contract. In ((~~a boarding home~~)) an assisted living facility with an enhanced adult residential care-specialized dementia care services contract, the contractor must:

(a) Meet the requirements of parts I and III of this chapter,

(b) Meet the requirements of subsection (1) of this section, and

(c) Maintain an enhanced adult residential care services contract or an assisted living services contract in addition to the enhanced adult residential care-specialized dementia care services contract.

(3) In ((~~a boarding home~~)) an assisted living facility with an enhanced adult residential care-specialized dementia care services contract, for residents served under that contract, the contractor must:

(a) Complete a full assessment of residents as specified in chapter 388-78A WAC, at a minimum, on a semi-annual basis;

(b) Maintain awake staff twenty-four hours per day. The contractor must provide staffing that is adequate to respond to the assessed sleeping and waking patterns and needs of residents;

(c) Develop and implement policies and procedures:

(i) To manage residents who may wander;

(ii) To outline actions to be taken in case a resident elopes; and

(iii) To obtain consultative resources to address behavioral issues for residents. The contractor must include a plan that identifies the professional (i.e., clinical psychologist, psychiatrist, psychiatric nurse practitioner, or other behavioral specialist familiar with care of persons with dementia with complex or severe problems) who will provide the consultation, and when and how the consultation will be utilized.

(d) Ensure that each staff who works directly with residents has at least six hours of continuing education per year related to dementia, including Alzheimer's disease. This six hours of continuing education may be part of the ten hours of continuing education required by WAC 388-112-0205. Appropriate topics include, but are not limited to:

(i) Agitation: Caregiving strategies;

(ii) Challenging behaviors: Strategies for managing aggression and sexual behavior;

(iii) Delusions and hallucinations;

(iv) Using problem-solving strategies in dementia care;

(v) Depression and dementia;

(vi) Fall prevention for people with dementia;

(vii) Personal care as meaningful activity;

(viii) Promoting adequate food and fluid consumption;

(ix) Promoting pleasant and purposeful activity;

(x) Resistance to care: Caregiving strategies; and

(xi) Recognizing and assessing pain in people with dementia.

(e) Provide all necessary physical assistance with bathing and toilet use for residents who require caregivers to perform these activities and subtasks of these activities, and required oversight and supervision, encouragement and cueing. For the purposes of this subsection:

(i) "Bathing" has the same meaning as described in WAC 388-106-0010; and

(ii) "Toilet use" has the same meaning as described in WAC 388-106-0010.

(f) Routinely provide assistance with eating as necessary, including required oversight and supervision, encouragement and cueing. The contractor must also provide all necessary physical assistance with eating on an occasional basis for residents who require total feeding assistance. However, the contractor is not required to provide total feeding assistance for an extended or indefinite period. As used in this section, eating has the same meaning as described in WAC 388-106-0010, except that the contractor is not required to provide tube feedings or intravenous nutrition.

(g) Provide daily activities consistent with the functional abilities, interests, habits and preferences of the individual residents. The contractor must support the participation of residents and the resident council, if there is one, in the development of recreational and activity programs that reflect the needs and choices of residents. On a daily basis, the contractor must provide residents access to:

(i) Opportunities for independent, self-directed, activities.

(ii) Individual activities, in which a staff person or volunteer engages the resident in a planned and/or spontaneous activity of interest. Activities may include personal care activities that provide opportunities for purposeful and positive interactions; and

(iii) Group activities.

(h) Offer opportunities for activities that accommodate variations in a resident's mood, energy and preferences. The contractor must make appropriate activities available based upon the resident's individual schedule and interests. For example, individuals up at night must have access to staff support, food and appropriate activities;

(i) Make available multiple common areas, at least one of which is outdoors, that vary by size and arrangement such as: various size furniture groupings that encourage social interaction; areas with environmental cues that may stimulate activity, such as a resident kitchen or workshop; areas with activity supplies and props to stimulate conversation; a garden area; and paths and walkways that encourage exploration and walking. These areas must accommodate and offer opportunities for individual or group activity;

(j) Ensure that the outdoor area for residents:

(i) Is accessible to residents without staff assistance;

(ii) Is surrounded by walls or fences at least seventy-two inches high;

(iii) Has areas protected from direct sunshine and rain throughout the day;

(iv) Has walking surfaces that are firm, stable, slip-resistant and free from abrupt changes, and are suitable for individuals using wheelchairs and walkers;

(v) Has suitable outdoor furniture;

(vi) Has plants that are not poisonous or toxic to humans; and

(vii) Has areas for appropriate outdoor activities of interest to residents, such as walking paths, raised garden or flower beds, bird feeders, etc.

(k) Ensure that areas used by residents have a residential atmosphere, and residents have opportunities for privacy, socialization, and wandering behaviors;

(l) Ensure any public address system in the area of specialized dementia care services is used only for emergencies;

(m) Encourage residents' individualized spaces to be furnished and or decorated with personal items based on resident needs and preferences;

(n) Ensure residents have access to their own rooms at all times without staff assistance; and

(o) Make available and offer at no additional cost to the resident generic personal care items needed by the resident such as soap, shampoo, toilet paper, toothbrush, toothpaste, deodorant, sanitary napkins, and disposable razors. This does not include items covered by medical coupons or preclude residents from choosing to purchase their own personal care items.

AMENDATORY SECTION (Amending WSR 04-16-063, filed 7/30/04, effective 9/1/04)

WAC 388-110-240 Adult residential care service standards. In ((~~a boarding home~~)) an assisted living facility with an adult residential care contract, the contractor must meet the requirements of parts I and IV of this chapter, and for residents served under the adult residential care contract:

(1) Develop for each resident a negotiated service agreement that supports the principles of dignity, privacy, choice in decision making, individuality, and independence; and

(2) Provide personal care services based on the resident's negotiated service agreement.

AMENDATORY SECTION (Amending WSR 04-16-063, filed 7/30/04, effective 9/1/04)

WAC 388-110-260 Remedies. (1) The department may take one or more of the actions listed in subsection (3)(a) of this section in any case in which the department finds that a contractor of assisted living services, enhanced adult residential care services, enhanced residential care-specialized dementia care services, or adult residential care services has:

(a) Failed or refused to comply with the applicable requirements of chapter 74.39A RCW, of chapter 70.129 RCW, chapter 388-78A WAC or of this chapter;

(b) Operated without a license or under a revoked license;

(c) Knowingly, or with reason to know, made a false statement of material fact on his or her application for a contract or any data attached thereto, or in any matter under investigation by the department; or

(d) Willfully prevented or interfered with any inspection or investigation by the department.

(2)(a) For failure or refusal to comply with any applicable requirements of chapter 74.39A RCW, of chapter 70.129 RCW, chapter 388-78A WAC or of this chapter, the depart-

ment may provide consultation before imposing remedies under subsection (3)(a) unless the violations pose a serious risk to residents, are recurring or have been uncorrected.

(b) When violations of this chapter pose a serious risk to a resident, are recurring or have been uncorrected, the department must impose a remedy or remedies listed under subsection (3)(a). In determining which remedy or remedies to impose, the department must take into account the severity of the impact of the violations on residents and which remedy or remedies are likely to improve resident outcomes and satisfaction in a timely manner.

(3)(a) Actions and remedies the department is authorized to impose include:

(i) Refusal to enter into a contract;

(ii) Imposition of reasonable conditions on a contract, such as correction within a specified time, training, and limits on the type of clients the provider may admit or serve;

(iii) Imposition of civil penalties of not more than one hundred dollars per day per violation;

(iv) Suspension, termination, or refusal to renew a contract; or

(v) Order stop placement of persons under the contract.

(b) When the department orders stop placement, the ((~~boarding home~~)) assisted living facility must not admit any person under the contract until the stop placement order is terminated. The department may approve readmission of a resident to the ((~~boarding home~~)) assisted living facility from a hospital or nursing home during the stop placement. The department must terminate the stop placement when the department determines that:

(i) The violations necessitating the stop placement have been corrected; and

(ii) The provider exhibits the capacity to maintain adequate care and service.

(c) Conditions the department may impose on a contract include, but are not limited to the following:

(i) Correction within a specified time;

(ii) Training related to the violations; and

(iii) Discharge of any resident when the department determines discharge is needed to meet that resident's needs or for the protection of other residents.

(d) When a contractor fails to pay a fine when due under this chapter, the department may, in addition to other remedies, withhold an amount equal to the fine plus interest, if any, from the contract payment.

WSR 14-07-086
PERMANENT RULES
DEPARTMENT OF LABOR AND INDUSTRIES

[Filed March 18, 2014, 10:25 a.m., effective May 1, 2014]

Effective Date of Rule: May 1, 2014.

Purpose: In 2012, the Occupational Safety and Health Administration (OSHA) adopted the final rules updating its hazard communication standard into alignment with the globally harmonized system of classification and labeling of chemicals (GHS). OSHA's rule also modified other existing OSHA standards that contain hazard classification and communication provisions to be internally consistent and aligned with the GHS modifications to the hazard communication standard. The department's rules are required to be at-least-as-effective-as OSHA. Under Phase I hazard communication rule making in 2013, the department created a new rule, WAC 296-901-140, incorporating all the elements of the existing department hazard communication rules into one rule to be consistent with OSHA's hazard communication standard employers, chemical manufacturers, importers, and distributors. This rule making, Phase II, modified other existing department rules to align with the GHS changes as required by OSHA's rule. In addition, this rule making made changes to WAC 296-901-140 to reflect minor corrections made to OSHA's rule in February 2013 and other necessary technical corrections.

Phase I Rule Making: In 2012, OSHA adopted the final rules updating its hazard communication standard into alignment with GHS. The effective dates of OSHA's rule are delayed and phased in. The department rules are required to be at-least-as-effective-as OSHA. The scope of OSHA's hazard communication standard includes requirements for employers as well as chemical manufacturers, importers, and distributors. Prior to the Phase I rule making, department's comparable requirements were in separate rules, as follows:

Employer Requirements: WAC 296-800-170 Employer chemical hazard communication (core rules) and chapter 296-307 WAC, Part Y-1, Employer chemical hazard communication (agriculture).

Chemical Manufacturer, Importer, and Distributor Requirements: Chapter 296-839 WAC, Content and distribution of material safety data sheets (MSDS) and label information and chapter 296-307 WAC, Part Y-2, Material safety data sheets and label preparation (agriculture).

Trade Secrets: Chapter 296-816 WAC, Protecting trade secrets and chapter 296-62 WAC, Part B-1, Trade secrets (applies only to agriculture).

In addition, other department rules specific to activities and workplaces reference the requirements in WAC 296-800-170.

Under the Phase I rule making the department created a new rule, WAC 296-901-140, incorporating all the elements of the existing department rules into one rule to be consistent with OSHA's hazard communication standard. During the transition period, there is the option to comply with the applicable requirements in the existing rules or the requirements in the new rule or both (see Table 1). Upon completion of the transition period, the existing standards will be repealed (see Table 2).

Phase II Rule Making: OSHA's 2012 rule also modified other existing OSHA standards that contain hazard classification and communication provisions to be internally consistent and aligned with the GHS modifications to the hazard communication standard. This rule making modified other existing department rules to align with the GHS changes as required by OSHA's rule. In addition, this rule making made changes to WAC 296-901-140 to reflect minor corrections made to OSHA's rule in February 2013 and other necessary technical corrections.

Table 1 Effective Dates:

Effective Completion Date	Requirement(s)	Who
June 1, 2014	Train employees on the new label elements and safety data sheet (SDS) format.	Employers.
June 1, 2015	Compliance with all provisions of the WAC 296-901-140 final rule, except as listed below.	Chemical manufactures [manufacturers], importers, distributors, and employers.
June 1, 2016	Update alternative workplace labeling and hazard communication program as necessary, and provide additional employee training for newly identified physical or health hazards.	Employers.
December 1, 2015	The distributor must not ship containers labeled by the chemical manufacturer or importer unless it is a GHS label.	Distributors.
Transition period to the effective completion dates noted above.	May comply with the applicable requirements in the following rules: • WAC 296-800-170 Employer chemical hazard communication (core rules). • Chapter 296-307 WAC, Part Y-1, Employer chemical hazard communication (agriculture). • Chapter 296-839 WAC, Content and distribution of material safety data sheets (MSDSs) and label information. • Chapter 296-307 WAC, Part Y-2, MSDS and label preparation (agriculture). • Chapter 296-816 WAC, Protecting trade secrets. • Chapter 296-62 WAC, Part B-1, Trade secrets (applies only to agriculture). Or the requirements in the new hazard communication standard in WAC 296-901-140 or both.	Chemical manufacturers, importer[s], distributors, and employers.

Table 2 Proposed Schedule for Related Rule Changes:

Rule Change	Proposed Schedule
Phase I - Adopt WAC 296-901-140 Hazard communication.	Adopted March 5, 2013.
Phase II - Amend other existing DOSH rules to align with the GHS changes as required by OSHA's rule.	Adopted March 18, 2014.
Repeal existing rules and delete, repeal, and change all references to the existing rules.	As applicable, no later than June 1, 2016.

Amended Sections:

Chapter 296-24 WAC, General safety and health standards:

WAC 296-24-32003 Bulk oxygen systems.

- Changed the title of Part E by removing the words "and combustible."
- Removed the words "or combustible" from subsections (2)(a), (d), and (e), (3)(g) and (h).
- Removed the words "lines" and "flammable" from subsection (2)(a).
- Changed reference in subsections (3)(a) and (r).
- Changed the word "combustible" to "flammable" in subsections (3)(g) and (h).

WAC 296-24-330 Flammable and combustible liquids.

- Changed the title of this section by removing the words "and combustible."

WAC 296-24-33001 Definitions.

- Removed the words "or combustible" from subsections (3), (7), (8), (11), (18), (23), (29), and (33).
- Changed the definition of flammable aerosol to match OSHA's new definitions. In definition for flammable aerosol, removed words "Class 1A" and replaced with "Category 1 flammable."
- Changed definition of flammable liquid to match OSHA's new definition.
- Changed the definition of flashpoint to match OSHA's new definition.

WAC 296-24-33003 Scope.

- Removed the words "and combustible" from scope, subsections (1) and (3).
- Removed "200°F" and replaced it with "at or below 199.4°F (93°C)."

WAC 296-24-33005 Tank storage.

- Removed the words "or combustible" from subsections (1)(a)(iv) and (vi), (c)(iv), (2)(a)(i), (ii), (iii), (b)(iv), (vi), (g)(ii)(B), (C), (g)(iii)(E), (g)(iii)(G)(II), (4)(d)(iii), (5)(f)(i), (iv), (vii), (xxii), and (xxii)(A).
- Added the word "barrels" in exemption in subsection (2)(d)(vi).
- Removed "Class IA" and replaced it with "Category 1 flammable" in subsection (2)(d)(vi) and exemption.
- Removed "Class IB and IC" and replaced it with "Category 2 flammable liquids and Category 3 flammable liquids with a flashpoint below 100˚F (37.8˚C)" in subsections (2)(d)(vii), and (h)(v), (3)(e)(iv), and (4)(d)(v).
- In subsection (2)(d)(vi), removed "Class IB" and replaced it with "Category 2 flammable liquids."
- In subsection (2)(d)(vi), removed "Class IC" and replaced it with "Category 3 flammable liquids with a flashpoint below 100°F (37.8°C)."
- In subsections (2)(f)(ii), (3)(a) and (d)(i) removed "Class I" and replaced it with "Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C)."
- Removed "Class II or Class III" and replaced it with "Category 3 flammable liquids with a flashpoint at or above 100°F (37.8°C) or Category 4 flammable liquids" in subsections (3)(a) and (d)(iii).

WAC 296-24-33007 Piping, valves, and fittings.

- Removed the words "or combustible" from subsections (1)(a), (2)(b), and (5).

WAC 296-24-33009 Container and portable tank storage.

- Removed the words "or combustible" from subsections (1)(a), (5)(a), (b) and (e), (6)(b)(i), (ii), and (c), (7)(a), (c) and (d).
- Removed the words "and combustible" from subsections (2)(c), (5)(d)(i) and (f).
- Updated the heading in Table H-12 from "Class IA, IB, IC, II, III" to "Category 1, 2, 3 and 4."
- Removed "Class I or Class 2" and replaced it with "Category 1, 2, or 3 flammable" in subsections (1)(b)(ii), (3)(a), and (7)(a)(ii).
- Updated language in subsection (4)(c).
- Removed "Class I" and replaced it with "Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C)" in subsection (4)(d).
- Removed "Class IA or IB" and replaced it with "Category 1 or 2" in subsection (2)(c).
- Removed "Class IA" and replaced it with "Category 1 flammable" in subsection (2)(c)(ii).
- Removed "Class IB" and replaced it with "Category 2 flammable" in subsection (2)(c)(ii).
- Removed "Class III" and replaced it with "Category 4 flammable" in subsections (3)(a) and (4)(c).

WAC 296-24-33011 Industrial plants.

- Removed the words "or combustible" from subsections (1)(a)(i) and (ii), (2)(a), (b), (c), (d)(ii) and (iv), (3)(a), (d)(i) and (iii), (5)(d), (9)(a) and (b).
- Removed the words "and combustible" from subsection (2).
- In subsection (2)(b)(ii)(A), removed "Class IA" and replaced with "Category 1 flammable."
- In subsection (2)(b)(ii)(B) and (C), removed "Class IB, IC, II or III" and replaced with "Category 2, 3, or 4 flammable."
- In subsection (2)(d)(i) added language and it now reads "Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), shall be kept in covered containers when not actually in use."
- In subsections (2)(d)(iii), (4), (6)(b), and (7)(c), removed "Class I" and replaced with "Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C)."
- In subsection (3)(e)(i) and (ii) removed words "Class I" and replaced with "Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C)."
- Removed the words "Class II and Class III" and replaced with "Category 3 flammable liquids, with a flashpoint at or above 100°F (37.8°C) and Category 4 flammable liquids" in subsections (4) and (7)(c).
- Removed the word "only" in subsection (7)(c).

WAC 296-24-33013 Bulk plants.

- Removed the words "or combustible" from subsections (1)(c), (2)(a), (4)(a), (c), (h)(vii), and (7).
- Removed the words "and combustible" from subsection (4)(b).
- Removed "Class I" and replaced it with "Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C)" in subsections (1)(a), (2)(b), (c)(i), (ii), (iii), (3)(a), (b), (d)(i)(A), (B), (iv)(B), (e), (f), (5)(a), (6), and (8).
- Removed "Class II and Class III" and replaced with "Category 3 flammable liquids with a flashpoint at or above 100°F (37.8°C) and Category 4 flammable liquids" in subsections (1)(b), (3)(a), (b), (d)(i)(B), (iv)(B), (e), and (5)(a).
- Added "with a flashpoint below 100°F (37.8°C)" to subsection (2)(c)(iii).
- In subsection (3)(b) removed the word "class" and replaced it with "category."

- Added "Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C)" to subsection (4)(h)(v).
- Removed the word "only" from subsection (5)(a).

WAC 296-24-33015 Service stations.
- Removed the words "or combustible" from subsections (1)(b)(i), (6), and (7).
- Removed "Class I" and replaced it with "Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C)" in subsections (1)(a)(iii), (vi), (c)(i), (ii), (e), (2)(d)(i), (ii), (iii) and (iv), (e)(i), (f)(i), (3)(c)(iv), (4)(a), (5)(d), and (6).
- Removed "Class II and Class III" and replaced with "Category 3 flammable liquids with a flashpoint at or above 100°F (37.8°C) and Category 4 flammable liquids" in subsections (1)(c)(iii) and (4)(a).
- Added "with a flashpoint below 100°F (37.8°C)" in subsection (1)(a)(iv).

WAC 296-24-33017 Processing plants.
- Removed the words "or combustible" in subsections (2)(a), (3)(b)(i), (iii), (4)(a)(i), (ii) and (iv), (b)(iii), (c)(i), (6)(b)(iii), (7)(b)(i), and (8)(a).
- Removed "Class I" and replaced with "Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C)" in subsections (3)(c)(ii), (5), (7)(a)(ii), and (c)(iii).
- Removed "Class I, Division I" and replaced it with "Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), Division I" in subsection (7)(c)(ii).
- Removed "Class II or Class III" and replaced with "Category 3 flammable liquids with a flashpoint at or above 100°F (37.8°C) and Category 4 flammable liquids" in subsections (3)(a)(i), (5), and (7)(c)(iii).
- Removed "Class IA" and replaced it with "Category 1" in subsection (3)(d).

WAC 296-24-33019 Refineries, chemical plants, and distilleries.
- Removed the words "or combustible" in subsections (1), (2), and (4).

WAC 296-24-370 Spray finishing using flammable and combustible materials.
- Removed the words "and combustible" from the title.

WAC 296-24-37005 Electrical and other sources of ignition.
- Removed the words "or combustible" from subsection (9)(a).
- Added "or liquids with a flashpoint greater than 199.4°F (93°C)" in subsection (9)(a).

WAC 296-24-37009 Flammable and combustible liquids—Storage and handling.
- Changed the title to read "Flammable liquids and liquids with a flashpoint greater than 199.4°F (93°C)."
- Removed the words "or combustible" from subsections (1), (2), (3), (4), (6)(d), (8), and (9).
- Added in the phrase "with a flashpoint greater than 199.4°F (93°C)" to subsections (1), (2), (3), (4), (6)(d), (8), and (9).

WAC 296-24-71501 General.
- Added OSHA identical language requirements relating to hazard communication. These requirements are federally driven and consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS), Revision 3.
- Changed numbering in the rest of the subsections due to the new language being added.

Chapter 296-32 WAC, Safety standards for telecommunications:

WAC 296-32-230 Training.
- Changed a reference from WAC 296-800-170 to 296-901-140 in subsection (6).
- Removed the word "chemical" in subsection (6).

Chapter 296-45 WAC, Safety standards for electrical workers:

WAC 296-45-035 Definitions.
- Changed a reference in the definition of IDLH from WAC 296-800-170 to 296-901-140.
- Removed the words "material" and "chemical" from the Note in the definition of IDLH.

WAC 296-45-055 Employer's responsibility.
- Changed a reference from WAC 296-800-170 to 296-901-140 in subsection (2).
- Removed the word "chemical" from subsection (2).

Chapter 296-52 WAC, Safety standards for possession, handling, and use of explosives:

WAC 296-52-69095 Ammonium nitrate.
- Removed the words "and combustible" from subsection (1)(g).

Chapter 296-54 WAC, Safety standards—Logging operations:

WAC 296-54-507 Employer's responsibilities.
- Changed a reference from WAC 296-800-170 to 296-901-140 in subsection (4).
- Removed the word "chemical" in subsection (4).

WAC 296-54-519 Miscellaneous requirements.
- Removed the phrase "and combustible" from subsection (4)(a) and (b).

Chapter 296-56 WAC, Safety standards—Longshore, stevedore and waterfront related operations:

WAC 296-56-60001 Scope and applicability.
- Changed a reference from WAC 296-800-170 to 296-901-140 in subsection (3)(j).
- Removed the words "chemical hazard" and "program" from subsection (3)(j).

WAC 296-56-60235 Welding, cutting and heating (hot work) (see also definition of "hazardous cargo, material, substance or atmosphere").
- Removed the words "or combustible" from subsection (3)(e).

Chapter 296-59 WAC, Safety standards for ski area facilities and operations:

WAC 296-59-005 Incorporation of other standards.
- Changed a reference from WAC 296-800-170 to 296-901-140 in subsection (5).
- Removed the word "chemical" from subsection (5).

Chapter 296-62 WAC, General occupational health standards:

WAC 296-62-05520 Retain readily visible DOT labeling.
- Changed a reference from "WAC 296-800-170, Employer Chemical" to "WAC 296-901-140, Hazard Communication" in Table 1.
- Removed "Introduction (see the Safety and Health Core Rules Book)" from Table 1.

WAC 296-62-07302 List of carcinogens.
- Added OSHA identical language requirements relating to hazard communication. These requirements are federally driven and consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS), Revision 3.
- Added additional clarifying information on each carcinogen to make them identical to OSHA.
- Changed numbering and lettering.

WAC 296-62-07306 Requirements for areas containing carcinogens listed in WAC 296-62-07302.
- Changed a reference from "WAC 296-62-07310 (2), (3) and (4)" to "WAC 296-62-07302" in subsection (2)(d)(vi).

WAC 296-62-07310 Signs, information and training.
- Updated the language in subsection (1)(a) from "shall be posted" to "shall post."
- Changed information on signs to be consistent with OSHA and to allow employers to be compliant with new and old signs until June 1, 2016.
- Removed language from subsections (2) and (3) related to container content identification and lettering on signs.
- Changed numbering.

WAC 296-62-07329 Vinyl chloride.
- Added OSHA identical language requirements relating to hazard communication. This language provides employees information about the hazardous chemicals to which they are exposed, by means of a hazard communication program, labels, other forms of warning, safety data sheets, and training is located in this section. These requirements are federally driven and consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS), Revision 3.
- Changed information on signs to be consistent with OSHA and to allow employers to be compliant with new and old signs until June 1, 2016.
- Changed information on labels to be consistent with OSHA and to allow employers to be compliant with new and old labels until June 1, 2015.
- Changed numbering.

WAC 296-62-07336 Acrylonitrile.
- Added OSHA identical language requirements relating to hazard communication. This language provides employees information about the hazardous chemicals to which they are exposed, by means of a hazard communication program, labels, other forms of warning, safety data sheets, and training is located in this section. These requirements are federally driven and consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS), Revision 3.
- Changed information on signs to be consistent with OSHA and to allow employers to be compliant with new and old signs until June 1, 2016.
- Changed information on labels to be consistent with OSHA and to allow employers to be compliant with new and old labels until June 1, 2015.
- Changed numbering.

WAC 296-62-07342 1,2-Dibromo-3-chloropropane.
- Added OSHA identical language requirements relating to hazard communication. This language provides employees information about the hazardous chemicals to which they are exposed, by means of a hazard communication program, labels, other forms of warning, safety data sheets, and training is located in this section. These requirements are federally driven and consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS), Revision 3.
- Changed the word "assure" to "ensure."
- Changed information on signs to be consistent with OSHA and to allow employers to be compliant with new and old signs until June 1, 2016.
- Changed information on labels to be consistent with OSHA and to allow employers to be compliant with new and old labels until June 1, 2015.
- Changed numbering.

WAC 296-62-07373 Communication of EtO hazards to employees.
- Changed the title to read "Communication of EtO hazards."
- Added OSHA identical language requirements relating to hazard communication. This language provides employees information about the hazardous chemicals to which they are exposed, by means of a hazard communication program, labels, other forms of warning, safety data sheets, and training is located in this section. These requirements are federally driven and consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS), Revision 3.
- Changed information on signs to be consistent with OSHA and to allow employers to be compliant with new and old signs until June 1, 2016.
- Changed information on labels to be consistent with OSHA and to allow employers to be compliant with new and old labels until June 1, 2015.
- Removed the word "material" from subsection (3).
- Changed numbering.

- Changed reference from WAC 296-62-05413 to 296-901-14014.

WAC 296-62-07425 Communication of cadmium hazards to employees.
- Changed the title to read "Communication of cadmium hazards."
- Removed the word "assure" and replaced it with "ensure" in subsection (2)(c).
- Added OSHA identical language requirements relating to hazard communication. This language provides employees information about the hazardous chemicals to which they are exposed, by means of a hazard communication program, labels, other forms of warning, safety data sheets, and training is located in this section. These requirements are federally driven and consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS), Revision 3.
- Changed information on signs to be consistent with OSHA and to allow employers to be compliant with new and old signs until June 1, 2016.
- Changed information on labels to be consistent with OSHA and to allow employers to be compliant with new and old labels until June 1, 2015.
- Changed reference in subsection (4)(c)(viii) from "296-800-170" to "296-901-140."
- Changed numbering.

WAC 296-62-07460 Butadiene.
- Changed the title to read "1,3-Butadiene."
- Moved the definition of "director" so it was in alphabetical order.
- Added OSHA identical language requirements relating to hazard communication. This language provides employees information about the hazardous chemicals to which they are exposed, by means of a hazard communication program, labels, other forms of warning, safety data sheets, and training is located in this section. These requirements are federally driven and consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS), Revision 3.
- Removed "to employees" from title of subsection (12).
- Added the word "general" to subsection (12)(a).
- Changed reference from WAC 296-800-170 to 296-901-140 in subsection (12)(b)(i).
- Removed the word "chemical" from subsection (12)(b)(i).

WAC 296-62-07470 Methylene chloride.
- Added "hazard communication – general" to the title of subsection (11)(a).
- Added OSHA identical language requirements relating to hazard communication. This language provides employees information about the hazardous chemicals to which they are exposed, by means of a hazard communication program, labels, other forms of warning, safety data sheets, and training is located in this section. These requirements are federally driven and consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS), Revision 3.
- Changed the note to Table 1 to read "Note to subsection (4)(c)" instead of (3)(c).
- Removed the word "chemical" from subsections (12)(c), (d) and (g).
- Changed reference from WAC 296-800-170 to 296-901-140 in subsections (12)(c), (d) and (g).

WAC 296-62-07473 Appendix A.
- Removed the letter "M" from "MSDS" in subsection (IX)(E).
- Removed the word "material" from subsection (IX)(E).
- Added language: "These materials, mixtures or solutions would be classified and labeled in accordance with WAC 296-901-140" in subsection (IX)(E).

WAC 296-62-07521 Lead.
- In subsection (8)(b)(vii), changed the word "assure" to "ensure."
- In subsection (14), added OSHA identical language requirements relating to hazard communication. This language provides employees information about the hazardous chemicals to which they are exposed, by means of a hazard communication program, labels, other forms of warning, safety data sheets, and training is located in this section. These requirements are federally driven and consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS), Revision 3.
- Changed information on labels to be consistent with OSHA and to allow employers to be compliant with new and old labels until June 1, 2015.
- Changed information on signs to be consistent with OSHA and to allow employers to be compliant with new and old signs until June 1, 2016.
- Changed numbering from (viii) to (ix) in subsection (8)(b).
- Changed the word "assure" to "ensure" in subsection (14)(b)(iii).

WAC 296-62-07540 Formaldehyde.
- Removed the "M" from "MSDSs" and it is now "SDSs" in subsection (13)(b).
- Changed reference from chapter 296-839 WAC to WAC 296-901-140 in subsection (13)(b).
- Changed reference from WAC 296-800-170 to 296-901-140 in subsections (13)(c)(i), (iii), (d)(i), and (e).
- Removed the word "material" from subsections (13)(c)(ii), (d)(i), (ii), (e), and (14)(c)(i).

WAC 296-62-07544 Appendix B—Sampling strategy and analytical methods for formaldehyde.
- Removed the words "MSDS" and put in "SDS" in subsections (6)(b) and (c).

WAC 296-62-07601 Scope and application.
- Changed a reference from WAC 296-800-170 to 296-901-140 in subsection (4).

WAC 296-62-07621 Communication of hazards to employees.
- Changed the title to "Communication of hazards."

- Added OSHA identical language requirements relating [to] chemical manufacturers, importers, and employers on providing employees information about the hazardous chemicals to which they are exposed, by means of a hazard communication program, labels, other forms of warning, safety data sheets, and training is located in this section. These requirements are federally driven and consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS), Revision 3.
- Changed information on signs to be consistent with OSHA and to allow employers to be compliant with new and old signs until June 1, 2016.
- Changed information on labels to be consistent with OSHA and to allow employers to be compliant with new and old labels until June 1, 2015.
- Changed a reference from WAC 296-800-170 to 296-901-14016 in subsection (4)(a).
- Changed reference from WAC 296-800-170 to 296-901-140 in subsection (4)(b).
- Changed numbering.

WAC 296-62-07717 Protective work clothing and equipment.
- Added language "The employer shall ensure that" to subsections (2)(d) and (3)(f).
- Removed the word "shall" from subsection (2)(d).
- Removed the words "shall be" and replaced them with "is" in subsection (3)(f).

WAC 296-62-07721 Communication of hazards to employees.
- Changed the title to read "communication of hazards."
- Removed language "general industry requirements" from subsection (1).
- Added OSHA identical language requirements relating to hazard communication. This language provides employees information about the hazardous chemicals to which they are exposed, by means of a hazard communication program, labels, other forms of warning, safety data sheets, and training is located in this section. These requirements are federally driven and consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS), Revision 3.
- Changed information on signs to be consistent with OSHA and to allow employers to be compliant with new and old signs until June 1, 2016.
- Changed information on labels to be consistent with OSHA and to allow employers to be compliant with new and old labels until June 1, 2015.
- Added "to be established by WAC 296-62-07711" to subsection (4)(a).
- Added the phrase "and for safety data sheets" to subsection (6).
- Removed the word "material" from subsection (7).
- Changed numbering.

WAC 296-62-08017 Protective work clothing and equipment.
- Added the words "The employer shall ensure that" in subsection (2)(d).
- Changed a reference from "WAC 296-800-170, Employer chemical hazard communication" to "the Hazard communication standard, WAC 296-901-140" to subsection (2)(d).

WAC 296-62-08021 Housekeeping.
- Changed reference from "WAC 296-800-170 Employer chemical hazard communication" to "WAC 296-901-140, Hazard communication" in subsection (3)(b).

WAC 296-62-08025 Communication of chromium (VI) hazards to employees.
- Changed the title to read "communication of chromium (VI) hazards.
- Added OSHA identical language requirements relating [to] chemical manufacturers, importers, and employers on providing employees information about the hazardous chemicals to which they are exposed, by means of a hazard communication program, labels, other forms of warning, safety data sheets, and training is located in this section. These requirements are federally driven and consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS), Revision 3.
- Changed a reference from WAC 296-800-170 to 296-901-140.

WAC 296-62-14533 Cotton dust.
- Added the words "of this section" into subsections (1)(c) and (13)(e).
- Added the word "subsection" into subsection (5)(c)(iii).
- Added the following language to subsection (10)(b) "Prior to June 1, 2016, employers may use the following legend in lieu of that specified in (10)(a) of this subsection:"

WAC 296-62-20021 Precautionary signs and labels.
- Changed the title to "Communication of hazards."
- Changed information on signs to be consistent with OSHA and to allow employers to be compliant with new and old signs until June 1, 2016.
- Changed information on labels to be consistent with OSHA and to allow employers to be compliant with new and old labels until June 1, 2015.
- Deleted an old compliance date of January 20, 1978, in subsection (2)(b).

WAC 296-62-50035 Safe handling practices.
- Changed a reference from WAC 296-800-170 to 296-901-140.

Chapter 296-63 WAC, Right to know fee assessment:

WAC 296-63-009 Exemption requests.
- Changed a reference from WAC 296-800-170 to 296-901-140 in subsection (3)(d).

Chapter 296-67 WAC, Safety standards for process safety management of highly hazardous chemicals:

WAC 296-67-001 Process safety management of highly hazardous chemicals.
- Changed reference from WAC 296-800-170 to 296-901-14006 in subsection (2)(a)(ii).

- Added the words "or a flammable liquid with a flashpoint below 100°F (37.8°C)" in subsection (2)(a)(ii).
- Added "Category 1" to subsection (2)(a)(ii).
- Removed "liquid or" from subsection (2)(a)(ii).
- Added "with a flashpoint below 100°F (37.8°C)" to subsection (2)(a)(ii)(B).

WAC 296-67-005 Definitions.
- Changed the reference in the definition of trade secret from "Chapter 296-62 WAC, Part B-1" to "See WAC 296-901-14030, Appendix E—Definition of "trade secret."

WAC 296-67-291 Appendix C—Compliance guidelines and recommendations for process safety management (nonmandatory).
- Removed the phrase "material safety data sheets" and put in "safety data sheets" in subsection (3).
- Removed the words "MSDS" and put in "SDS" in subsections (3) and (6).
- Changed a reference from WAC 296-800-170 to 296-901-140 in subsection (6).
- Removed the words "chemical" and "program standard" from subsection (6).

Chapter 296-78 WAC, Safety standards for sawmills and woodworking operations:

WAC 296-78-515 Management's responsibility.
- Changed a reference from WAC 296-800-170 to 296-901-140 in subsection (2).
- Removed the word "chemical" in subsection (2).

WAC 296-78-71015 Tanks and chemicals
- Removed the words "or combustible" in subsection (5)(b).
- Removed the words "and/or combustible" in subsection (5)(c).

Chapter 296-115 WAC, Safety requirements for charter boats:

WAC 296-115-050 General requirements.
- Removed the words "or combustible" in subsection (4)(c).

WAC 296-115-060 Operations.
- Removed the words "or combustible" in subsection (3)(f).

Chapter 296-155 WAC, Safety standards for construction work:

WAC 296-155-17323 Communication of hazards to employees.
- Changed the title to "Communication of hazards."
- Added "Signs and labels" to subsection (2) and "signs" to subsection (2)(a).
- Added OSHA identical language requirements relating [to] chemical manufacturers, importers, and employers on providing employees information about the hazardous chemicals to which they are exposed, by means of a hazard communication program, labels, other forms of warning, safety data sheets, and training is located in this section. These requirements are federally driven and consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS), Revision 3.
- Changed information on signs to be consistent with OSHA and to allow employers to be compliant with new and old signs until June 1, 2016.
- Changed information on labels to be consistent with OSHA and to allow employers to be compliant with new and old labels until June 1, 2015.
- Removed the words "MSDS" and put in "SDS" in subsection (3).
- Changed reference from WAC 296-800-170 to 296-901-14016 in subsection (4)(a).
- Changed reference from WAC 296-800-170 to 296-901-140 in subsection (4)(b).
- Changed numbering of subsections.

WAC 296-155-174 Cadmium.
- Removed the phrase "material safety data sheets" and put in "safety data sheets" in subsection (4)(a)(i).
- Changed information on signs to allow employers to be compliant with new and old signs until June 1, 2016.
- Changed information on labels to be consistent with OSHA and to allow employers to be compliant with new and old labels until June 1, 2015.
- Removed the words "MSDS" and put in "SDS."
- Changed reference from WAC 296-800-170 to 296-901-140 in subsection (13)(e).
- Changed reference from "(13)(b)" to "(13)(c)(ii)" in subsection (11)(g).

WAC 296-155-17609 Exposure assessment.
- Changed a reference from WAC 296-800-170 to 296-901-140 in subsection (2)(e)(vi).
- Removed the word "chemical" from subsection (2)(e)(vi).

WAC 296-155-17615 Protective work clothing and equipment.
- Removed the word "assure" and replaced it with "ensure" in subsection (2)(g).
- Changed information on labels to be consistent with OSHA and to allow employers to be compliant with new and old labels until June 1, 2015.
- Changed numbering.

WAC 296-155-17625 Employee information and training.
- Changed the title to "Communication of hazards."
- Changed reference from WAC 296-800-170 to 296-901-140 in subsection (1)(a).
- Added language concerning hazards to be addressed.

WAC 296-155-17627 Signs.
- Removed the word "assure" and replaced it with "ensure" in subsection (1)(c).
- Changed information on signs to be consistent with OSHA and to allow employers to be compliant with new and old signs until June 1, 2016.

WAC 296-155-17652 Appendix B to WAC 296-155-176 Employee standard summary.
- Changed information on signs to be consistent with OSHA and to allow employers to be compliant with new and old signs until June 1, 2016.

WAC 296-155-180 Hazard communication.
- Changed reference from WAC 296-800-170 to 296-901-140.
- Removed the word "chemical."

WAC 296-155-20301 Definitions.
- Changed reference from WAC 296-800-170 to 296-901-140 in the note after subsection (5) in the definition of hazardous atmosphere.
- Removed the words "chemical" and "material" in the note after subsection (5) in the definition of hazardous atmosphere.

WAC 296-155-250 Definitions applicable to this part.
- Deleted the definition for combustible liquid.
- Removed language from the flammable liquid definition to match OSHA.
- Changed the definition of flashpoint to match OSHA.
- Changed numbering.

WAC 296-155-260 Fire protection.
- Removed the phrase "or combustible" from subsection (3)(e).

WAC 296-155-265 Fire prevention.
- Removed the phrase "or combustible" from subsection (2)(c).

WAC 296-155-270 Flammable and combustible liquids.
- Changed the title to read "Flammable liquids."
- Removed the phrase "and combustible" from subsections (1)(a), (c), (2)(b), and (d)(viii).
- Removed the phrase "or combustible" from subsections (1)(b), (c), (2)(a), (d)(iii), (3)(c), (4)(a), (d), (5)(a), (c), (6)(b), (7)(a) and (h).
- Removed "fire away" in subsection (2)(b)(iii) and replaced it with "away from open flames."
- In subsection (2)(c) added the words "category 1, 2, or 3" and "category 4 flammable."
- Removed the word "combustible" in subsection (2)(c).
- In subsections (2)(d)(vi), (5)(b), (6)(a), (c), and (7)(g)(i) and (ii) added the words "category 1, 2, or 3."

Chapter 296-304 WAC, Safety standards for ship repairing, shipbuilding and shipbreaking:

WAC 296-304-01001 Definitions.
- Changed the definition of flammable liquid to be consistent with OSHA.

WAC 296-304-01009 Precautions for hot work.
- Changed a reference from WAC 296-800-170 to 296-901-140 in subsection (2)(a).
- Removed the words "employer chemical" and "introduction" from subsection (2)(a).

WAC 296-304-06013 Hazardous materials.
- Changed a reference from WAC 296-800-170 to 296-901-140 in subsection (9).
- Removed the words "chemical hazard" and "program" from subsection (9).
- Changed the address for OSHA to reflect their current location in subsection (3)(b).
- Removed the "M" from "MSDS" and it is now "SDS" in subsection (3)(b).

WAC 296-304-06017 Retention of DOT markings, placards, and labels.
- Changed a reference from chapter 296-839 WAC to WAC 296-901-14012 in subsection (4).
- Removed "Content and distribution of material safety data sheets (MSDSs) and label information" and replaced it with "Labels and other forms of warning and WAC 296-901-14014, Safety data sheets" in subsection (4).

Chapter 296-800 WAC, Safety and health core rules:

WAC 296-800-15030 Make sure emergency washing facilities are functional and readily accessible.
- Changed a reference in the reference section from WAC 296-800-170 to 296-901-140 in the reference at the end of the rule.
- Removed the words "employer chemical" from the reference at the end of the rule.
- Removed the word "material" in the note of the introduction.
- Removed the "M" from "MSDS" and it is now "SDS" in the note in the introduction.

WAC 296-800-16055 Make sure your employees use appropriate head protection.
- Removed "class 1" and replaced it with "category 1 or 2" in subsection (3).
- Added the following language to subsection (3) "category 3 flammable liquids with a flashpoint below 100°F (37.8°C), or …"

WAC 296-800-370 Definitions.
- Deleted the definition for combustible liquid.
- Changed the reference [from] WAC 296-800-170 to 296-901-140 in the following definitions: Commercial account, common name, container, employee exposure record, exposure or exposed, foreseeable emergency, hazard warning, identity, material safety data sheet, produce, purchaser, unstable (reactive), use, water-reactive, work area, and workplace.
- Removed the words "employer chemical" from the following definitions: Commercial account, common name, container, exposure or exposed, foreseeable emergency, hazard warning, identity, mixture, produce, purchaser, unstable (reactive), use, water-reactive, work area, and workplace.
- Removed the word "material" from the definitions for employee exposure record, exposure or exposed, harmful physical agent, identity, material safety data sheet, and toxic substance.
- Removed the words "MSDS" and put in "SDS" in the definitions for employee exposure record, identity, and material safety data sheet.

- In the definition for trade secret, changed the reference from "WAC 296-62-053" to "WAC 296-901-14018."
- Changed the definition of flammable to be consistent with OSHA.
- Added language to the definition of flashpoint to be consistent with OSHA.
- Added language to the definition for physical to be consistent with OSHA.
- Deleted the definition of material safety data sheet and replaced it with safety data sheet.

Chapter 296-802 WAC, Employee medical and exposure records:

WAC 296-802-100 Scope.
- Changed a reference in the reference section from "WAC 296-800-180, Material safety data sheets (MSDSs) as exposure records" to "WAC 296-901-14014, Safety data sheets."
- Removed the word "material" from the reference section.

WAC 296-802-40015 Provide employee exposure records.
- Changed a reference in the note from "chapter 296-816 WAC, Protecting trade secrets" to "WAC 296-901-14018, Trade secrets."

WAC 296-802-900 Definitions.
- In the definition of "employee exposure record," removed the word "material."
- In the definition of "harmful physical agent," removed the word "material."
- In the definition of "toxic substance" removed the word "material."

Chapter 296-809 WAC, Confined spaces:

WAC 296-809-800 Definitions.
- Changed a reference in the hazardous atmosphere definition from "WAC 296-800-170, Employer chemical hazard communication" to "WAC 296-901-14014, Safety data sheets."
- Removed the word "material" from the definition of hazardous atmosphere.

Chapter 296-811 WAC, Fire brigades:

WAC 296-811-600 Definitions.
- Removed the phrase "or combustible" from the table in the definition for fire classifications.

Chapter 296-824 WAC, Emergency response:

WAC 296-824-70005 Follow the appropriate postemergency response requirements.
- Changed a reference in Table 10 from "WAC 296-800-170, Employer chemical hazard communication" to "WAC 296-901-140, Hazard communication."

WAC 296-824-800 Definitions.
- Changed the definition of health hazard to reflect OSHAs new definition.
- Removed the phrase "material safety data sheets" and replaced it with "safety data sheets."

Chapter 296-828 WAC, Hazardous chemicals in laboratories:

WAC 296-828-100 Scope.
- Changed a reference in Table 1.

WAC 296-828-200 Using hazardous chemicals in laboratories.
- Removed the phrase "material safety data sheets" and put in "safety data sheets."
- Removed the words "MSDS" and put in "SDS."

WAC 296-828-20015 Training.
- Removed the phrase "material safety data sheets" and put in "safety data sheets".
- Removed the words "MSDS" and put in "SDS."

WAC 296-828-20020 Labeling and material safety data sheets (MSDSs).
- Changed the title to read "Labeling and safety data sheets (SDSs)."
- Removed the words "MSDS" and put in "SDS."

WAC 296-828-20025 Chemicals produced in laboratories.
- Changed a reference in Table 3 from "chapter 296-839 WAC, MSDS and label preparation" to "WAC 296-901-14014, Safety data sheets and WAC 296-901-14012, Labels and other forms of warning."

WAC 296-828-300 Definitions.
- Changed the definition of hazardous chemical, physical hazard, reproductive toxin, and safety data sheet (SDS) to reflect OSHA changes.
- Added a definition for health hazard and mutagen.

Chapter 296-835 WAC, Dipping and coating operations (dip tanks):

WAC 296-835-11015 Take additional precautions if you recirculate ventilation system exhaust air into the workplace.
- Added "This section applies if exhaust air from dipping or coating operations that use flammable liquids, or liquids with flashpoints greater than 199.4°F (93°C) is recirculated back into the work environment."
- Added language that reads "… system that recirculates air into the workplace."
- Removed the words "or combustible" and added in "or liquids with flashpoints greater than 199.4°F (93°C)."

WAC 296-835-120 Additional requirements for dip tanks using flammable or combustible liquids.
- Changed the title to read "Additional requirements for dip tanks using flammable liquids or liquids with flashpoints greater than 199.4°C[F] (93°C). Summary."
- Removed the words "or combustible" and added in "or liquids with flashpoints greater than 199.4°F (93°C)."

WAC 296-835-12020 Provide fire protection in the vapor area.
- Removed the words "and combustible" and added in "… and liquids with flashpoints greater than 199.4°F (93°C)."

WAC 296-835-13005 Meet specific requirements if you use a hardening or tempering tank.

- Removed the words "or combustible" and added in "or liquids with flashpoints greater than 199.4°F (93°C)" in subsection (1).

WAC 296-835-140 Definitions.

- Removed the definition for combustible liquid.
- Changed the definition for flammable liquid to meet new requirements for OSHA.
- Changed the definition for flashpoint to meet new requirements for OSHA.

Chapter 296-841 WAC, Airborne contaminants:

WAC 296-841-100 Scope.

- Removed the phrase "material safety data sheets" and put in "safety data sheets."
- Removed the words "MSDS" and put in "SDS."

WAC 296-841-20003 Employee protective measures.

- Removed the phrase "material safety data sheets" and put in "safety data sheets."
- Removed the words "MSDS" and put in "SDS."

WAC 296-841-20005 Exposure evaluations.

- Removed the phrase "material safety data sheets" and put in "safety data sheets" in subsection (4).
- Removed the words "MSDS" and put in "SDS" in subsection (4).

WAC 296-841-300 Definitions.

- Removed the word "material" in the definition of toxic substance.

Chapter 296-842 WAC, Respirators:

WAC 296-842-12005 Develop and maintain a written program.

- Changed the reference in Table 3 from WAC 296-800-170 to 296-901-140.

Chapter 296-843 WAC, Hazardous waste operations:

WAC 296-843-17005 Control employee exposure to site health and safety hazards.

- Removed the phrase "material safety data sheets" and put in "safety data sheets."
- Removed the words "MSDS" and put in "SDS."
- Changed the reference in the note section from WAC 296-800-180 to 296-901-14014.

WAC 296-843-20020 Training for postemergency response.

- Changed the reference in the reference section from WAC 296-800-170 to 296-901-140.

WAC 296-843-300 Definitions.

- Changed the definition for health hazard to meet OSHA requirements.
- Changed the definition for safety data sheets to meet OSHA requirements and be consistent with WAC 296-901-14014.

Chapter 296-848 WAC, Arsenic:

WAC 296-848-20010 Preventive practices.

- Changed information on labels to be consistent with OSHA and to allow employers to be compliant with new and old labels until June 1, 2015.
- Changed a reference in the reference section to "WAC 296-901-140, Hazard communication."

WAC 296-848-300 Training, exposure monitoring, and medical monitoring.

- Added in the number and title of the new section under the important statement.

WAC 296-848-30005 Training.

- Changed a reference in the reference section to "WAC 296-901-140, Hazard communication."

WAC 296-848-40025 Exposure control areas.

- Changed information on signs to be consistent with OSHA and to allow employers to be compliant with new and old signs until June 1, 2016.

WAC 296-848-40040 Personal protective equipment (PPE).

- Changed information on labels to be consistent with OSHA and to allow employers to be compliant with new and old labels until June 1, 2015.

WAC 296-848-500 Definitions.

- Removed the phrase "material safety data sheets" and put in "safety data sheets" in the definition for CAS (chemical abstract service) number.
- Removed the words "MSDS" and put in "SDS" in the definition for CAS number.

Chapter 296-849 WAC, Benzene:

WAC 296-849-100 Scope.

- Changed the reference in Table 1 from WAC 296-800-17030 to 296-901-14016.

WAC 296-849-110 Basic rules.

- Changed the wording for the title to WAC 296-849-11010 to Communication of hazards.

WAC 296-849-11010 Preventive practices.

- Changed the title to "Communication of hazards."
- Added OSHA identical language requirements relating [to] chemical manufacturers, importers, and employers on providing employees information about the hazardous chemicals to which they are exposed, by means of a hazard communication program, labels, other forms of warning, safety data sheets, and training is located in this section. These requirements are federally driven and consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS), Revision 3.
- Changed information on labels to be consistent with OSHA and to allow employers to be compliant with new and old labels until June 1, 2015.
- Changed the reference in the reference section from chapter 296-800 WAC and WAC 296-800-17025 to 296-901-14012 and 296-901-14014.

WAC 296-849-11020 Exposure control areas.
- Deleted the signage wording and put in a reference to WAC 296-849-11010.

WAC 296-849-11050 Training.
- Changed references from chapter 296-800 WAC and WAC 296-800-17025 to 296-901-14012 and 296-901-14014.
- Changed the reference in the reference section from chapter 296-800 WAC and WAC 296-800-17030 to 296-901-14016.

WAC 296-849-190 Definitions.
- Removed the phrase "material safety data sheets (MSDS)" and put in the phrase "safety data sheets (SDS)" in the definition of benzene.

Chapter 296-855 WAC, Ethylene oxide:

WAC 296-855-20010 Preventive practices.
- Changed information on labels to be consistent with OSHA to allow employers to be compliant with new and old labels until June 1, 2015.

WAC 296-855-20020 Exposure control areas.
- Changed information on signs to be consistent with OSHA and to allow employers to be compliant with new and old signs until June 1, 2016.

WAC 296-855-20090 Training.
- Changed reference from WAC 296-800-170 to 296-901-140.

WAC 296-855-500 Definitions.
- Removed the phrase "material safety data sheets" and put in "safety data sheets."
- Removed the words "MSDS" and put in "SDS."

Chapter 296-856 WAC, Formaldehyde:

WAC 296-856-20010 Preventive practices.
- Removed the phrase "material safety data sheets" and put in "safety data sheets."
- Removed the words "MSDS" and put in "SDS."
- Added reference to chapter 296-901 WAC.
- Changed references from WAC 296-800-170 and chapter 296-839 WAC to WAC 296-901-140, 296-901-14022 and 296-901-14024.

WAC 296-856-20020 Training.
- Removed the words "MSDS" and put in "SDS."

WAC 296-856-20030 Personal protective equipment (PPE).
- Removed the words "MSDS" and put in "SDS."
- Changed information on labels to be consistent with OSHA and to allow employers to be compliant with new and old labels until June 1, 2015.
- Changed information on signs to be consistent with OSHA and to allow employers to be compliant with new and old signs until June 1, 2016.

WAC 296-856-40020 Establishing exposure control areas.
- Changed information on signs to be consistent with OSHA and to allow employers to be compliant with new and old signs until June 1, 2016.

WAC 296-856-500 Definitions.
- Removed the words "MSDS" and put in "SDS."
- Removed the phrase "material safety data sheets" and put in "safety data sheets."

Chapter 296-863 WAC, Forklifts and other powered industrial trucks:

WAC 296-863-700 Definitions.
- Corrected the spelling of "ignitable" in the definition of classified location or hazardous location.
- Changed the definition of flammable liquid and flash-point to reflect OSHA's new definition.
- Moved the definition of "listed by report" so it is now in alphabetical order.

Chapter 296-901 WAC, Globally harmonized system for hazard communication:

WAC 296-901-14006 Definitions.
- Removed the word "must" and replaced it with "should" in the definition of hazard category and precautionary statement.
- Corrected the reference in the definition of physical hazard to read WAC 296-901-14024.

WAC 296-901-14008 Hazard classification.
- Removed subsections (4) through (6) to be as-effective-as OSHA.

WAC 296-901-14014 Safety data sheets.
- Removed the word "must" and replaced it with "should" in the note under subsection (11).

WAC 296-901-14022 Appendix A—Health hazard criteria (mandatory).
- In A.0.5.1.5, added subsection (a)(ii) C + B.
- Changed the symbol "≥" to "≤" in Table A.1.1 and Table A.8.2.
- Corrected the spelling of "fulfill" in A.2.2.2.2.
- Changed the symbol ">" to "≥" in A.2.4.3.1 and A.3.4.3.1.

WAC 296-901-14024 Appendix B—Physical hazard criteria (mandatory).
- Changed "≥" to "≤" in Table B.3.1.
- Deleted a "-" that was inadvertently put into Table B.7.1.

WAC 296-901-14026 Appendix C—Allocation of label elements (mandatory).
- Added in illustration C.4.28 Organic Peroxides (continued) as it was inadvertently left out.
- Changed the references from OSHA to DOSH numbering in the footnotes.

WAC 296-901-14028 Appendix D—Safety data sheets (mandatory).
- Changed "=" to "≥" in Table D-1 (2)(d).

WAC 296-901-14032 Appendix F—Guidance for hazard classifications regarding carcinogenicity (nonmandatory).
- In Part A and Part D, changed "a2u globulin" to "α2u-globulin."

New Sections:

Chapter 296-848 WAC, Arsenic:

WAC 296-848-30007 Communication of hazards.

- Requirements relating [to] chemical manufacturers, importers, and employers on providing employees information about the hazardous chemicals to which they are exposed, by means of a hazard communication program, labels, other forms of warning, safety data sheets, and training is located in this section. These requirements are federally driven and consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS), Revision 3.

Chapter 296-855 WAC, Ethylene oxide:

WAC 296-855-420 Communication of hazards.

- Requirements relating [to] chemical manufacturers, importers, and employers on providing employees information about the hazardous chemicals to which they are exposed, by means of a hazard communication program, labels, other forms of warning, safety data sheets, and training is located in this section. These requirements are federally driven and consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS), Revision 3.

Chapter 296-856 WAC, Formaldehyde:

WAC 296-856-420 Communication of hazards.

- No requirements in this section.

WAC 296-856-42010 Hazard communication—General.

Section contents: Hazard communication—General.

- Chemical manufacturers, importer, distributors and employers must comply with all requirements of hazard communication, WAC 296-901-140.
- In classifying the hazards of formaldehyde at least the following hazards are to be addressed: Cancer; skin and respiratory sensitization; eye, skin and respiratory tract irritation; acute toxicity effects; and flammability.
- Employers shall include formaldehyde in the hazard communication program established to comply with the HCS, WAC 296-901-140. Employers shall ensure that each employee has access to labels on containers of formaldehyde and to safety data sheets, and is trained in accordance with the requirements of HCS and WAC 296-856-20020. The above information in this section applies to chemicals associated with formaldehyde gas, all mixtures or solutions composed of greater than 0.1 percent formaldehyde, and materials capable of releasing formaldehyde into the air at concentrations reaching or exceeding 0.1 ppm.
- In making the determinations of anticipated levels of formaldehyde release, the employer may rely on objective data indicating the extent of potential formaldehyde release under reasonably foreseeable conditions of use.

Citation of Existing Rules Affected by this Order: See Purpose above.

Statutory Authority for Adoption: RCW 49.17.010, 49.17.040, 49.17.050, and 49.17.060.

Other Authority: 29 C.F.R. 1910 Subpart Z.

Adopted under notice filed as WSR 13-22-063 on November 4, 2013.

Changes Other than Editing from Proposed to Adopted Version: The following sections are being changed as indicated below:

CHANGES TO THE RULES (Proposed rule versus rule actually adopted):

WAC 296-62-07373 Communication of EtO hazards.

- In subsection (13)(a) updated the references and deleted the word "chemical." It now reads, "(13) Hazard communication."

WAC 296-62-07425 Communication of cadmium hazards to employees.

- In subsection (6)(c)(viii) updated a reference from WAC 296-800-170 to 296-901-140.

WAC 296-62-07540 Formaldehyde.

- In subsection (13)(a) updated the references and deleted the word "chemical." It now reads, "(13) Hazard communication.

  (a) General. Notwithstanding any exemption granted in WAC 296-901-140 for wood products, each employer who has a workplace covered by this standard shall comply with the requirements of WAC 296-901-140. The definitions of the hazard communication standard shall apply under this standard."

WAC 296-800-370 Definitions.

- Updated a reference in the definition of "responsible party," it now reads, "As used in Hazard communication, WAC 296-901-140. Someone who can provide appropriate information about the hazardous chemical and emergency procedures."

WAC 296-901-14014 Safety data sheets.

- In subsection (8) deleted the word "material." It now reads, "Where employees must travel between workplaces during a work-shift, i.e., their work is carried out at more than one geographical location, the safety data sheets may be kept at the primary workplace facility. In this situation, the employer must ensure that employees can immediately obtain the required information in an emergency."
- In subsection (11) deleted the word "chemical" in three places and the word "material." It now reads, "The department of labor and industries will translate certain hazard communication documents upon receipt of written or verbal request (within available resources) to employers or the public, a translation into Cambodian, Chinese, Korean, Spanish, or Vietnamese of any of the following:
  - An employer's written hazard communication;
  - A safety data sheet; or
  - Written materials prepared by the department to inform employees of their rights described in this rule, regarding hazard communications.

WAC 296-901-14024 Appendix B—Physical hazard criteria.

- Added an ending parenthesis in the note after the definition of "oxidizing gas."

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 4, Amended 133, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 4, Amended 133, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 4, Amended 133, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

Date Adopted: March 18, 2014.

Joel Sacks
Director

PART E
HAZARDOUS MATERIALS, FLAMMABLE ((~~AND COMBUSTIBLE~~)) LIQUIDS, SPRAY FINISHING

Hazardous Materials

AMENDATORY SECTION (Amending WSR 91-24-017, filed 11/22/91, effective 12/24/91)

WAC 296-24-32003 Bulk oxygen systems. (1) Definitions. As used in this section: A bulk oxygen system is an assembly of equipment, such as oxygen storage containers, pressure regulators, safety devices, vaporizers, manifolds, and interconnecting piping, which has storage capacity of more than 13,000 cubic feet of oxygen, normal temperature and pressure (NTP), connected in service or ready for service, or more than 25,000 cubic feet of oxygen (NTP) including unconnected reserves on hand at the site. The bulk oxygen system terminates at the point where oxygen at service pressure first enters the supply line. The oxygen containers may be stationary or movable, and the oxygen may be stored as gas or liquid.

(2) Location.

(a) General. Bulk oxygen storage systems shall be located above ground out of doors, or shall be installed in a building of noncombustible construction, adequately vented, and used for that purpose exclusively. The location selected shall be such that containers and associated equipment shall not be exposed by electric power lines, flammable ((~~or combustible~~)) liquid ((~~lines,~~)) or ((~~flammable~~)) gas lines.

(b) Accessibility. The system shall be located so that it is readily accessible to mobile supply equipment at ground level and to authorized personnel.

(c) Leakage. Where oxygen is stored as a liquid, noncombustible surfacing shall be provided in an area in which any leakage of liquid oxygen might fall during operation of the system and filling of a storage container. For purposes of these standards, asphaltic or bituminous paving is considered to be combustible.

(d) Elevation. When locating bulk oxygen systems near above ground flammable ((~~or combustible~~)) liquid storage which may be either indoors or outdoors, it is advisable to locate the system on ground higher than the flammable ((~~or combustible~~)) liquid storage.

(e) Dikes. Where it is necessary to locate a bulk oxygen system on ground lower than adjacent flammable ((~~or combustible~~)) liquid storage suitable means shall be taken (such as by diking, diversion curbs, or grading) with respect to the adjacent flammable ((~~or combustible~~)) liquid storage to prevent accumulation of liquids under the bulk oxygen system.

(3) Distance between systems and exposures.

(a) General. The minimum distance from any bulk oxygen storage container to exposures, measured in the most direct line except as indicated in (((~~(3)~~)))(f) and (g) of this ((~~section~~)) subsection shall be as indicated in (((~~(3)(b) to~~)) (b) through (r) of this ((~~section~~)) subsection inclusive.

(b) Combustible structures. Fifty feet from any combustible structures.

(c) Fire resistive structures. Twenty-five feet from any structures with fire-resistive exterior walls or sprinklered buildings or other construction, but not less than one-half the height of adjacent side wall of the structure.

(d) Openings. At least ((~~10~~)) ten feet from any opening in adjacent walls of fire resistive structures. Spacing from such structures shall be adequate to permit maintenance, but shall not be less than ((~~1~~)) one foot.

(e) Flammable liquid storage above ground.

Distance (feet)		Capacity (gallons)
50	_____	0-1000
90	_____	1001 or more

(f) Flammable liquid storage below ground.

Distance measured horizontally from oxygen storage container to flammable liquid tank (feet)		Distance from oxygen storage container to filling and vent connections or openings to flammable liquid tank (feet)		Capacity gallons
15	_____	50	_____	0-1000
30	_____	50	_____	1001 or more

(g) ((~~Combustible~~)) Flammable liquid storage above ground.

Distance (feet)		Capacity (gallons)
25	_____	0-1000
50	_____	1001 or more

(h) ((~~Combustible~~)) Flammable liquid storage below ground.

Distance measured horizontally from oxygen storage container to ((~~combustible~~)) flammable liquid tank (feet)	Distance from oxygen storage container to filling and vent connections or openings to ((~~combustible~~)) flammable liquid tank (feet)
15	40

(i) Flammable gas storage. (Such as compressed flammable gases, liquefied flammable gases and flammable gases in low pressure gas holders):

Distance (feet)	Capacity (cu. ft. NTP)
50	Less than 5000
90	5000 or more

(j) Highly combustible materials. Fifty feet from solid materials which burn rapidly, such as excelsior or paper.

(k) Slow-burning materials. Twenty-five feet from solid materials which burn slowly, such as coal and heavy timber.

(l) Ventilation. Seventy-five feet in one direction and ((~~35~~)) thirty-five feet in approximately 90° direction from confining walls (not including firewalls less than ((~~20~~)) twenty feet high) to provide adequate ventilation in courtyards and similar confining areas.

(m) Congested areas. Twenty-five feet from congested areas such as offices, lunchrooms, locker rooms, time clock areas, and similar locations where people may congregate.

(n) Public areas. Fifty feet from places of public assembly.

(o) Patients. Fifty feet from areas occupied by nonambulatory patients.

(p) Sidewalks. Ten feet from any public sidewalk.

(q) Adjacent property. Five feet from any line of adjoining property.

(r) Exceptions. The distances in ((~~(3)~~))(b), (c), (e) ((~~to~~)) through (k) inclusive, and (p) and (q) of this ((~~section~~)) subsection do not apply where protective structures such as firewalls of adequate height to safeguard the oxygen storage systems are located between the bulk oxygen storage installation and the exposure. In such cases, the bulk oxygen storage installation may be a minimum distance of ((~~1~~)) one foot from the firewall.

(4) Storage containers.

(a) Foundations and supports. Permanently installed containers shall be provided with substantial noncombustible supports on firm noncombustible foundations.

(b) Construction—Liquid. Liquid oxygen storage containers shall be fabricated from materials meeting the impact test requirements of paragraph UG-84 of ASME Boiler and Pressure Vessel Code, Section VIII—Unfired Pressure Vessels—1968. Containers operating at pressures above ((~~15~~)) fifteen pounds per square inch gage (p.s.i.g.) shall be designed, constructed, and tested in accordance with appropriate requirements of ASME Boiler and Pressure Vessel Code, Section VII—Unfired Pressure Vessels—1968. Insulation surrounding the liquid oxygen container shall be noncombustible.

(c) Construction—Gaseous. High-pressure gaseous oxygen containers shall comply with one of the following:

(i) Designed, constructed, and tested in accordance with appropriate requirements of ASME Boiler and Pressure Vessel Code, Section VIII—Unfired Pressure Vessels—1968.

(ii) Designed, constructed, tested, and maintained in accordance with DOT specifications and regulations.

(5) Piping, tubing, and fittings.

(a) Selection. Piping, tubing, and fittings shall be suitable for oxygen service and for the pressures and temperatures involved.

(b) Specification. Piping and tubing shall conform to Section 2—Gas and Air Piping Systems of Code for Pressure Piping, ANSI, B31.1-1967 with addenda B31.10a-1969.

(c) Fabrication. Piping or tubing for operating temperatures below -20°F shall be fabricated from materials meeting the impact test requirements of paragraph UG-84 of ASME Boiler and Pressure Vessel Code, Section VIII—Unfired Pressure Vessels—1968, when tested at the minimum operating temperature to which the piping may be subjected in service.

(6) Safety relief devices.

(a) General. Bulk oxygen storage containers, regardless of design pressure shall be equipped with safety relief devices as required by the ASME code or the DOT specifications and regulations.

(b) DOT containers. Bulk oxygen storage containers designed and constructed in accordance with DOT specification shall be equipped with safety relief devices as required thereby.

(c) ASME containers. Bulk oxygen storage containers designed and constructed in accordance with the ASME Boiler and Pressure Vessel Code, Section VIII—Unfired Pressure Vessel—1968 shall be equipped with safety relief devices meeting the provisions of the Compressed Gas Association Pamphlet "Safety Relief Device Standards for Compressed Gas Storage Containers," S-1, Part 3.

(d) Insulation. Insulation casings on liquid oxygen containers shall be equipped with suitable safety relief devices.

(e) Reliability. All safety relief devices shall be so designed or located that moisture cannot collect and freeze in a manner which would interfere with proper operation of the device.

(7) Liquid oxygen vaporizers.

(a) Mounts and couplings. The vaporizer shall be anchored and its connecting piping be sufficiently flexible to provide for the effect of expansion and contraction due to temperature changes.

(b) Relief devices. The vaporizer and its piping shall be adequately protected on the oxygen and heating medium sections with safety relief devices.

(c) Heating. Heat used in an oxygen vaporizer shall be indirectly supplied only through media such as steam, air, water, or water solutions which do not react with oxygen.

(d) Grounding. If electric heaters are used to provide the primary source of heat, the vaporizing system shall be electrically grounded.

(8) Equipment assembly and installation.

(a) Cleaning. Equipment making up a bulk oxygen system shall be cleaned in order to remove oil, grease or other

readily oxidizable materials before placing the system in service.

(b) Joints. Joints in piping and tubing may be made by welding or by use of flanged, threaded, slip, or compression fittings. Gaskets or thread sealants shall be suitable for oxygen service.

(c) Accessories. Valves, gages, regulators, and other accessories shall be suitable for oxygen service.

(d) Installation. Installation of bulk oxygen systems shall be supervised by personnel familiar with proper practices with reference to their construction and use.

(e) Testing. After installation all field erected piping shall be tested and proved gas tight at maximum operating pressure. Any medium used for testing shall be oil free and nonflammable.

(f) Security. Storage containers, piping, valves, regulating equipment, and other accessories shall be protected against physical damage and against tampering.

(g) Venting. Any enclosure containing oxygen control or operating equipment shall be adequately vented.

(h) Placarding. The bulk oxygen storage location shall be permanently placarded to indicate: "OXYGEN—NO SMOKING—NO OPEN FLAMES," or an equivalent warning.

(i) Electrical wiring. Bulk oxygen installations are not hazardous locations as defined and covered by chapter 296-24 WAC Part L. Therefore, general purpose or weatherproof types of electrical wiring and equipment are acceptable depending upon whether the installation is indoors or outdoors. Such equipment shall be installed according to chapter 296-24 WAC Part L.

(9) Operating instructions. For installations which require any operation of equipment by the user, legible instructions shall be maintained at operating locations.

(10) Maintenance.

(((~~a~~))) The equipment and functioning of each charged bulk oxygen system shall be maintained in a safe operating condition in accordance with the requirements of this section. Wood and long dry grass shall be cut back within ((~~15~~)) fifteen feet of any bulk oxygen storage container.

AMENDATORY SECTION (Amending Order 73-5, filed 5/9/73)

WAC 296-24-330 Flammable ((~~and combustible~~)) liquids.

AMENDATORY SECTION (Amending WSR 88-23-054, filed 11/14/88)

WAC 296-24-33001 Definitions. The following definitions are applicable to all sections of this chapter which include WAC 296-24-330 in the section number.

(1) Aerosol shall mean a material which is dispensed from its container as a mist, spray, or foam by a propellant under pressure.

(2) Atmospheric tank shall mean a storage tank which has been designed to operate at pressures from atmospheric through 0.5 p.s.i.g.

(3) Automotive service station shall mean that portion of property where flammable ((~~or combustible~~)) liquids used as motor fuels are stored and dispensed from fixed equipment into the fuel tanks of motor vehicles and shall include any facilities available for the sale and service of tires, batteries, and accessories, and for minor automotive maintenance work. Major automotive repairs, painting, body and fender work are excluded.

(4) Basement shall mean a story of a building or structure having one-half or more of its height below ground level and to which access for firefighting purposes is unduly restricted.

(5) Boiling point shall mean the boiling point of a liquid at a pressure of 14.7 pounds per square inch absolute (p.s.i.a.) (760 mm.). Where an accurate boiling point is unavailable for the material in question, or for mixtures which do not have a constant boiling point, for purposes of this section the ten percent point of a distillation performed in accordance with the Standard Method of Test for Distillation of Petroleum Products, ASTM D-86-62, may be used as the boiling point of the liquid.

(6) Boilover shall mean the expulsion of crude oil (or certain other liquids) from a burning tank. The light fractions of the crude oil burnoff producing a heat wave in the residue, which on reaching a water strata may result in the expulsion of a portion of the contents of the tank in the form of froth.

(7) Bulk plant shall mean that portion of a property where flammable ((~~or combustible~~)) liquids are received by tank vessel, pipelines, tank car, or tank vehicle, and are stored or blended in bulk for the purpose of distributing such liquids by tank vessel, pipeline, tank car, tank vehicle, or container.

(8) Chemical plant shall mean a large integrated plant or that portion of such a plant other than a refinery or distillery where flammable ((~~or combustible~~)) liquids are produced by chemical reactions or used in chemical reactions.

(9) Closed container shall mean a container as herein defined, so sealed by means of a lid or other device that neither liquid nor vapor will escape from it at ordinary temperatures.

(10) Crude petroleum shall mean hydrocarbon mixtures that have a flash point below 150°F and which have not been processed in a refinery.

(11) Distillery shall mean a plant or that portion of a plant where flammable ((~~or combustible~~)) liquids produced by fermentation are concentrated, and where the concentrated products may also be mixed, stored, or packaged.

(12) Fire area shall mean an area of a building separated from the remainder of the building by construction having a fire resistance of at least one hour and having all communicating openings properly protected by an assembly having a fire resistance rating of at least one hour.

(13) Fire resistance or fire resistive construction shall mean construction to resist the spread of fire.

(14) Flammable aerosol shall mean ((~~an~~)) a flammable aerosol ((~~which is required to be labeled "Flammable" under the Federal Hazardous Substances Labeling Act (15 U.S.C. 1261)~~)) as defined under WAC 296-901-14024, Appendix B—Physical hazard criteria. For the purposes of WAC 296-24-33009, such aerosols are considered ((~~Class IA~~)) Category 1 flammable liquids.

(15) "Flashpoint" means the minimum temperature at which a liquid gives off vapor within a test vessel in suffi-

cient concentration to form an ignitable mixture with air near the surface of the liquid, and shall be determined as follows:

(a) For a liquid which has a viscosity of less than 45 SUS at 100°F (37.8°C), does not contain suspended solids, and does not have a tendency to form a surface film while under test, the procedure specified in the Standard Method of Test for Flashpoint by Tag Closed Tester (ASTM D-56-70), WAC 296-901-14024, Appendix B—Physical hazard criteria, shall be used.

(b) For a liquid which has a viscosity of 45 SUS or more at 100°F (37.8°C), or contains suspended solids, or has a tendency to form a surface film while under test, the Standard Method of Test for Flashpoint by Pensky-Martens Closed Tester (ASTM D-93-71) or an equivalent method as defined by WAC 296-901-14024, Appendix B—Physical hazard criteria, shall be used, except that the methods specified in Note 1 to section 1.1 of ASTM D-93-71 may be used for the respective materials specified in the note.

(c) For a liquid that is a mixture of compounds that have different volatilities and flashpoints, its flashpoint shall be determined by using the procedure specified in (a) or (b) of this subsection on the liquid in the form it is shipped. ((~~If the flashpoint, as determined by this test, is 100°F (37.8°C) or higher, an additional flashpoint determination shall be run on a sample of the liquid evaporated to ninety percent of its original volume, and the lower value of the two tests shall be considered the flashpoint of the material.~~))

(d) Organic peroxides, which undergo autoaccelerating thermal decomposition, are excluded from any of the flashpoint determination methods specified in this section.

(16) Hotel shall mean buildings or groups of buildings under the same management in which there are sleeping accommodations for hire primarily used by transients who are lodged with or without meals including but not limited to inns, clubs, motels, and apartment hotels.

(17) Institutional occupancy shall mean the occupancy or use of a building or structure or any portion thereof by persons harbored or detained to receive medical, charitable or other care or treatment, or by persons involuntarily detained.

(18) Liquid shall mean, for the purpose of these standards, any material which has a fluidity greater than that of 300 penetration asphalt when tested in accordance with ASTM Test for Penetration for Bituminous Materials, D-5-65. When not otherwise identified, the term liquid shall include both flammable ((~~and combustible~~)) liquids.

(19) "Combustible liquid" means any liquid having a flashpoint at or above 100°F (37.8°C). Combustible liquids shall be divided into two classes as follows:

(a) "Class II liquids" shall include those with flashpoints at or above 100°F (37.8°C) and below 140°F (60°C), except any mixture having components with flashpoints of 200°F (93.3°C) or higher, the volume of which make up ninety-nine percent or more of the total volume of the mixture.

(b) "Class III liquids" shall include those with flashpoints at or above 140°F (60°C). Class III liquids are subdivided into two subclasses:

(i) "Class IIIA liquids" shall include those with flashpoints at or above 140°F (60°C) and below 200°F (93.3°C) except any mixture having components with flashpoints of 200°F (93.3°C) or higher, the total volume of which make up ninety-nine percent or more of the total volume of the mixture.

(ii) "Class IIIB liquids" shall include those with flashpoints at or above 200°F (93.3°C). This section does not cover Class IIIB liquids. Where the term "Class III liquids" is used in this section, it shall mean only Class IIIA liquids.

(c) When a combustible liquid is heated for use to within 30°F (16.7°C) of its flashpoint, it shall be handled in accordance with the requirements for the next lower class of liquids.

(20) "Flammable liquid" means any liquid having a flashpoint at or below ((~~100°F (37.8°C), except any mixture having components with flashpoints of 100°F (37.8°C), or higher, the total of which make up ninety-nine percent or more of the total volume of the mixture~~)) 199.4°F (93°C). Flammable liquids ((~~shall be known as Class I liquids. Class I liquids~~)) are divided into ((~~three classes~~)) four categories as follows:

(a) ((~~Class IA~~)) Category 1 shall include liquids having flashpoints below ((~~73°F (22.8°C)~~)) 73.4°F (23°C) and having a boiling point at or below ((~~100°F (37.8°C)~~)) 95°F (35°C).

(b) ((~~Class IB~~)) Category 2 shall include liquids having flashpoints below ((~~73°F (22.8°C)~~)) 73.4°F (23°C) and having a boiling point ((~~at or~~)) above ((~~100°F (37.8° C)~~)) 95°F (35°C).

(c) ((~~Class IC~~)) Category 3 shall include liquids having flashpoints at or above ((~~73°F (22.8°C)~~)) 73.4°F (23°C) and at or below ((~~100°F (37.8°C)~~)) 140°F (60°C). When a Category 3 liquid with a flashpoint at or above 100°F (37.8°C) is heated for use to within 30°F (16.7°C) of its flashpoint, it must be handled in accordance with the requirements for a Category 3 liquid with a flashpoint below 100°F (37.8°C).

(d) Category 4 must include liquids having flashpoints above 140°F (60°C) and at or below 199.4°F (93°C). When a Category 4 flammable liquid is heated for use to within 30°F (16.7°C) of its flashpoint, it must be handled in accordance with the requirements for a Category 3 liquid with a flashpoint at or above 100°F (37.8°C).

(e) When liquid with a flashpoint greater than 199.4°F (93°C) is heated for use to within 30°F (16.7°C) of its flashpoint, it must be handled in accordance with the requirements for a Category 4 flammable liquid.

(21) Unstable (reactive) liquid shall mean a liquid which in the pure state or as commercially produced or transported will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shocks, pressure, or temperature.

(22) Low-pressure tank shall mean a storage tank which has been designed to operate at pressures above 0.5 p.s.i.g. but not more than 15 p.s.i.g.

(23) Marine service station shall mean that portion of a property where flammable ((~~or combustible~~)) liquids used as fuels are stored and dispensed from fixed equipment on shore, piers, wharves, or floating docks into the fuel tanks or self-propelled craft, and shall include all facilities used in connection therewith.

(24) Mercantile occupancy shall mean the occupancy or use of a building or structure or any portion thereof for the

displaying, selling, or buying of goods, wares, or merchandise.

(25) Office occupancy shall mean the occupancy or use of a building or structure or any portion thereof for the transaction of business, or the rendering or receiving of professional services.

(26) Portable tank shall mean a closed container having a liquid capacity over sixty United States gallons and not intended for fixed installation.

(27) Pressure vessel shall mean a storage tank or vessel which has been designed to operate at pressures above 15 p.s.i.g.

(28) Protection for exposure shall mean adequate fire protection for structures on property adjacent to tanks, where there are employees of the establishment.

(29) Refinery shall mean a plant in which flammable ((~~or combustible~~)) liquids are produced on a commercial scale from crude petroleum, natural gasoline, or other hydrocarbon sources.

(30) Safety can shall mean an approved container, of not more than five gallons capacity, having a spring-closing lid and spout cover and so designed that it will safely relieve internal pressure when subjected to fire exposure.

(31) Vapor pressure shall mean the pressure, measured in pounds per square inch (absolute) exerted by a volatile liquid as determined by the "Standard Method of Test for Vapor Pressure of Petroleum Products (Reid Method)," American Society for Testing and Materials ASTM D323-68.

(32) Ventilation as specified in these standards is for the prevention of fire and explosion. It is considered adequate if it is sufficient to prevent accumulation of significant quantities of vapor-air mixtures in concentration over one-fourth of the lower flammable limit.

(33) Storage: Flammable ((~~or combustible~~)) liquids shall be stored in a tank or in a container that complies with WAC 296-24-33009(2).

(34) Barrel shall mean a volume of forty-two United States gallons.

(35) Container shall mean any can, barrel, or drum.

(36) Approved unless otherwise indicated, approved, or listed by a nationally recognized testing laboratory. Refer to federal regulation 29 C.F.R. 1910.7 for definition of nationally recognized testing laboratory.

(37) Listed see subsection (36) of this section.

(38) "SUS" means Saybolt Universal Seconds as determined by the Standard Method of Test for Saybolt Viscosity (ASTM D-88-56), and may be determined by use of the SUS conversion tables specified in ASTM Method D2161-66 following determination of viscosity in accordance with the procedures specified in the Standard Method of Test for Viscosity of Transparent and Opaque Liquids (ASTM D445-65).

(39) "Viscous" means a viscosity of 45 SUS or more.

Note: The volatility of liquids is increased when artificially heated to temperatures equal to or higher than their flashpoints. When so heated Class II and III liquids shall be subject to the applicable requirements for Class I or II liquids. These standards may also be applied to high flashpoint liquids when so heated even though these same liquids when not heated are outside of its scope.

AMENDATORY SECTION (Amending WSR 95-22-015, filed 10/20/95, effective 1/16/96)

WAC 296-24-33003 Scope. This section applies to the handling, storage, and use of flammable ((~~and combustible~~)) liquids with a flash point at or below ((~~200°F~~)) 199.4°F (93°C). This section does not apply to:

(1) Bulk transportation of flammable ((~~and combustible~~)) liquids;

(2) Storage, handling, and use of fuel oil tanks and containers connected with oil burning equipment;

(3) Storage of flammable ((~~and combustible~~)) liquids on farms.

(4) Liquids without flashpoints that may be flammable under some conditions, such as certain halogenated hydrocarbons and mixtures containing halogenated hydrocarbons;

(5) Mists, sprays, or foams, except flammable aerosols covered in WAC 296-24-33009; or

(6) Installations made in accordance with requirements of the following standards:

(a) National Fire Protection Association Standard for Drycleaning Plants, NFPA No. 32-1970;

(b) National Fire Protection Association Standard for the Manufacture of Organic Coatings, NFPA No. 35-1970;

(c) National Fire Protection Association Standard for Solvent Extraction Plants, NFPA No. 36-1967; or

(d) National Fire Protection Association Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines, NFPA No. 37-1970.

AMENDATORY SECTION (Amending WSR 06-05-027, filed 2/7/06, effective 4/1/06)

WAC 296-24-33005 Tank storage. (1) Design and construction of tanks.

(a) Materials.

(i) Tanks shall be built of steel except as provided in (((~~(1)~~))(a)(ii) through (v) of this ((~~section~~)) subsection.

(ii) Tanks may be built of materials other than steel for installation underground or if required by the properties of the liquid stored. Tanks located above ground or inside buildings shall be of noncombustible construction.

(iii) Tanks built of materials other than steel shall be designed to specifications embodying principles recognized as good engineering design for the material used.

(iv) Unlined concrete tanks may be used for storing flammable ((~~or combustible~~)) liquids having a gravity of 40°API or heavier. Concrete tanks with special lining may be used for other services provided the design is in accordance with sound engineering practice.

(v) Tanks may have combustible or noncombustible linings.

(vi) Special engineering consideration shall be required if the specific gravity of the liquid to be stored exceeds that of water or if the tanks are designed to contain flammable ((~~or combustible~~)) liquids at a liquid temperature below 0°F.

(b) Fabrication.

(i) Tanks may be of any shape or type consistent with sound engineering design.

(ii) Metal tanks shall be welded, riveted, and caulked, brazed, or bolted, or constructed by use of a combination of

these methods. Filler metal used in brazing shall be nonferrous metal or an alloy having a melting point above 1000°F and below that of the metal joined.

(c) Atmospheric tanks.

(i) Atmospheric tanks shall be built in accordance with acceptable good standards of design. Atmospheric tanks may be built in accordance with:

(A) Underwriters' Laboratories, Inc., Subjects No. 142, Standard for Steel Aboveground Tanks for Flammable and Combustible Liquids, 1968; No. 58, Standards for Steel Underground Tanks for Flammable and COMBUSTIBLE Liquids, Fifth Edition, December 1961; or No. 80, Standard for Steel Inside Tanks for Oil-Burner Fuel, September 1963.

(B) American Petroleum Institute Standards No. 650, Welded Steel Tanks for Oil Storage, Third Edition, 1966.

(C) American Petroleum Institute Standards No. 12B, Specification for Bolted Production Tanks, Eleventh Edition, May 1958, and Supplement 1, March 1962; No. 12D, Specification for Large Welded Production Tanks, Seventh Edition, August 1957; or No. 12F, Specification for Small Welded Production Tanks, Fifth Edition, March 1961. Tanks built in accordance with these standards shall be used only as production tanks for storage of crude petroleum in oil-producing areas.

(ii) Tanks designed for underground service not exceeding 2,500 gallons capacity may be used aboveground.

(iii) Low-pressure tanks and pressure vessels may be used as atmospheric tanks.

(iv) Atmospheric tanks shall not be used for the storage of a flammable ((~~or combustible~~)) liquid at a temperature at or above its boiling point.

(d) Low pressure tanks.

(i) The normal operating pressure of the tank shall not exceed the design pressure of the tank.

(ii) Low-pressure tanks shall be built in accordance with acceptable standards of design. Low-pressure tanks may be built in accordance with:

(A) American Petroleum Institute Standard No. 620, Recommended Rules for the Design and Construction of Large, Welded, Low-Pressure Storage Tanks, Third Edition, 1966.

(B) The principles of the Code for Unfired Pressure Vessels, Section VIII of the ASME Boiler and Pressure Vessels Code, 1968.

(iii) Atmospheric tanks built according to the Underwriters' Laboratories, Inc., requirements in (((~~(1)~~))(c)(i) of this ((~~section~~)) subsection may be used for operating pressures not exceeding 1 p.s.i.g. and shall be limited to 2.5 p.s.i.g. under emergency venting conditions. Pressure vessels may be used as low-pressure tanks.

(e) Pressure vessels.

(i) The normal operating pressure of the vessel shall not exceed the design pressure of the vessel.

(ii) Pressure vessels shall be built in accordance with the Code for Unfired Pressure Vessels, Section VIII of the ASME Boiler and Pressure Vessel Code, 1968.

(f) Provisions for internal corrosion. When tanks are not designed in accordance with the American Petroleum Institute, American Society of Mechanical Engineers, or the Underwriters' Laboratories, Inc.'s standards, or if corrosion is anticipated beyond that provided for in the design formulas used, additional metal thickness or suitable protective coatings or linings shall be provided to compensate for the corrosion loss expected during the design life of the tank.

(2) Installation of outside aboveground tanks.

(a) Location with respect to property lines and public ways.

(i) Every aboveground tank for the storage of flammable ((~~or combustible~~)) liquids, except those liquids with boil-over characteristics and unstable liquids, operating at pressures not in excess of 2.5 p.s.i.g. and equipped with emergency venting which will not permit pressures to exceed 2.5 p.s.i.g. shall be located in accordance with Table H-5.

(ii) Every aboveground tank for the storage of flammable ((~~or combustible~~)) liquids, except those liquids with boil-over characteristics and unstable flammable or combustible liquids, operating at pressures exceeding 2.5 p.s.i.g. or equipped with emergency venting which will permit pressures to exceed 2.5 p.s.i.g. shall be located in accordance with Table H-6.

(iii) Every aboveground tank for the storage of flammable ((~~or combustible~~)) liquids with boil-over characteristics shall be located in accordance with Table H-7.

(iv) Every aboveground tank for the storage of unstable liquids shall be located in accordance with Table H-8.

(v) Reference minimum distances for use in Tables H-5 to H-8 inclusive.

(vi) Where end failure or horizontal pressure tanks and vessels may expose property, the tank shall be placed with the longitudinal axis parallel to the nearest important exposure.

TABLE H-5

Type of tank	Protection	Minimum distance in feet from property line which may be built upon, including the opposite side of a public way.	Minimum distance in feet from nearest side of any public way or from nearest important building and shall be not less than 5 feet.
Floating roof ———	Protection for exposures.	1/2 times diameter of tank but need not exceed 90 ft.	1/6 times diameter of tank but need not exceed 30 ft.
	None ———	Diameter of tank but need not exceed 175 ft.	1/6 times diameter of tank but need not exceed 30 ft.
Vertical with weak roof to shell seam	Approved foam or inerting system on the tank.	1/2 times diameter of tank but need not exceed 90 ft. and shall not be less than 5 ft.	1/6 times diameter of tank but need not exceed 30 ft.
	Protection for exposures.	Diameter of tank but need not exceed 175 ft.	1/3 times diameter of tank but need not exceed 60 ft.
	None ———	2 times diameter of tank but need not exceed 350 ft.	1/3 times diameter of tank but need not exceed 60 ft.

Type of tank	Protection	Minimum distance in feet from property line which may be built upon, including the opposite side of a public way.	Minimum distance in feet from nearest side of any public way or from nearest important building and shall be not less than 5 feet.
Horizontal and vertical, with emergency relief venting to limit pressures to 2.5 p.s.i.g.	Approved inerting system on the tank or approved foam system on vertical tanks.	1/2 times Table H-9 but shall not be less than 5 ft.	1/2 times Table H-9.
	Protection for exposures.	Table H-9 ———	Table H-9
	None ———	2 times table ——	Table H-9

TABLE H-6

Type of tank	Protection	Minimum distance in feet from property line which may be built upon, including the opposite side of a public way.	Minimum distance in feet from nearest side of any public way or from nearest important building.
Any type -	Protection for exposures.	1 1/2 times Table H-9 but shall not be less than 25 ft.	1 1/2 times Table H-9 but shall not be less than 25 ft.
	None ———	3 times Table H-9 but shall not be less than 50 ft.	1 1/2 times Table H-9 but shall not be less than 25 ft.

TABLE H-7

Type of tank	Protection	Minimum distance in feet from property line which may be built upon, including the opposite side of a public way.	Minimum distance in feet from nearest side of any public way or from nearest important building.
Floating roof ———	Protection for exposures.	Diameter of tank but need not exceed 175 ft.	1/3 times diameter of tank but need not exceed 60 ft.
	None ———	2 times diameter of tank but need not exceed 350 ft.	1/3 times diameter of tank but need not exceed 60 ft.
Fixed roof ———	Approved foam or inerting system.	Diameter of tank but need not exceed 175 ft.	1/3 times diameter of tank but need not exceed 60 ft.
	Protection for exposures.	2 times diameter of tank but need not exceed 350 ft.	2/3 times diameter of tank but need not exceed 120 ft.
	None ———	4 times diameter of tank but need not exceed 350 ft.	2/3 times diameter of tank but need not exceed 120 ft.

TABLE H-8

Type of tank	Protection	Minimum distance in feet from property line which may be built upon, including the opposite side of a public way.	Minimum distance in feet from nearest side of any public way or from nearest important building.
Horizontal and vertical tanks with emergency relief venting to permit pressure not in excess of 2.5 p.s.i.g.	Tank protected with any of the following: Approved water spray, approved inerting, approved insulation and refrigeration, approved barricade.	See Table H-9, but the distance may be not less than 25 ft.	Not less than 25 ft.
	Protection for exposures.	2 1/2 times Table H-9 but not less than 50 ft.	Not less than 50 ft.
	None ———	5 times Table H-9 but not less than 100 ft.	Not less than 100 ft.
Horizontal and vertical tanks with emergency relief venting to permit pressure over 2.5 p.s.i.g.	Tank protected with any one of the following: Approved water spray, approved inerting, approved insulation and refrigeration, approved barricade.	2 times Table H-9 but not less than 50 ft.	Not less than 50 ft.
	Protection for exposures.	4 times Table H-9 but not less than 100 ft.	Not less than 100 ft.
	None ———	8 times Table H-9 but not less than 150 ft.	Not less than 150 ft.

TABLE H-9

Capacity tank gallons			Minimum distance in feet from property line which may be built upon, including the opposite side of a public way.	Minimum distance in feet from nearest side of any public way or from nearest important building.
275	or less		5	5
276	to	750	10	5
751	to	12,000	15	5
12,001	to	30,000	20	5
30,001	to	50,000	30	10
50,001	to	100,000	50	15
100,001	to	500,000	80	25
500,001	to	1,000,000	100	35
1,000,001	to	2,000,000	135	45

Capacity tank gallons			Minimum distance in feet from property line which may be built upon, including the opposite side of a public way.	Minimum distance in feet from nearest side of any public way or from nearest important building.
2,000,001	to	3,000,000	165	55
3,000,001	or more		175	60

(b) Spacing (shell-to-shell) between aboveground tanks.

(i) The distance between any two flammable or combustible liquid storage tanks shall not be less than ((~~3~~)) three feet.

(ii) Except as provided in (((~~2~~)))(b)(iii) of this ((~~section~~)) subsection, the distance between any two adjacent tanks shall not be less than one-sixth the sum of their diameters. When the diameter of one tank is less than one-half the diameter of the adjacent tank, the distance between the two tanks shall not be less than one-half the diameter of the smaller tank.

(iii) Where crude petroleum in conjunction with production facilities are located in noncongested areas and have capacities not exceeding 126,000 gallons (3,000 barrels), the distance between such tanks shall not be less than ((~~3~~)) three feet.

(iv) Where unstable flammable ((~~or combustible~~)) liquids are stored, the distance between such tanks shall not be less than one-half the sum of their diameters.

(v) When tanks are compacted in three or more rows or in an irregular pattern, greater spacing or other means shall be provided so that inside tanks are accessible for firefighting purposes.

(vi) The minimum separation between a liquefied petroleum gas container and a flammable ((~~or combustible~~)) liquid storage tank shall be ((~~20~~)) twenty feet, except in the case of flammable ((~~or combustible~~)) liquid tanks operating at pressures exceeding 2.5 p.s.i.g. or equipped with emergency venting which will permit pressures to exceed 2.5 p.s.i.g. in which case the provisions of (((~~2~~)))(b)(i) and (ii) of this ((~~section~~)) subsection shall apply. Suitable means shall be taken to prevent the accumulation of flammable ((~~or combustible~~)) liquids under adjacent liquefied petroleum gas containers such as by diversion curbs or grading. When flammable ((~~or combustible~~)) liquid storage tanks are within a diked area, the liquefied petroleum gas containers shall be outside the diked area and at least ((~~10~~)) ten feet away from the centerline of the wall of the diked area. The foregoing provisions shall not apply when liquefied petroleum gas containers of 125 gallons or less capacity are installed adjacent to fuel oil supply tanks of 550 gallons or less capacity.

(c) Location of outside aboveground tanks with respect to important buildings on same property. Every outside aboveground tank shall be separated from important buildings on the same property by distances not less than those specified in (((~~2~~)))(a)(i)((~~, (ii), (iii) and~~)) through (iv) of this ((~~section~~)) subsection, whichever is applicable. The appropriate distance column in Tables H-5, H-6, H-7, H-8, or H-9, that shall be used shall be the one reading: "Minimum distance in feet from nearest side of any public way or from nearest important building."

(d) Normal venting for aboveground tanks.

(i) Atmospheric storage tanks shall be adequately vented to prevent the development of vacuum or pressure sufficient to distort the roof of a cone roof tank or exceed the design pressure in the case of other atmospheric tanks, as a result of filling or emptying, and atmospheric temperature changes.

(ii) Normal vents shall be sized either in accordance with: (A) The American Petroleum Institute Standard 2000 (1968), Venting Atmospheric and Low-Pressure Storage Tanks; or (B), other accepted standard; or (C) shall be at least as large as the filling or withdrawal connection, whichever is larger but in no case less than 1 1/4 inch nominal inside diameter.

(iii) Low-pressure tanks and pressure vessels shall be adequately vented to prevent development of pressure or vacuum, as a result of filling or emptying and atmospheric temperature changes, from exceeding the design pressure of the tank or vessel. Protection shall also be provided to prevent over-pressure from any pump discharging into the tank or vessel when the pump discharge pressure can exceed the design pressure of the tank or vessel.

(iv) If any tank or pressure vessel has more than one fill or withdrawal connection and simultaneous filling or withdrawal can be made, the vent size shall be based on the maximum anticipated simultaneous flow.

(v) Unless the vent is designed to limit the internal pressure 2.5 p.s.i. or less, the outlet of vents and vent drains shall be arranged to discharge in such a manner as to prevent localized overheating of any part of the tank in the event vapors from such vents are ignited.

(vi) Tanks and pressure vessels storing ((~~Class IA~~)) Category 1 flammable liquids shall be equipped with venting devices which shall be normally closed except when venting to pressures or vacuum conditions. Tanks and pressure vessels storing ((~~Class IB and IC~~)) Category 2 flammable liquids and Category 3 flammable liquids with a flashpoint below 100°F (37.8°C) liquids shall be equipped with venting devices which shall be normally closed except when venting under pressure or vacuum conditions, or with approved flame arresters.

Exemption: Tanks of 3,000 bbls. (barrels) capacity or less containing crude petroleum in crude-producing areas; and, outside aboveground atmospheric tanks under 1,000 gallons capacity containing other than ((~~Class IA~~)) Category 1 flammable liquids may have open vents. (See (2)(f)(ii) of this section.)

(vii) Flame arresters or venting devices required in (((~~2~~)))(e)(vi) of this ((~~section~~)) subsection may be omitted for ((~~Class IB and IC~~)) Category 2 flammable liquids and Category 3 flammable liquids with a flashpoint below 100°F (37.8°C) where conditions are such that their use may, in case of obstruction, result in tank damage.

(e) Emergency relief venting for fire exposure for aboveground tanks.

(i) Every aboveground storage tank shall have some form of construction or device that will relieve excessive internal pressure caused by exposure fires.

(ii) In a vertical tank the construction referred to in (((~~2~~)))(e)(i) of this ((~~section~~)) subsection may take the form of a floating roof, lifter roof, a weak roof-to-shell seam, or

other approved pressure relieving construction. The weak roof-to-shell seam shall be constructed to fail preferential to any other seam.

(iii) Where entire dependence for emergency relief is placed upon pressure relieving devices, the total venting capacity of both normal and emergency vents shall be enough to prevent rupture of the shell or bottom of the tank if vertical, or of the shell or heads if horizontal. If unstable liquids are stored, the effects of heat or gas resulting from polymerization, decomposition, condensation, or self-reactivity shall be taken into account. The total capacity of both normal and emergency venting devices shall be not less than that derived from Table H-10 except as provided in ((~~(2)~~))(e)(v) and (vi) of this ((~~section~~)) subsection. Such device may be a self-closing manhole cover, or one using long bolts that permit the cover to lift under internal pressure, or an additional or larger relief valve or valves. The wetted area of the tank shall be calculated on the basis of ((~~55~~)) fifty-five percent of the total exposed area of a sphere or spheroid, ((~~75~~)) seventy-five percent of the total exposed area of a horizontal tank and the first ((~~30~~)) thirty feet above grade of the exposed shell area of a vertical tank.

TABLE 10
WETTED AREA VERSUS CUBIC FEET
FREE AIR PER HOUR
(14.7 psia and 60°F)

Square feet	CFH	Square feet	CFH	Square feet	CFH
20	21,100	200	211,000	1,000	524,000
30	31,600	250	239,000	1,200	557,000
40	42,100	300	265,000	1,400	587,000
50	52,700	350	288,000	1,600	614,000
60	63,200	400	312,000	1,800	639,000
70	73,700	500	354,000	2,000	662,000
80	84,200	600	392,000	2,400	704,000
90	94,800	700	428,000	2,800	742,000
100	105,000	800	462,000	and	
120	126,000	900	493,000	over	
140	147,000	1,000	524,000		
160	168,000				
180	190,000				
200	211,000				

(iv) For tanks and storage vessels designed for pressure over 1 p.s.i.g., the total rate of venting shall be determined in accordance with Table H-10, except that when the exposed wetted area of the surface is greater than 2,800 square feet, the total rate of venting shall be calculated by the following formula:

$$CFH = 1{,}107A^{0.82}$$

Where:

CFH = Venting requirement, in cubic feet of free air per hour.

A = Exposed wetted surface, in square feet.

Note: The foregoing formula is based on $Q = 21{,}000A^{0.82}$.

(v) The total emergency relief venting capacity for any specific stable liquid may be determined by the following formula:

Cubic feet of free air per hour = V

$$V = \frac{1337}{L\ M}$$

V = Cubic feet of free air per hour from Table H-10.

L = Latent heat of vaporization of specific liquid in B.t.u. per pound.

M = Molecular weight of specific liquids.

(vi) The required airflow rate of ((~~(2)~~))(e)(iii) or (v) of this ((~~section~~)) subsection may be multiplied by the appropriate factor listed in the following schedule when protection is provided as indicated. Only one factor may be used for any one tank.

0.5 for drainage in accordance with (2)(g)(ii) of this section for tanks over 200 square feet of wetted area.

0.3 for approved water spray.

0.3 for approved insulation.

0.15 for approved water spray with approved insulation.

(vii) The outlet of all vents and vent drains on tanks equipped with emergency venting to permit pressures exceeding 2.5 p.s.i.g. shall be arranged to discharge in such a way as to prevent localized overheating of any part of the tank, in the event vapors from such vents are ignited.

(viii) Each commercial tank venting device shall have stamped on it the opening pressure, the pressure at which the valve reaches the full open position, and the flow capacity at the latter pressure, expressed in cubic feet per hour of air at 60°F and at a pressure of 14.7 p.s.i.a.

(ix) The flow capacity of tank venting devices ((~~12~~)) twelve inches and smaller in nominal pipe size shall be determined by actual test of each type and size of vent. These flow tests may be conducted by the manufacturer if certified by a qualified impartial observer, or may be conducted by an outside agency. The flow capacity of tank venting devices larger than ((~~12~~)) twelve inches nominal pipe size, including manhole covers with long bolts or equivalent, may be calculated provided that the opening pressure is actually measured, the rating pressure and corresponding free orifice area are stated, the word "calculated" appears on the nameplate, and the computation is based on a flow coefficient of 0.5 applied to the rated orifice area.

(f) Vent piping for aboveground tanks.

(i) Vent piping shall be constructed in accordance with WAC 296-24-33007 of this section.

(ii) Where vent pipe outlets for tanks storing ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), are adjacent to buildings or public ways, they shall be located so that the vapors are released at a safe point outside of buildings and not less than ((~~12~~)) twelve feet above the adjacent ground level. In order to aid their dispersion, vapors shall be discharged upward or horizontally away from closely adjacent

walls. Vent outlets shall be located so that flammable vapors will not be trapped by eaves or other obstructions and shall be at least five feet from building openings.

(iii) When tank vent piping is manifolded, pipe sizes shall be such as to discharge within the pressure limitations of the system, the vapors they may be required to handle when manifolded tanks are subject to the same fire exposure.

(g) Drainage, dikes, and walls for aboveground tanks.

(i) Drainage and diked areas. The area surrounding a tank or a group of tanks shall be provided with drainage as in (((~~(2)~~)))(g)(ii) of this ((~~section~~)) subsection, or shall be diked as provided in (((~~(2)~~)))(g)(iii) of this subsection, to prevent accidental discharge of liquid from endangering adjoining property or reaching waterways.

(ii) Drainage. Where protection of adjoining property or waterways is by means of a natural or manmade drainage system, such systems shall comply with the following:

(A) A slope of not less than ((~~1~~)) one percent away from the tank toward the drainage system shall be provided.

(B) The drainage system shall terminate in vacant land or other area or in an impounding basin having a capacity not smaller than that of the largest tank served. This termination area and the route of the drainage system shall be so located that, if the flammable ((~~or combustible~~)) liquids in the drainage system are ignited, the fire will not seriously expose tanks or adjoining property.

(C) The drainage system, including automatic drainage pumps, shall not discharge to adjoining property, natural water courses, public sewers, or public drains unless the discharge of flammable ((~~or combustible~~)) liquids would not constitute a hazard, or the system is so designed that it will not permit flammable ((~~or combustible~~)) liquids to be released.

(iii) Diked areas. Where protection of adjoining property or waterways is accomplished by retaining the liquid around the tank by means of a dike, the volume of the diked area shall comply with the following requirements:

(A) Except as provided in (((~~(2)~~)))(g)(iii)(B) of this ((~~section~~)) subsection, the volumetric capacity of the diked area shall not be less than the greatest amount of liquid that can be released from the largest tank within the diked area, assuming a full tank. The capacity of the diked area enclosing more than one tank shall be calculated by deducting the volume of the tanks other than the largest tank below the height of the dike.

(B) For a tank or group of tanks with fixed roofs containing crude petroleum with boilover characteristics, the volumetric capacity of the diked area shall be not less than the capacity of the largest tank served by the enclosure, assuming a full tank. The capacity of the diked enclosure shall be calculated by deducting the volume below the height of the dike of all tanks within the enclosure.

(C) Walls of the diked area shall be of earth, steel, concrete or solid masonry designed to be liquidtight and to withstand a full hydrostatic head. Earthen walls ((~~3~~)) three feet or more in height shall have a flat section at the top not less than ((~~2~~)) two feet wide. The slope of an earthen wall shall be consistent with the angle of repose of the material of which the wall is constructed.

(D) The walls of the diked area shall be restricted to an average height of ((~~6~~)) six feet above interior grade.

(E) Where provision is made for draining water from diked areas, drainage shall be provided at a uniform slope of not less than ((~~1~~)) one percent away from tanks toward a sump, drainbox, or other safe means of disposal located at the greatest practical distance from the tank. Such drains shall normally be controlled in a manner so as to prevent flammable ((~~or combustible~~)) liquids from entering natural water courses, public sewers, or public drains, if their presence would constitute a hazard. Control of drainage shall be accessible under fire conditions.

(F) No loose combustible material, empty or full drum or barrel, shall be permitted within the diked area.

(G) Each diked area containing two or more tanks shall be subdivided preferably by drainage channels or at least by intermediate curbs in order to prevent spills from endangering adjacent tanks within the diked area as follows:

(I) When storing normally stable liquids in vertical cone roof tanks constructed with weak roof-to-shell seam or approved floating roof tanks or when storing crude petroleum in producing areas in any type of tank, one subdivision for each tank in excess of 10,000 bbls. and one subdivision for each group of tanks (no tank exceeding 10,000 bbls. capacity) having an aggregate capacity not exceeding 15,000 bbls.

(II) When storing normally stable flammable ((~~or combustible~~)) liquids in tanks not covered in (g)(iii)(G)(I) of this subsection, one subdivision for each tank in excess of 100,000 gallons (2,500 bbls.) and one subdivision for each group of tanks (no tank exceeding 100,000 gallons capacity) having an aggregate capacity not exceeding 150,000 gallons (3,570 bbls.).

(III) When storing unstable liquids in any type of tank, one subdivision for each tank except that tanks installed in accordance with the drainage requirements of NFPA 15-1969, Standard for Water Spray Fixed Systems for Fire Protection shall require no additional subdivision.

(IV) The drainage channels or intermediate curbs shall be located between tanks so as to take full advantage of the available space with due regard for the individual tank capacities. Intermediate curbs, where used, shall be not less than ((~~18~~)) eighteen inches in height.

(h) Tank openings other than vents for aboveground tanks.

(i) Connections for all tank openings shall be vaportight and liquidtight. Vents are covered in (((~~(2)~~)))(d) through (f) of this ((~~section~~)) subsection.

(ii) Each connection to an aboveground tank through which liquid can normally flow shall be provided with an internal or an external valve located as close as practical to the shell of the tank. Such valves, when external, and their connections to the tank shall be of steel except when the chemical characteristics of the liquid stored are incompatible with steel. When materials other than steel are necessary, they shall be suitable for the pressures, structural stresses, and temperatures involved, including fire exposures.

(iii) Each connection below the liquid level through which liquid does not normally flow shall be provided with a liquidtight closure. This may be a valve, plug, or blind, or a combination of these.

(iv) Openings for gaging shall be provided with a vapor tight cap or cover.

(v) For ((~~Class IB and Class IC~~)) Category 2 flammable liquids and Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), other than crude oils, gasolines, and asphalts, the fill pipe shall be so designed and installed as to minimize the possibility of generating static electricity. A fill pipe entering the top of a tank shall terminate within ((~~6~~)) six inches of the bottom of the tank and shall be installed to avoid excessive vibration.

(vi) Filling and emptying connections which are made and broken shall be located outside of buildings at a location free from any source of ignition and not less than ((~~5~~)) five feet away from any building opening. Such connection shall be closed and liquidtight when not in use. The connection shall be properly identified.

(3) Installation of underground tanks.

(a) Location. Excavation for underground storage tanks shall be made with due care to avoid undermining of foundations of existing structures. Underground tanks or tanks under buildings shall be so located with respect to existing building foundations and supports that the loads carried by the latter cannot be transmitted to the tank. The distance from any part of a tank storing ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), to the nearest wall of any basement or pit shall be not less than ((~~1~~)) one foot, and to any property line that may be built upon, not less than ((~~3~~)) three feet. The distance from any part of a tank storing ((~~Class II or Class III~~)) Category 3 flammable liquids with a flashpoint at or above 100°F (37.8°C) or Category 4 flammable liquids to the nearest wall of any basement, pit or property line shall not be less than ((~~1~~)) one foot.

(b) Depth and cover. Underground tanks shall be set on firm foundations and surrounded with at least ((~~6~~)) six inches of noncorrosive, inert materials such as clean sand, earth, or gravel well tamped in place. The tank shall be placed in the hole with care since dropping or rolling the tank into the hole can break a weld, puncture or damage the tank, or scrape off the protective coating of coated tanks. Tanks shall be covered with a minimum of ((~~2~~)) two feet of earth or shall be covered with not less than ((~~1~~)) one foot of earth, on top of which shall be placed a slab of reinforced concrete not less than ((~~4~~)) four inches thick. When underground tanks are, or are likely to be, subject to traffic, they shall be protected against damage from vehicles passing over them by at least ((~~3~~)) three feet of earth cover, or ((~~18~~)) eighteen inches of well-tamped earth, plus ((~~6~~)) six inches of reinforced concrete or ((~~8~~)) eight inches of asphaltic concrete. When asphaltic or reinforced concrete paving is used as part of the protection, it shall extend at least ((~~1~~)) one foot horizontally beyond the outline of the tank in all directions.

(c) Corrosion protection. Corrosion protection for the tank and its piping shall be provided by one or more of the following methods:

(i) Use of protective coatings or wrappings;

(ii) Cathodic protection; or,

(iii) Corrosion resistant materials of construction.

(d) Vents.

(i) Location and arrangement of vents for ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C). Vent pipes from tanks storing ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), shall be so located that the discharge point is outside of buildings, higher than the fill pipe opening, and not less than ((~~12~~)) twelve feet above the adjacent ground level. Vent pipes shall discharge only upward in order to disperse vapors. Vent pipes ((~~2~~)) two inches or less in nominal inside diameter shall not be obstructed by devices that will cause excessive back pressure. Vent pipe outlets shall be so located that flammable vapors will not enter building openings, or be trapped under eaves or other obstructions. If the vent pipe is less than ((~~10~~)) ten feet in length, or greater than ((~~2~~)) two inches in nominal inside diameter, the outlet shall be provided with a vacuum and pressure relief device or there shall be an approved flame arrester located in the vent line at the outlet or within the approved distance from the outlet.

(ii) Size of vents. Each tank shall be vented through piping adequate in size to prevent blow-back of vapor or liquid at the fill opening while the tank is being filled. Vent pipes shall be not less than ((~~1 1/4~~)) one and one-fourth inch nominal inside diameter.

TABLE H-11
VENT LINE DIAMETERS

Maximum flow GPM	Pipe length*		
	50 feet	100 feet	200 feet
	Inches	Inches	Inches
100 ————	1 1/4	1 1/4	1 1/4
200 ————	1 1/4	1 1/4	1 1/4
300 ————	1 1/4	1 1/4	1 1/2
400 ————	1 1/4	1 1/2	2
500 ————	1 1/2	1 1/2	2
600 ————	1 1/2	2	2
700 ————	2	2	2
800 ————	2	2	3
900 ————	2	2	3
1,000 ————	2	2	3

* Vent lines of 50 ft., 100 ft., and 200 ft. of pipe plus 7 ells.

(iii) Location and arrangement of vents for ((~~Class II or Class III~~)) Category 3 flammable liquids with a flashpoint at or above 100°F (37.8°C) or Category 4 flammable liquids. Vent pipes from tanks storing ((~~Class II or Class III~~)) Category 3 flammable liquids with a flashpoint at or above 100°F (37.8°C) or Category 4 flammable liquids shall terminate outside of the building and higher than the fill pipe opening. Vent outlets shall be above normal snow level. They may be fitted with return bends, coarse screens or other devices to minimize ingress of foreign material.

(iv) Vent piping shall be constructed in accordance with WAC 296-24-33007. Vent pipes shall be so laid as to drain toward the tank without sags or traps in which liquid can collect. They shall be located so that they will not be subjected to physical damage. The tank end of the vent pipe shall enter the tank through the top.

(v) When tank vent piping is manifolded, pipe sizes shall be such as to discharge, within the pressure limitations of the system, the vapors they may be required to handle when manifolded tanks are filled simultaneously.

(e) Tank openings other than vents.

(i) Connections for all tank openings shall be vapor or liquid tight.

(ii) Openings for manual gaging, if independent of the fill pipe, shall be provided with a liquid-tight cap or cover. If inside a building, each such opening shall be protected against liquid overflow and possible vapor release by means of a spring-loaded check valve or other approved device.

(iii) Fill and discharge lines shall enter tanks only through the top. Fill lines shall be sloped toward the tank.

(iv) For ((~~Class IB and Class IC~~)) Category 2 flammable liquids and Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), other than crude oils, gasolines, and asphalts, the fill pipe shall be so designed and installed as to minimize the possibility of generating static electricity by terminating within ((~~6~~)) six inches of the bottom of the tank.

(v) Filling and emptying connections which are made and broken shall be located outside of buildings at a location free from any source of ignition and not less than ((~~5~~)) five feet away from any building opening. Such connection shall be closed and liquidtight when not in use. The connection shall be properly identified.

(4) Installation of tanks inside of buildings.

(a) Location. Tanks shall not be permitted inside of buildings except as provided in WAC 296-24-33011 and 296-24-33015 through 296-24-33019.

(b) Vents. Vents for tanks inside of buildings shall be as provided in subsections (2)(d),(e),(f)(ii) and (3)(d) of this section, except that emergency venting by the use of weak roof seams on tanks shall not be permitted. Vents shall discharge vapors outside the buildings.

(c) Vent piping. Vent piping shall be constructed in accordance with WAC 296-24-33007.

(d) Tank openings other than vents.

(i) Connections for all tank openings shall be vapor or liquidtight. Vents are covered in ((~~(4)~~))(b) of this ((~~section~~)) subsection.

(ii) Each connection to a tank inside of buildings through which liquid can normally flow shall be provided with an internal or an external valve located as close as practical to the shell of the tank. Such valves, when external, and their connections to the tank shall be of steel except when the chemical characteristics of the liquid stored are incompatible with steel. When materials other than steel are necessary, they shall be suitable for the pressures, structural stresses, and temperatures involved, including fire exposures.

(iii) Flammable ((~~or combustible~~)) liquid tanks located inside of buildings, except in one-story buildings designed and protected for flammable ((~~or combustible~~)) liquid storage, shall be provided with an automatic-closing heat-actuated valve on each withdrawal connection below the liquid level, except for connections used for emergency disposal, to prevent continued flow in the event of fire in the vicinity of the tank. This function may be incorporated in the valve required in ((~~(4)~~))(d)(ii) of this ((~~section~~)) subsection, and if a separate valve, shall be located adjacent to the valve required in ((~~(4)~~))(d)(ii) of this ((~~section~~)) subsection.

(iv) Openings for manual gaging, if independent of the fill pipe (see ((~~(4)~~))(d)(vi) of this ((~~section~~)) subsection), shall be provided with a vaportight cap or cover. Each such opening shall be protected against liquid overflow and possible vapor release by means of a spring loaded check valve or other approved device.

(v) For ((~~Class IB and Class IC~~)) Category 2 flammable liquids and Category 3 flammable liquids with a flashpoint below 100°F (37.8°C) liquids other than crude oils, gasolines, and asphalts, the fill pipe shall be so designed and installed as to minimize the possibility of generating static electricity by terminating within 6 inches of the bottom of the tank.

(vi) The fill pipe inside of the tank shall be installed to avoid excessive vibration of the pipe.

(vii) The inlet of the fill pipe shall be located outside of buildings at a location free from any source of ignition and not less than ((~~5~~)) five feet away from any building opening. The inlet of the fill pipe shall be closed and liquidtight when not in use. The fill connection shall be properly identified.

(viii) Tanks inside buildings shall be equipped with a device, or other means shall be provided, to prevent overflow into the building.

(5) Supports, foundations, and anchorage for all tank locations.

(a) General. Tank supports shall be installed on firm foundations. Tank supports shall be of concrete, masonry, or protected steel. Single wood timber supports (not cribbing) laid horizontally may be used for outside aboveground tanks if not more than 12 inches high at their lowest point.

(b) Fire resistance. Steel supports or exposed piling shall be protected by materials having a fire resistance rating of not less than ((~~2~~)) two hours, except that steel saddles need not be protected if less than ((~~12~~)) twelve inches high at their lowest point. Water spray protection or its equivalent may be used in lieu of fire-resistive materials to protect supports.

(c) Spheres. The design of the supporting structure for tanks such as spheres shall receive special engineering consideration.

(d) Load distribution. Every tank shall be so supported as to prevent the excessive concentration of loads on the supporting portion of the shell.

(e) Foundations. Tanks shall rest on the ground or on foundations made of concrete, masonry, piling, or steel. Tank foundations shall be designed to minimize the possibility of uneven settling of the tank and to minimize corrosion in any part of the tank resting on the foundation.

(f) Flood areas. Where a tank is located in an area that may be subjected to flooding, the applicable precautions outlined in ((~~(5)~~))(f) of this ((~~section~~)) subsection shall be observed.

(i) No aboveground vertical storage tank containing a flammable ((~~or combustible~~)) liquid shall be located so that the allowable liquid level within the tank is below the established maximum flood stage, unless the tank is provided with a guiding structure such as described in ((~~(5)~~))(f)(xiii), (xiv) and (xv) of this ((~~section~~)) subsection.

(ii) Independent water supply facilities shall be provided at locations where there is no ample and dependable public water supply available for loading partially empty tanks with water.

(iii) In addition to the preceding requirements, each tank so located that more than ((~~70~~)) seventy percent, but less than ((~~100~~)) one hundred percent, of its allowable liquid storage capacity will be submerged at the established maximum flood stage, shall be safeguarded by one of the following methods: Tank shall be raised, or its height shall be increased, until its top extends above the maximum flood stage a distance equivalent to ((~~30~~)) thirty percent or more of its allowable liquid storage capacity: Provided, however, That the submerged part of the tank shall not exceed two and one-half times the diameter. Or, as an alternative to the foregoing, adequate noncombustible structural guides, designed to permit the tank to float vertically without loss of product, shall be provided.

(iv) Each horizontal tank so located that more than ((~~70~~)) seventy percent of its storage capacity will be submerged at the established flood stage, shall be anchored, attached to a foundation of concrete or of steel and concrete, of sufficient weight to provide adequate load for the tank when filled with flammable ((~~or combustible~~)) liquid and submerged by flood waters to the established flood stage, or adequately secured by other means.

(v) Spherical and spheroidal tanks shall be protected by applicable methods as specified for either vertical or horizontal tanks.

(vi) At locations where there is no ample and dependable water supply, or where filling of underground tanks with liquid is impracticable because of the character of their contents, their use, or for other reasons, each tank shall be safeguarded against movement when empty and submerged by high groundwater or flood waters by anchoring, weighting with concrete or other approved solid loading material, or securing by other means. Each such tank shall be so constructed and installed that it will safely resist external pressures due to high groundwater or flood waters.

(vii) At locations where there is an ample and dependable water supply available, underground tanks containing flammable ((~~or combustible~~)) liquids, so installed that more than ((~~70~~)) seventy percent of their storage capacity will be submerged at the maximum flood stage, shall be so anchored, weighted, or secured by other means, as to prevent movement of such tanks when filled with flammable or combustible liquids, and submerged by flood waters to the established flood stage.

(viii) Pipe connections below the allowable liquid level in a tank shall be provided with valves or cocks located as closely as practicable to the tank shell. Such valves and their connections to tanks shall be of steel or other material suitable for use with the liquid being stored. Cast iron shall not be used.

(ix) At locations where an independent water supply is required, it shall be entirely independent of public power and water supply. Independent source of water shall be available when flood waters reach a level not less than ((~~10~~)) ten feet below the bottom of the lowest tank on a property.

(x) The self-contained power and pumping unit shall be so located or so designed that pumping into tanks may be carried on continuously throughout the rise in flood waters from a level ((~~10~~)) ten feet below the lowest tank to the level of the potential flood stage.

(xi) Capacity of the pumping unit shall be such that the rate of rise of water in all tanks shall be equivalent to the established potential average rate of rise of flood waters at any stage.

(xii) Each independent pumping unit shall be tested periodically to insure that it is in satisfactory operating condition.

(xiii) Structural guides for holding floating tanks above their foundations shall be so designed that there will be no resistance to the free rise of a tank, and shall be constructed of noncombustible material.

(xiv) The strength of the structure shall be adequate to resist lateral movement of a tank subject to a horizontal force in any direction equivalent to not less than ((~~25~~)) twenty-five pounds per square foot acting on the projected vertical cross-sectional area of the tank.

(xv) Where tanks are situated on exposed points or bends in a shoreline where swift currents in flood waters will be present, the structures shall be designed to withstand a unit force of not less than ((~~50~~)) fifty pounds per square foot.

(xvi) The filling of a tank to be protected by water loading shall be started as soon as flood waters reach a dangerous flood stage. The rate of filling shall be at least equal to the rate of rise of the floodwaters (or the established average potential rate of rise).

(xvii) Sufficient fuel to operate the water pumps shall be available at all times to insure adequate power to fill all tankage with water.

(xviii) All valves on connecting pipelines shall be closed and locked in closed position when water loading has been completed.

(xix) Where structural guides are provided for the protection of floating tanks, all rigid connections between tanks and pipelines shall be disconnected and blanked off or binded before the floodwaters reach the bottom of the tank, unless control valves and their connections to the tank are of a type designed to prevent breakage between the valve and the tank shell.

(xx) All valves attached to tanks other than those used in connection with water loading operations shall be closed and locked.

(xxi) If a tank is equipped with a swing line, the swing pipe shall be raised to and secured at its highest position.

(xxii) Inspections. The director or his/her designated representative shall make periodic inspections of all plants where the storage of flammable ((~~or combustible~~)) liquids is such as to require compliance with the foregoing requirements, in order to assure the following:

(A) That all flammable ((~~or combustible~~)) liquid storage tanks are in compliance with these requirements and so maintained.

(B) That detailed printed instructions of what to do in flood emergencies are properly posted.

(C) That station operators and other employees depended upon to carry out such instructions are thoroughly

informed as to the location and operation of such valves and other equipment necessary to effect these requirements.

(g) Earthquake areas. In areas subject to earthquakes, the tank supports and connections shall be designed to resist damage as a result of such shocks.

(6) Sources of ignition. In locations where flammable vapors may be present, precautions shall be taken to prevent ignition by eliminating or controlling sources of ignition. Sources of ignition may include open flames, lightning, smoking, cutting and welding, hot surfaces, frictional heat, sparks (static, electrical, and mechanical), spontaneous ignition, chemical and physical-chemical reactions, and radiant heat.

(7) Testing.

(a) General. All tanks, whether shop built or field erected, shall be strength tested before they are placed in service in accordance with the applicable sections of the code under which they were built. The American Society of Mechanical Engineers (ASME) code stamp. American Petroleum Institute (API) monogram, or the label of the Underwriters' Laboratories, Inc., on a tank shall be evidence of compliance with this strength test. Tanks not marked in accordance with the above codes shall be strength tested before they are placed in service in accordance with good engineering principles and reference shall be made to the sections on testing in the codes listed in (l)(c)(i), (d)(ii) or (e)(ii) of this section.

(b) Strength. When the vertical length of the fill and vent pipes is such that when filled with liquid the static head imposed upon the bottom of the tank exceeds ((~~10~~)) ten pounds per square inch, the tank and related piping shall be tested hydrostatically to a pressure equal to the static head thus imposed.

(c) Tightness. In addition to the strength test called for in (((~~7~~)))(a) and (b) of this subsection, all tanks and connections shall be tested for tightness. Except for underground tanks, this tightness test shall be made at operating pressure with air, inert gas, or water prior to placing the tank in service. In the case of field-erected tanks the strength test may be considered to be the test for tank tightness. Underground tanks and piping, before being covered, enclosed, or placed in use, shall be tested for tightness hydrostatically, or with air pressure at not less than ((~~3~~)) three pounds per square inch and not more than ((~~5~~)) five pounds per square inch.

(d) Repairs. All leaks or deformations shall be corrected in an acceptable manner before the tank is placed in service. Mechanical caulking is not permitted for correcting leaks in welded tanks except pinhole leaks in the roof.

(e) Derated operations. Tanks to be operated at pressures below their design pressure may be tested by the applicable provisions of (((~~7~~))) (a) or (b) of this subsection based upon the pressure developed under full emergency venting of the tank.

AMENDATORY SECTION (Amending Order 76-6, filed 3/1/76)

WAC 296-24-33007 Piping, valves, and fittings. (1) General.

(a) Design. The design (including selection of materials) fabrication, assembly, test, and inspection of piping systems containing flammable ((~~or combustible~~)) liquids shall be suitable for the expected working pressures and structural stresses. Conformity with the applicable provisions of Pressure Piping, ANSI B31-1967 series and the provisions of this section, shall be considered prima facie evidence of compliance with the foregoing provisions.

(b) Exceptions. This section does not apply to any of the following:

(i) Tubing or casing on any oil or gas wells and any piping connected directly thereto.

(ii) Motor vehicle, aircraft, boat, or portable or stationary engines.

(iii) Piping within the scope of any applicable boiler and pressures vessel code.

(c) Definitions. As used in this section, piping systems consist of pipe, tubing flanges, bolting, gaskets, valves, fittings, the pressure containing parts of other components such as expansion joints and strainers, and devices which serve such purposes as mixing, separating, snubbing, distributing, metering, or controlling flow.

(2) Materials for piping, valves, and fittings.

(a) Required materials. Materials for piping, valves, or fittings shall be steel, nodular iron or malleable iron, except as provided in ((~~subsections~~)) (b), (c), and (d) of this subsection.

(b) Exceptions. Materials other than steel, nodular iron, or malleable iron may be used underground, or if required by the properties of the flammable ((~~or combustible~~)) liquid handled. Material other than steel, nodular iron, or malleable iron shall be designed to specifications embodying principles recognized as good engineering practices for the material used.

(c) Linings. Piping, valves, and fittings may have combustible or noncombustible linings.

(d) Low-melting materials. When low-melting point materials such as aluminum and brass or materials that soften on fire exposure such as plastics, or nonductile materials such as cast iron, are necessary, special consideration shall be given to their behavior on fire exposure. If such materials are used in aboveground piping systems or inside buildings, they shall be suitably protected against fire exposure or so located that any spill resulting from the failure of these materials could not unduly expose persons, important buildings or structures or can be readily controlled by remote valves.

(3) Pipe joints. Joints shall be made liquid tight. Welded or screwed joints or approved connectors shall be used. Threaded joints and connections shall be made up tight with a suitable lubricant or piping compound. Pipe joints dependent upon the friction characteristics of combustible materials for mechanical continuity of piping shall not be used inside buildings. They may be used outside of buildings above or below ground. If used aboveground, the piping shall either be secured to prevent disengagement at the fitting or the piping system shall be so designed that any spill resulting from such disengagement could not unduly expose persons, important buildings or structures, and could be readily controlled by remote valves.

(4) Supports. Piping systems shall be substantially supported and protected against physical damage and excessive

stresses arising from settlement, vibration, expansion, or contraction.

(5) Protection against corrosion. All piping for flammable ((~~or combustible~~)) liquids, both aboveground and underground, where subject to external corrosion, shall be painted or otherwise protected.

(6) Valves. Piping systems shall contain a sufficient number of valves to operate the system properly and to protect the plant. Piping systems in connection with pumps shall contain a sufficient number of valves to control properly the flow of liquid in normal operation and in the event of physical damage. Each connection to pipelines, by which equipment such as tankcars or tank vehicles discharge liquids by means of pumps into storage tanks, shall be provided with a check valve for automatic protection against backflow if the piping arrangement is such that backflow from the system is possible.

(7) Testing. All piping before being covered, enclosed, or placed in use shall be hydrostatically tested to ((~~150~~)) one hundred fifty percent of the maximum anticipated pressure of the system, or pneumatically tested to ((~~110~~)) one hundred ten percent of the maximum anticipated pressure of the system, but not less than ((~~5~~)) five pounds per square inch gage at the highest point of the system. This test shall be maintained for a sufficient time to complete visual inspection of all joints and connections, but for at least ((~~10~~)) ten minutes.

AMENDATORY SECTION (Amending WSR 04-18-080, filed 8/31/04, effective 11/1/04)

WAC 296-24-33009 Container and portable tank storage. (1) Scope.

(a) General. This section shall apply only to the storage of flammable ((~~or combustible~~)) liquids in drums or other containers (including flammable aerosols) not exceeding 60 gallons individual capacity and those portable tanks not exceeding 660 gallons individual capacity.

(b) Exceptions. This section shall not apply to the following:

(i) Storage of containers in bulk plants, service stations, refineries, chemical plants, and distilleries;

(ii) ((~~Class I or Class II~~)) Category 1, 2, or 3 flammable liquids in the fuel tanks of a motor vehicle, aircraft, boat, or portable or stationary engine;

(iii) Flammable or combustible paints, oils, varnishes, and similar mixtures used for painting or maintenance when not kept for a period in excess of ((~~30~~)) thirty days;

(iv) Beverages when packaged in individual containers not exceeding 1 gallon in size.

(2) Design, construction, and capacity of containers.

(a) General. Only approved containers and portable tanks shall be used. Metal containers and portable tanks meeting the requirements of and containing products authorized by Chapter I, Title 49 of the Code of Federal Regulations - October 1, 1972, (regulations issued by the hazardous materials regulations board, department of transportation), shall be deemed to be acceptable.

(b) Emergency venting. Each portable tank shall be provided with one or more devices installed in the top with sufficient emergency venting capacity to limit internal pressure under fire exposure conditions to 10 p.s.i.g., or ((~~30~~)) thirty percent of the bursting pressure of the tank, whichever is greater. The total venting capacity shall be not less than that specified in WAC 296-24-33005 (2)(e)(iii) or (v). At least one pressure-actuated vent having a minimum capacity of ((~~6,000~~)) six thousand cubic feet of free air (14.7 p.s.i.a. and 60°F) shall be used. It shall be set to open at not less than 5 p.s.i.g. If fusible vents are used, they shall be actuated by elements that operate at a temperature not exceeding 300°F.

TABLE H-12
MAXIMUM ALLOWABLE SIZE OF
CONTAINERS AND PORTABLE TANKS FOR FLAMMABLE LIQUIDS

((~~Container Type~~	~~Flammable liquids~~ ~~Class IA~~	~~Class IB~~	~~Class IC~~	~~Combustible Liquids~~ ~~Class II~~	~~&~~ ~~Class III~~))
~~Glass or approved plastic~~	~~1 pt.~~	~~1 qu.~~	~~1 gal.~~	~~1 gal.~~	~~1 gal.~~
~~Metal (other than DOTdrums)~~	~~1 gal.~~	~~5 gal.~~	~~5 gal.~~	~~5 gal.~~	~~5 gal.~~
~~Safety cans~~	~~2 gal.~~	~~5 gal.~~	~~5 gal.~~	~~5 gal.~~	~~5 gal.~~
~~Metal drums (DOT spec.)~~	~~60 gal.~~	~~60 gal.~~	~~60 gal.~~	~~60 gal.~~	~~60 gal.~~
~~Approved portable tanks~~	~~660 gal.~~	~~660 gal.~~	~~660 gal.~~	~~660 gal.~~	~~660 gal.~~))

Container type	Category 1	Category 2	Category 3 and 4
Glass or approved plastic	1 pt	1 qt	1 gal
Metal (other than DOT drums)	1 gal	5 gal	5 gal
Safety cans	2 gal		
Metal drums (DOT specifications)	60 gal	60 gal	60 gal
Approved portable tanks	660 gal	660 gal	660 gal

Container exemptions:

((~~(i)~~)) (c) Medicines, beverages, foodstuffs, cosmetics and other common consumer items, when packaged according to commonly accepted practices, shall be exempt from the requirements of subsection (4)(a) and (b) of this section.

((~~(c)~~)) (d) Size. Flammable ((~~and combustible~~)) liquid containers shall be in accordance with Table H-12, except that glass or plastic containers of no more than 1-gallon capacity may be used for a ((~~Class IA or IB~~)) Category 1 or 2 flammable liquid if:

(i) Such liquid either would be rendered unfit for its intended use by contact with metal or would excessively corrode a metal container so as to create a leakage hazard; and

(ii) The user's process either would require more than 1 pint of ((~~Class IA~~)) Category 1 flammable liquid or more than 1 quart of a ((~~Class IB~~)) Category 2 flammable liquid of a single assay lot to be used at one time, or would require the maintenance of an analytical standard liquid of a quality which is not met by the specified standards of liquids available, and the quantity of the analytical standard liquid required to be used in any one control process exceeds one-

sixteenth the capacity of the container allowed under Table H-12 for the class of liquid; or

(iii) The containers are intended for direct export outside the United States.

(3) Design, construction, and capacity of storage cabinets.

(a) Maximum capacity. Not more than 60 gallons of ((~~Class I or Class II~~)) Category 1, 2, or 3 flammable liquids, nor more than 120 gallons of ((~~Class III~~)) Category 4 flammable liquids may be stored in a storage cabinet.

(b) Fire resistance. Storage cabinets shall be designed and constructed to limit the internal temperature to not more than 325°F when subjected to a ((~~10~~)) ten-minute fire test using the standard time-temperature curve as set forth in Standard Methods of Fire Tests of Building Construction and Materials, NFPA 251-1969. All joints and seams shall remain tight and the door shall remain securely closed during the fire test. Cabinets shall be labeled "Flammable—Keep fire away."

(i) Metal cabinets constructed in the following manner shall be deemed to be in compliance. The bottom, top, door, and sides of cabinet shall be at least No. 18 gage sheet iron and double walled with ((~~1 1/2 inch~~)) one and one-half inch air space. Joints shall be riveted, welded or made tight by some equally effective means. The door shall be provided with a three-point lock, and the door sill shall be raised at least ((~~2~~)) two inches above the bottom of the cabinet.

(ii) Wooden cabinets constructed in the following manner shall be deemed in compliance. The bottom, sides, and top shall be constructed of an approved grade of plywood at least ((~~1~~)) one inch in thickness, which shall not break down or delaminate under fire conditions. All joints shall be rabbetted and shall be fastened in two directions with flathead woodscrews. When more than one door is used, there shall be a rabbetted overlap of not less than ((~~1~~)) one inch. Hinges shall be mounted in such a manner as not to lose their holding capacity due to loosening or burning out of the screws when subjected to the fire test.

(4) Design and construction of inside storage rooms.

(a) Construction. Inside storage rooms shall be constructed to meet the required fire-resistive rating for their use. Such construction shall comply with the test specifications set forth in Standard Methods of Fire Tests of Building Construction and Materials, NFPA 251-1969. Where an automatic sprinkler system is provided, the system shall be designed and installed in an acceptable manner. Openings to other rooms or buildings shall be provided with noncombustible liquid-tight raised sills or ramps at least ((4)) four inches in height, or the floor in the storage area shall be at least ((~~4~~)) four inches below the surrounding floor. Openings shall be provided with approved self-closing fire doors. The room shall be liquid tight where the walls join the floor. A permissible alternate to the sill or ramp is an open-grated trench inside of the room which drains to a safe location. Where other portions of the building or other properties are exposed, windows shall be protected as set forth in the Standard for Fire Doors and Windows, NFPA No. 80-1968, for Class E or F openings. Wood at least ((~~1~~)) one inch nominal thickness may be used for shelving, racks, dunnage, scuffboards, floor overlay, and similar installations.

(b) Rating and capacity. Storage in inside storage rooms shall comply with Table H-13.

TABLE H-13
STORAGE IN INSIDE ROOMS

Fire protection* provided	Fire resistance	Maximum size	Total allowable quantities (gals./ sq. Ft./floor area)
Yes	2 hours	500 sq. ft.	10
No	2 hours	500 sq. ft.	4
Yes	1 hour	150 sq. ft.	5
No	1 hour	150 sq. ft.	2

* Fire protection system shall be sprinkler, water spray, carbon dioxide, or other system.

(c) Wiring. Electrical wiring and equipment ((~~within~~)) located inside storage rooms used ((~~to store Class I~~)) for Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), shall comply with the provisions of chapter 296-24 WAC Part L for Class I, Division 2 Hazardous Locations((~~. For inside storage rooms used to store Class II and III~~)); for Category 3 flammable liquids ((~~the pertinent provisions chapter 296-24 WAC Part L apply~~)) with a flashpoint at or above 100°F (37.8°C) and Category 4 flammable liquids, shall be approved for general use.

(d) Ventilation. Every inside storage room shall be provided with either a gravity or a mechanical exhaust ventilation system. Such system shall be designed to provide for a complete change of air within the room at least six times per hour. If a mechanical exhaust system is used, it shall be controlled by a switch located outside of the door. The ventilating equipment and any lighting fixtures shall be operated by the same switch. A pilot light shall be installed adjacent to the switch if ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), are dispensed within the room. Where gravity ventilation is provided, the fresh air intake, as well as the exhaust outlet from the room, shall be on the exterior of the building in which the room is located.

(e) Storage in inside storage rooms. In every inside storage room there shall be maintained one clear aisle at least 3 feet wide. Containers over 30 gallons capacity shall not be stacked one upon the other. Dispensing shall be by approved pump or self-closing faucet only.

(5) Storage inside building.

(a) Egress. Flammable ((~~or combustible~~)) liquids, including stock for sale, shall not be stored so as to limit use of exits, stairways, or areas normally used for the safe egress of people.

(b) Containers. The storage of flammable ((~~or combustible~~)) liquids in containers or portable tanks shall comply with subsection (4)(c) through (e) of this section.

(c) Office occupancies. Storage shall be prohibited except that which is required for maintenance and operation of building and operation of equipment. Such storage shall be kept in closed metal containers stored in a storage cabinet or

in safety cans or in an inside storage room not having a door that opens into that portion of the building used by the public.

(d) Mercantile occupancies and other retail stores.

(i) In rooms or areas accessible to the public, storage shall be limited to quantities needed for display and normal merchandising purposes but shall not exceed 2 gallons per square foot of gross floor area. The gross floor area used for computing the maximum quantity permitted shall be considered as that portion of the store actually being used for merchandising flammable ((~~and combustible~~)) liquids.

(ii) Where the aggregate quantity of additional stock exceeds 60 gallons of Class IA, or 120 gallons of Class IB, or 180 gallons of Class IC, or 240 gallons of Class II, or 500 gallons of Class III liquids, or any combination of Class I and Class II liquids exceeding 240 gallons, it shall be stored in a room or portion of the building that complies with the construction provisions for an inside storage room as prescribed in subsection (4) of this section. For water miscible liquids, these quantities may be doubled.

(iii) Containers in a display area shall not be stacked more than ((~~3~~)) three feet or two containers high, whichever is the greater, unless the stacking is done on fixed shelving or is otherwise satisfactorily secured.

(iv) Shelving shall be of stable construction, of sufficient depth and arrangement such that containers displayed thereon shall not be easily displaced.

(v) Leaking containers shall be removed to a storage room or taken to a safe location outside the building and the contents transferred to an undamaged container.

(e) General purpose public warehouses. Storage shall be in accordance with Table H-14 or H-15 and in buildings or in portions of such buildings cut off by standard firewalls. Material creating no fire exposure hazard to the flammable ((~~or combustible~~)) liquids may be stored in the same area.

TABLE H-14
INDOOR CONTAINER STORAGE

Class liquid	Storage level	Protected storage maximum per pile		Unprotected storage maximum per pile	
		Gal.	Ht.	Gal.	Ht.
IA	Ground and upper floors	2,750	3 ft.	660	3 ft.
		(50)	(1)	(12)	(1)
	Basement	Not permitted		Not permitted	
IB	Ground and upper floors	5,500	6 ft.	1,375	3 ft.
		(100)	(2)	(25)	(1)
	Basement	Not permitted		Not permitted	
IC	Ground and upper floors	16,500	6 ft	4,125	3 ft.
		(300)	(2)	(75)	(1)
	Basement	Not permitted		Not permitted	
II	Ground and upper floors	16,500	9 ft.	4,125	9 ft.
		(300)	(3)	(75)	(3)
	Basement	5,500 (100)	9 ft. (3)	Not permitted	
III	Ground and upper floors	55,000	15 ft.	13,750	12 ft.
		(1,000)	(5)	(250)	(4)
	Basement	8,250 (450)	9 ft. (3)	Not permitted	

Note 1: When 2 or more classes of materials are stored in a single pile, the maximum gallonage permitted in that pile shall be the smallest of the 2 or more separate maximum gallonages.

Note 2: Aisles shall be provided so that no container is more than 12 ft. from an aisle. Main aisles shall be at least 8 ft. wide and side aisles at least 4 ft. wide.

(Numbers in parentheses indicate corresponding number of 55-gal. drums.)

Note 3: Each pile shall be separated from each other by at least 4 ft.

TABLE H-15
INDOOR PORTABLE TANK STORAGE

Class liquid	Storage level	Protected storage maximum per pile		Unprotected storage maximum per pile	
		Gal.	Ht.	Gal.	Ht.
IA	Ground and upper floors	Not permitted		Not permitted	
	Basement	Not permitted		Not permitted	
IB	Ground and upper floors	20,000	7ft.	2,000	7 ft.
	Basement	Not permitted		Not permitted	
IC	Ground and upper floors	40,000	14 ft	5,500	7 ft.
	Basement	Not permitted		Not permitted	
II	Ground and upper floors	40,000	14 ft.	5,500	7 ft.
	Basement	20,000	7 ft.	Not permitted	
III	Ground and upper floors	60,000	14 ft.	22,000	7 ft.
	Basement	20,000	7 ft.	Not permitted	

Note 1: When 2 or more classes of materials are stored in a single pile, the maximum gallonage permitted in that pile shall be the smallest of the 2 or more separate maximum gallonages.

Note 2: Aisles shall be provided so that no portable tank is more than 12 ft. from an aisle. Main aisles shall be at least 8 ft. wide and side aisles at least 4 ft. wide.

Note 3: Each pile shall be separated from each other by at least 4 ft.

(f) Flammable ((~~and combustible~~)) liquid warehouses or storage buildings.

(i) If the storage building is located ((~~50~~)) fifty feet or less from a building or line of adjoining property that may be built upon, the exposing wall shall be a blank wall having a fire-resistance rating of at least ((~~2~~)) two hours.

(ii) The total quantity of liquids within a building shall not be restricted, but the arrangement of storage shall comply with Table H-14 or H-15.

(iii) Containers in piles shall be separated by pallets or dunnage where necessary to provide stability and to prevent excessive stress on container walls.

(iv) Portable tanks stored over one tier high shall be designed to nest securely, without dunnage and adequate materials handling equipment shall be available to handle tanks safely at the upper tier level.

(v) No pile shall be closer than ((~~3~~)) three feet to the nearest beam, chord, girder, or other obstruction, and shall be ((~~3~~)) three feet below sprinkler deflectors or discharge orifices of water spray, or other overhead fire protection systems.

(vi) Aisles of at least ((~~3~~)) three feet wide shall be provided where necessary for reasons of access to doors, windows or standpipe connections.

(6) Storage outside buildings.

(a) General. Storage outside buildings shall be in accordance with Table H-16 or H-17, and ((~~(6)~~))(b) and (d) of this ((~~section~~)) subsection.

TABLE H-16
OUTDOOR CONTAINER STORAGE

1 Class	2 Maximum per pile (see note 1)	3 Distance between piles (see note 2)	4 Distance to property line that can be built upon (see notes 3 & 4)	5 Distance to street, alley, public way (see note 4)
	gal.	ft.	ft.	ft.
IA	1,100	5	20	10
IB	2,200	5	20	10
IC	4,400	5	20	10
II	8,800	5	10	5
III	22,000	5	10	5

Note 1: When 2 or more classes of materials are stored in a single pile, the maximum gallonage in that pile shall be the smallest of the 2 or more separate gallonages.

Note 2: Within 200 ft. of each container, there shall be 12-ft. wide access way to permit approach of fire control apparatus.

Note 3: The distances listed apply to properties that have protection for exposures as defined. If there are exposures, and such protection for exposures does not exist, the distances in column 4 shall be doubled.

Note 4: When total quantity stored does not exceed 50 percent of maximum per pile, the distances in columns 4 and 5 may be reduced 50 percent, but not less than 3 ft.

(b) Maximum storage. A maximum of 1,100 gallons of flammable ((~~or combustible~~)) liquids may be located adjacent to buildings located on the same premises and under the same management provided the provisions of ((~~(6)~~))(b)(i) and (ii) of this subsection are complied with.

(i) The building shall be a one-story building devoted principally to the handling and storing of flammable ((~~or combustible~~)) liquids or the building shall have ((~~2~~)) two hour fire-resistive exterior walls having no opening within ((~~10~~)) ten feet of such storage.

(ii) Where quantity stored exceeds 1,100 gallons, or provisions of ((~~(6)~~))(b)(i) of this subsection cannot be met, a minimum distance of ((~~10~~)) ten feet between buildings and nearest container of flammable ((~~or combustible~~)) liquid shall be maintained.

TABLE H-17
OUTDOOR PORTABLE TANK STORAGE

1 Class	2 Maximum per pile	3 Distance between piles	4 Distance to property line that can be built upon	5 Distance to street, alley, public way
	gal.	ft.	ft.	ft.
IA	2,200	5	20	10
IB	4,400	5	20	10
IC	8,800	5	20	10
II	17,600	5	10	5
III	44,000	5	10	5

Note 1: When 2 or more classes of materials are stored in a single pile, the maximum gallonage in that pile shall be the smallest of the 2 or more separate gallonages.

Note 2: Within 200 ft. of each portable tank, there shall be a 12-ft. wide access way to permit approach of fire control apparatus.

Note 3: The distances listed apply to properties that have protection for exposures as defined. If there are exposures, and such protection for exposures does not exist, the distances in column 4 shall be doubled.

Note 4: When total quantity stored does not exceed 50 percent of maximum per pile, the distances in columns 4 and 5 may be reduced 50 percent, but not less than 3 ft.

(c) Spill containment. The storage area shall be graded in a manner to divert possible spills away from buildings or other exposures or shall be surrounded by a curb at least ((~~6~~)) six inches high. When curbs are used, provisions shall be made for draining of accumulations of ground or rain water or spills of flammable ((~~or combustible~~)) liquids. Drains shall terminate at a safe location and shall be accessible to operation under fire conditions.

(d) Security. The storage area shall be protected against tampering or trespassers where necessary and shall be kept free of weeds, debris and other combustible material not necessary to the storage.

(7) Fire control.

(a) Extinguishers. Suitable fire control devices, such as small hose or portable fire extinguishers, shall be available at locations where flammable ((~~or combustible~~)) liquids are stored.

(i) At least one portable fire extinguisher having a rating of not less than 12-B units shall be located outside of, but not more than ((~~10~~)) ten feet from, the door opening into any room used for storage.

(ii) At least one portable fire extinguisher having a rating of not less than 12-B units must be located not less than ((~~10~~)) ten feet, nor more than ((~~25~~)) twenty-five feet, from any ((~~Class I or Class II~~)) Category 1, 2, or 3 flammable liquid

storage area located outside of a storage room but inside a building.

Note: For additional requirements relating to portable fire extinguishers see WAC 296-800-300.

(b) Sprinklers. When sprinklers are provided, they shall be installed in accordance with chapter 296-24 WAC, Part G-3.

(c) Open flames and smoking. Open flames and smoking shall not be permitted in flammable ((~~or combustible~~)) liquid storage areas.

(d) Water reactive materials. Materials which will react with water shall not be stored in the same room with flammable ((~~or combustible~~)) liquids.

AMENDATORY SECTION (Amending WSR 94-15-096, filed 7/20/94, effective 9/20/94)

WAC 296-24-33011 Industrial plants. (1) Scope.

(a) Application. This section shall apply to those industrial plants where:

(i) The use of flammable ((~~or combustible~~)) liquids is incidental to the principal business, or

(ii) Where flammable ((~~or combustible~~)) liquids are handled or used only in unit physical operations such as mixing, drying, evaporating, filtering, distillation, and similar operations which do not involve chemical reaction. This section shall not apply to chemical plants, refineries or distilleries.

(b) Exceptions. Where portions of such plants involve chemical reactions such as oxidation, reduction, halogenation, hydrogenation, alkylation, polymerization, and other chemical processes, those portions of the plant shall be in accordance with WAC 296-24-33017.

(2) Incidental storage or use of flammable ((~~and combustible~~)) liquids.

(a) Application. This shall be applicable to those portions of an industrial plant where the use and handling of flammable ((~~or combustible~~)) liquids is only incidental to the principal business, such as automobile assembly, construction of electronic equipment, furniture manufacturing, or other similar activities.

(b) Containers. Flammable ((~~or combustible~~)) liquids shall be stored in tanks or closed containers.

(i) Except as provided in (b)(ii) and (iii) of this subsection all storage shall comply with WAC 296-24-33009 (3) or (4).

(A) When the only operation involved is the storage of flammables in containers or tanks that are closed and remain closed throughout the storage, WAC 296-24-33009(5) and tables H-14 and H-15 will apply.

(B) When the procedure involved is mixing, transferring, or other exposure of liquids to vaporization through operational procedures in which containers or tanks do not remain closed in the storage area, WAC 296-24-33009(4) and table H-13 shall be used to determine permissible quantities.

(ii) The quantity of liquid that may be located outside of an inside storage room or storage cabinet in a building or in any one fire area of a building shall not exceed:

(A) Twenty-five gallons of ((~~Class IA~~)) Category 1 flammable liquids in containers.

(B) One hundred twenty gallons of ((~~Class IB, IC, II, or III~~)) Category 2, 3, or 4 flammable liquids in containers.

(C) Six hundred sixty gallons of ((~~Class IB, IC, II, or III~~)) Category 2, 3, or 4 flammable liquids in a single portable tank.

(iii) Where large quantities of flammable ((~~or combustible~~)) liquids are necessary, storage may be in tanks which shall comply with the applicable requirements of WAC 296-24-33005.

(c) Separation and protection. Areas in which flammable ((~~or combustible~~)) liquids are transferred from one tank or container to another container shall be separated from other operations in the building by adequate distance or by construction having adequate fire resistance. Drainage or other means shall be provided to control spills. Adequate natural or mechanical ventilation shall be provided.

(d) Handling liquids at point of final use.

(i) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), shall be kept in covered containers when not actually in use.

(ii) Where flammable ((~~or combustible~~)) liquids are used or handled, except in closed containers, means shall be provided to dispose promptly and safely of leakage or spills.

(iii) ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), may be used only where there are no open flames or other sources of ignition within the possible path of vapor travel.

(iv) Flammable ((~~or combustible~~)) liquids shall be drawn from or transferred into vessels, containers, or portable tanks within a building only through a closed piping system, from safety cans, by means of a device drawing through the top, or from a container or portable tanks by gravity through an approved self-closing valve. Transferring by means of air pressure on the container or portable tanks shall be prohibited.

(3) Unit physical operations.

(a) Application. This subsection (3) shall be applicable in those portions of industrial plants where flammable ((~~or combustible~~)) liquids are handled or used in unit physical operations such as mixing, drying, evaporating, filtering, distillation, and similar operations which do not involve chemical change. Examples are plants compounding cosmetics, pharmaceuticals, solvents, cleaning fluids, insecticides, and similar types of activities.

(b) Location. Industrial plants shall be located so that each building or unit of equipment is accessible from at least one side for firefighting and fire control purposes. Buildings shall be located with respect to lines of adjoining property which may be built upon as set forth in WAC 296-24-33017 (2)(a) and (b) except that the blank wall referred to in WAC 296-24-33017 (2)(b) shall have a fire resistance rating of at least two hours.

(c) Chemical processes. Areas where unstable liquids are handled or small scale unit chemical processes are carried on shall be separated from the remainder of the plant by a fire wall of two-hour minimum fire resistance rating.

(d) Drainage.

(i) Emergency drainage systems shall be provided to direct flammable ((~~or combustible~~)) liquid leakage and fire

protection water to a safe location. This may require curbs, scuppers, or special drainage systems to control the spread of fire; see WAC 296-24-33005 (2)(g)(ii).

(ii) Emergency drainage systems, if connected to public sewers or discharged into public waterways, shall be equipped with traps or separators.

(iii) The industrial plant shall be designed and operated to prevent the normal discharge of flammable ((~~or combustible~~)) liquids into public waterways, public sewers, or adjoining property.

(e) Ventilation.

(i) Areas as defined in subsection (1)(a) of this section using ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), shall be ventilated at a rate of not less than one cubic foot per minute per square foot of solid floor area. This shall be accomplished by natural or mechanical ventilation with discharge or exhaust to a safe location outside of the building. Provision shall be made for introduction of makeup air in such a manner as not to short circuit the ventilation. Ventilation shall be arranged to include all floor areas or pits where flammable vapors may collect.

(ii) Equipment used in a building and the ventilation of the building shall be designed so as to limit flammable vapor-air mixtures under normal operating conditions to the interior of equipment, and to not more than five feet from equipment which exposes ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), to the air. Examples of such equipment are dispensing stations, open centrifuges, plate and frame filters, open vacuum filters, and surfaces of open equipment.

(f) Storage and handling. The storage, transfer, and handling of liquid shall comply with WAC 296-24-33017(4).

(4) Tank vehicle and tank car loading and unloading.

Tank vehicle and tank car loading or unloading facilities shall be separated from aboveground tanks, warehouses, other plant buildings or nearest line of adjoining property which may be built upon by a distance of twenty-five feet for ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), and fifteen feet for ((~~Class II and Class III~~)) Category 3 flammable liquids with a flashpoint at or above 100°F (37.8°C) and Category 4 flammable liquids, measured from the nearest position of any fill stem. Buildings for pumps or shelters for personnel may be a part of the facility. Operations of the facility shall comply with the appropriate portions of WAC 296-24-33013(3).

(5) Fire control.

(a) Portable and special equipment. Portable fire extinguishment and control equipment shall be provided in such quantities and types as are needed for the special hazards of operation and storage.

(b) Water supply. Water shall be available in volume and at adequate pressure to supply water hose streams, foam-producing equipment, automatic sprinklers, or water spray systems as the need is indicated by the special hazards of operation, dispensing and storage.

(c) Special extinguishers. Special extinguishing equipment such as that utilizing foam, inert gas, or dry chemical shall be provided as the need is indicated by the special hazards of operation dispensing and storage.

(d) Special hazards. Where the need is indicated by special hazards of operation, flammable ((~~or combustible~~)) liquid processing equipment, major piping, and supporting steel shall be protected by approved water spray systems, deluge systems, approved fire-resistant coatings, insulation, or any combination of these.

(e) Maintenance. All plant fire protection facilities shall be adequately maintained and periodically inspected and tested to make sure they are always in satisfactory operating condition, and they will serve their purpose in time of emergency.

(6) Sources of ignition.

(a) General. Adequate precautions shall be taken to prevent the ignition of flammable vapors. Sources of ignition include but are not limited to open flames; lightning; smoking; cutting and welding; hot surfaces; frictional heat; static, electrical and mechanical sparks; spontaneous ignition, including heat-producing chemical reactions; and radiant heat.

(b) Grounding. ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), shall not be dispensed into containers unless the nozzle and container are electrically interconnected. Where the metallic floorplate on which the container stands while filling is electrically connected to the fill stem or where the fill stem is bonded to the container during filling operations by means of a bond wire, the provisions of these standards shall be deemed to have been complied with.

(7) Electrical.

(a) All electrical wiring and equipment shall be installed according to chapter 296-24 WAC Part L.

(b) Locations where flammable vapor-air mixtures may exist under normal operations shall be classified Class I, Division 1 according to the requirements of chapter 296-24 WAC Part L. For those pieces of equipment installed in accordance with the requirements of subsection (3)(e)(ii) of this section, the Division 1 area shall extend five feet in all directions from all points of vapor liberation. All areas within pits shall be classified Division 1 if any part of the pit is within a Division 1 or 2 classified area, unless the pit is provided with mechanical ventilation.

(c) Locations where flammable vapor-air mixtures may exist under abnormal conditions and for a distance beyond Division 1 locations shall be classified Division 2 according to the requirements of chapter 296-24 WAC Part L. These locations include an area within twenty feet horizontally, three feet vertically beyond a Division 1 area, and up to three feet above floor or grade level within twenty-five feet, if indoors, or ten feet if outdoors, from any pump, bleeder, withdrawal fitting, meter, or similar device handling ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C). Pits provided with adequate mechanical ventilation within a Division 1 or 2 area shall be classified Division 2. If ((~~Class II or Class III~~)) only Category 3 flammable liquids ((~~only~~)) with a flashpoint at or above 100°F (37.8°C) or Category 4 flammable liquids are handled, then ordinary electrical equipment is sat-

isfactory though care shall be used in locating electrical apparatus to prevent hot metal from falling into open equipment.

(d) Where the provisions of (a), (b), and (c) of this subsection require the installation of electrical equipment suitable for Class I, Division 1 or Division 2 locations, ordinary electrical equipment including switchgear may be used if installed in a room or enclosure which is maintained under positive pressure with respect to the hazardous area. Ventilation makeup air shall be uncontaminated by flammable vapors.

(8) Repairs to equipment. Hot work, such as welding or cutting operations, use of spark-producing power tools, and chipping operations shall be permitted only under supervision of an individual in responsible charge. The individual in responsible charge shall make an inspection of the area to be sure that it is safe for the work to be done and that safe procedures will be followed for the work specified.

(9) Housekeeping.

(a) General. Maintenance and operating practices shall be in accordance with established procedures which will tend to control leakage and prevent the accidental escape of flammable ((~~or combustible~~)) liquids. Spills shall be cleaned up promptly.

(b) Access. Adequate aisles shall be maintained for unobstructed movement of personnel and so that fire protection equipment can be brought to bear on any part of flammable ((~~or combustible~~)) liquid storage, use, or any unit physical operation.

(c) Waste and residue. Combustible waste material and residues in a building or unit operating area shall be kept to a minimum, stored in covered metal receptacles and disposed of daily.

(d) Clear zone. Ground area around buildings and unit operating areas shall be kept free of weeds, trash, or other unnecessary combustible materials.

AMENDATORY SECTION (Amending WSR 94-15-096, filed 7/20/94, effective 9/20/94)

WAC 296-24-33013 Bulk plants. (1) Storage.

(a) ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C). ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), shall be stored in closed containers, or in storage tanks above ground outside of buildings, or underground in accordance with WAC 296-24-33005.

(b) ((~~Class II and III~~)) Category 3 flammable liquids with a flashpoint at or above 100°F (37.8°C) and Category 4 flammable liquids. ((~~Class II and Class III~~)) Category 3 flammable liquids with a flashpoint at or above 100°F (37.8°C) and Category 4 flammable liquids shall be stored in containers, or in tanks within buildings or above ground outside of buildings, or underground in accordance with WAC 296-24-33005.

(c) Piling containers. Containers of flammable ((~~or combustible~~)) liquids when piled one upon the other shall be separated by dunnage sufficient to provide stability and to prevent excessive stress on container walls. The height of the pile shall be consistent with the stability and strength of containers.

(2) Buildings.

(a) Exits. Rooms in which flammable ((~~or combustible~~)) liquids are stored or handled by pumps shall have exit facilities arranged to prevent occupants from being trapped in the event of fire.

(b) Heating. Rooms in which ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), are stored or handled shall be heated only by means not constituting a source of ignition, such as steam or hot water. Rooms containing heating appliances involving sources of ignition shall be located and arranged to prevent entry of flammable vapors.

(c) Ventilation.

(i) Ventilation shall be provided for all rooms, buildings, or enclosures in which ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), are pumped or dispensed. Design of ventilation systems shall take into account the relatively high specific gravity of the vapors. Ventilation may be provided by adequate openings in outside walls at floor level unobstructed except by louvers or course screens. Where natural ventilation is inadequate, mechanical ventilation shall be provided.

(ii) ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), shall not be stored or handled within a building having a basement or pit into which flammable vapors may travel, unless such area is provided with ventilation designed to prevent the accumulation of flammable vapors therein.

(iii) Containers of ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), shall not be drawn from or filled within buildings unless provision is made to prevent the accumulation of flammable vapors in hazardous concentrations. Where mechanical ventilation is required, it shall be kept in operation while flammable liquids with a flashpoint below 100°F (37.8°C) are being handled.

(3) Loading and unloading facilities.

(a) Separation. Tank vehicle and tank car loading or unloading facilities shall be separated from aboveground tanks, warehouses, other plant buildings or nearest line of adjoining property that may be built upon by a distance of ((~~25~~)) twenty-five feet for ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), and ((~~15~~)) fifteen feet for ((~~Class II and Class III~~)) Category 3 flammable liquids with a flashpoint at or above 100°F (37.8°C) and Category 4 flammable liquids measured from the nearest position of any fill spout. Buildings for pumps or shelters for personnel may be a part of the facility.

(b) ((~~Class~~)) Category restriction. Equipment such as piping, pumps, and meters used for the transfer of ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), between storage tanks and the fill stem of the loading rack shall not be used for the transfer of ((~~Class II or Class III~~)) Category 3 flammable liquids with a flashpoint at or above 100°F (37.8°C) or Category 4 flammable liquids.

(c) Valves. Valves used for the final control for filling tank vehicles shall be of the self-closing type and manually held open except where automatic means are provided for shutting off the flow when the vehicle is full or after filling of a preset amount.

(d) Static protection.

(i) Bonding facilities for protection against static sparks during the loading of tank vehicles through open domes shall be provided:

(A) Where ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), are loaded((~~,~~)); or

(B) Where ((~~Class II or Class III~~)) Category 3 flammable liquids with a flashpoint at or above 100°F (37.8°C) or Category 4 flammable liquids are loaded into vehicles which may contain vapors from previous cargoes of ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C).

(ii) Protection as required in (((~~(3)~~)))(d)(i) of this ((~~section~~)) subsection shall consist of a metallic bond wire permanently electrically connected to the fill stem or to some part of the rack structure in electrical contact with the fill stem. The free end of such wire shall be provided with a clamp or equivalent device for convenient attachment to some metallic part in electrical contact with the cargo tank of the tank vehicle.

(iii) Such bonding connection shall be made fast to the vehicle or tank before dome covers are raised and shall remain in place until filling is completed and all dome covers have been closed and secured.

(iv) Bonding as specified in (((~~(3)~~)))(d)(i), (ii) and (iii) of this ((~~section~~)) subsection is not required:

(A) Where vehicles are loaded exclusively with products not having a static accumulating tendency, such as asphalt, most crude oils, residual oils, and water soluble liquids;

(B) Where no ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), are handled at the loading facility and the tank vehicles loaded are used exclusively for ((~~Class II and Class III~~)) Category 3 flammable liquids with a flashpoint at or above 100°F (37.8°C) and Category 4 flammable liquids; and

(C) Where vehicles are loaded or unloaded through closed bottom or top connections.

(v) Filling through open domes into the tanks of tank vehicles or tank cars, that contain vapor-air mixtures within the flammable range or where the liquid being filled can form such a mixture, shall be by means of a downspout which extends near the bottom of the tank. This precaution is not required when loading liquids which are nonaccumulators of static charges.

(e) Stray currents. Tank car loading facilities where ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), are loaded through open domes shall be protected against stray currents by bonding the pipe to at least one rail and to the rack structure if of metal. Multiple lines entering the rack area shall be electrically bonded together. In addition, in areas where excessive stray currents are known to exist, all pipe entering the rack area shall be provided with insulating sections to electrically isolate the rack piping from the pipelines. No bonding between the tank car and the rack or piping is required during either loading or unloading of ((~~Class II or III~~)) Category 3 flammable liquids with a flashpoint at or above 100°F (37.8°C) or Category 4 flammable liquids.

(f) Container filling facilities. ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), shall not be dispensed into containers unless the nozzle and container are electrically interconnected. Where the metallic floorplate on which the container stands while filling is electrically connected to the fill stem or where the fill stem is bonded to the container during filling operations by means of a bond wire, the provisions of these standards shall be deemed to have been complied with.

(4) Wharves.

(a) Definition, application. The term wharf shall mean any wharf, pier, bulkhead, or other structure over or contiguous to navigable water used in conjunction with a bulk plant, the primary function of which is the transfer of flammable ((~~or combustible~~)) liquid cargo in bulk between the bulk plant and any tank vessel, ship, barge, lighter boat, or other mobile floating craft; and this subparagraph shall apply to all such installations except marine service stations as covered in WAC 296-24-33015.

(b) Package cargo. Package cargo of flammable ((~~and combustible~~)) liquids, including full and empty drums, bulk fuel, and stores may be handled over a wharf and at such times and places as may be agreed upon by the wharf superintendent and the senior deck officer on duty.

(c) Location. Wharves at which flammable ((~~or combustible~~)) liquid cargoes are to be transferred in bulk quantities to or from tank vessels shall be at least ((~~100~~)) one hundred feet from any bridge over a navigable waterway, or from an entrance to or superstructure of any vehicular or railroad tunnel under a waterway. The termination of the wharf loading or unloading fixed piping shall be at least ((~~200~~)) two hundred feet from a bridge or from an entrance to or superstructure of a tunnel.

(d) Design and construction. Substructure and deck shall be substantially designed for the use intended. Deck may employ any material which will afford the desired combination of flexibility, resistance to shock, durability, strength, and fire resistance. Heavy timber construction is acceptable.

(e) Tanks. Tanks used exclusively for ballast water or Class II or Class III liquids may be installed on suitably designed wharves.

(f) Pumps. Loading pumps capable of building up pressures in excess of the safe working pressure of cargo hose or loading arms shall be provided with bypasses, relief valves, or other arrangement to protect the loading facilities against excessive pressure. Relief devices shall be tested at not more than yearly intervals to determine that they function satisfactorily at the pressure at which they are set.

(g) Hoses and couplings. All pressure hoses and couplings shall be inspected at intervals appropriate to the service. The hose and couplings shall be tested with the hose extended and using the "inservice maximum operating pressures." Any hose showing material deteriorations, signs of

leakage, or weakness in its carcass or at the couplings shall be withdrawn from service and repaired or discarded.

(h) Piping and fittings. Piping, valves, and fittings shall be in accordance with WAC 296-24-33007 with the following exceptions and additions:

(i) Flexibility of piping shall be assured by appropriate layout and arrangement of piping supports so that motion of the wharf structure resulting from wave action, currents, tides, or the mooring of vessels will not subject the pipe to repeated strain beyond the elastic limit.

(ii) Pipe joints depending upon the friction characteristics of combustible materials or grooving of pipe ends for mechanical continuity of piping shall not be used.

(iii) Swivel joints may be used in piping to which hoses are connected, and for articulated swivel-joint transfer systems, provided that the design is such that the mechanical strength of joint will not be impaired if the packing material should fail, as by exposure to fire.

(iv) Piping systems shall contain a sufficient number of valves to operate the system properly and to control the flow of liquid in normal operation and in the event of physical damage.

(v) In addition to the requirements of (4)(h)(iv), each line conveying Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), leading to a wharf shall be provided with a readily accessible block valve located on shore near the approach to the wharf and outside of any diked area. Where more than one line is involved, the valves shall be grouped in one location.

(vi) Means of easy access shall be provided for cargo line valves located below the wharf deck.

(vii) Pipelines on flammable ((~~or combustible~~)) liquids wharves shall be adequately bonded and grounded. If excessive stray currents are encountered, insulating points shall be installed. Bonding and grounding connections on all pipelines shall be located on wharfside of hose-riser insulating flanges, if used, and shall be accessible for inspection.

(viii) Hose or articulated swivel-joint pipe connections used for cargo transfer shall be capable of accommodating the combined effects of change in draft and maximum tidal range, and mooring lines shall be kept adjusted to prevent the surge of the vessel from placing stress on the cargo transfer system.

(ix) Hose shall be supported so as to avoid kinking and damage from chafing.

(i) Fire protection. Suitable portable fire extinguishers with a rating of not less than 12-BC shall be located with ((~~75~~)) seventy-five feet of those portions of the facility where fires are likely to occur, such as hose connections, pumps, and separator tanks.

(i) Where piped water is available, ready-connected fire hose in size appropriate for the water supply shall be provided so that manifolds where connections are made and broken can be reached by at least one hose stream.

(ii) Material shall not be placed on wharves in such a manner as to obstruct access to firefighting equipment, or important pipeline control valves.

(iii) Where the wharf is accessible to vehicle traffic, an unobstructed roadway to the shore end of the wharf shall be maintained for access of firefighting apparatus.

(j) Operations control. Loading or discharging shall not commence until the wharf superintendent and officer in charge of the tank vessel agree that the tank vessel is properly moored and all connections are properly made. Mechanical work shall not be performed on the wharf during cargo transfer, except under special authorization by a delegated person or the delegated persons authorized representative based on a review of the area involved, methods to be employed, and precaution necessary.

(5) Electrical equipment.

(a) Application. This subsection shall apply to areas where ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), are stored or handled. For areas where ((~~Class II or Class III~~)) Category 3 flammable liquids ((~~only~~)) with a flashpoint at or above 100°F (37.8°C) or Category 4 flammable liquids are stored or handled, the electrical equipment may be installed according to chapter 296-24 WAC Part L for ordinary locations.

(b) Conformance. All electrical equipment and wiring shall be of a type specified by and shall be installed according to chapter 296-24 WAC Part L.

(c) Classification. So far as it applies Table H-18 shall be used to delineate and classify hazardous areas for the purpose of installation of electrical equipment under normal circumstances. In Table H-18 a classified area shall not extend beyond an unpierced wall, roof, or other solid partition. The area classifications listed shall be based on the premise that the installation meets the applicable requirements of this section in all respects.

TABLE H-18

ELECTRICAL EQUIPMENT HAZARDOUS AREAS—BULK PLANTS

Location	Class I Group D division	Extent of classified area
Tank vehicle and tank car:[1] Loading through open dome		
	1	Within 3 feet of edge of dome, extending in all directions.
	2	Area between 3 feet and 5 feet from edge of dome, extending in all directions.
Loading through bottom connections with atmospheric venting		
	1	Within 3 feet of point of venting to atmosphere, extending in all directions.
	2	Area between 3 feet and 5 feet from point of venting to atmosphere, extending in all directions. Also up to 18 inches above grade within a horizontal

Location	Class I Group D division	Extent of classified area
		radius of 10 feet from point of loading connection.
Loading through closed dome with atmospheric venting		
	1	Within 3 feet of open end of vent, extending in all directions.
	2	Area between 3 feet and 5 feet from open end of vent, extending in all directions. Also within 3 feet of edge of dome, extending in all directions.
Loading through closed dome with vapor recovery		
	2	Within 3 feet of point of connection of both fill and vapor lines, extending in all directions.
Bottom loading with vapor recovery or any bottom unloading		
	2	Within 3 feet of point of connections extending in all directions. Also up to 18 inches above grade within a horizontal radius of 10 feet from point of connection.
Drum and container filling: Outdoors, or indoors with adequate ventilation		
	1	Within 3 feet of vent and fill opening, extending in all directions.
	2	Area between 3 feet and 5 feet from vent or fill opening, extending in all directions. Also up to 18 inches above floor or grade level within a horizontal radius of 10 feet from vent or fill opening.
Outdoors, or indoors with adequate ventilation		
	1	Within 3 feet of vent and fill opening, extending in all directions.
	2	Area between 3 feet and 5 feet from vent or fill opening, extending in all directions. Also up to 18 inches above floor or grade level within a horizontal radius of 10 feet from vent or fill opening.
Tank—Aboveground: Shell, ends, or roof and dike area		
	2	Within 10 feet from shell, ends, or roof of tank, area inside dikes to level of top of dike.
Vent	1	Within 5 feet of open end of vent, extending in all directions.
	2	Area between 5 feet and 10 feet from open end of vent, extending in all directions.
Floating roof	1	Area above the roof and within the shell.
Pits: Without mechanical ventilation		
	1	Entire area within pit if any part is within a Division 1 or 2 classified area.
With mechanical ventilation		
	2	Entire area within pit if any part is within a Division 1 or 2 classified area.
Containing valves, fittings or piping, and not within a Division 1 or 2 classified area		
	2	Entire pit.
Pumps, bleeders, withdrawal fittings, meters and similar devices: Indoors		
	2	Within 5 feet of any edge of such devices, extending in all directions. Also up to 3 feet above floor or grade level within 25 feet horizontally from any edge of such devices.

Location	Class I Group D division	Extent of classified area
Outdoors ———	2	Within 3 feet of any edge of such devices, extending in all directions. Also up to 18 inches above grade level within 10 feet horizontally from any edge of such devices.
Storage and repair garage for tank vehicles ———		
	1	All pits or spaces below floor level.
	2	Area up to 18 inches above floor or grade level for entire storage or repair garage.
Drainage ditches, separators, impounding basins ———		
	2	Area up to 18 inches above ditch, separator or basin. Also up to 18 inches above grade within 15 feet horizontally from any edge.
Garages for other than tank vehicles ———		
	Ordinary	If there is any opening to these rooms within the extent of an outdoor classified area, the entire room shall be classified the same as the area classification at the point of the opening.
Outdoor drum storage ———	Ordinary	
Indoor warehousing where there is no flammable liquid transfer ———		
	Ordinary	If there is any opening to these rooms within the extent of an indoor classified area, the room shall be classified the same as if the wall, curb or partition did not exist.
Office and rest rooms ———	Ordinary	

[1] When classifying the extent of the area, consideration shall be given to the fact that tank cars or tank vehicles may be spotted at varying points. Therefore, the extremities of the loading or unloading positions shall be used.

(6) Sources of ignition. ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), shall not be handled, drawn, or dispensed where flammable vapors may reach a source of ignition. Smoking shall be prohibited except in designated localities. "No smoking" signs shall be conspicuously posted where hazard from flammable liquid vapors is normally present.

(7) Drainage and waste disposal. Provision shall be made to prevent flammable ((~~or combustible~~)) liquids which may be spilled at loading or unloading points from entering public sewers and drainage systems, or natural waterways. Connection to such sewers, drains, or waterways by which flammable ((~~or combustible~~)) liquids might enter shall be provided with separator boxes or other approved means whereby such entry is precluded. Crankcase drainings and flammable ((~~or combustible~~)) liquids shall not be dumped into sewers, but shall be stored in tanks or tight drums outside of any building until removed from the premises.

(8) Fire control. Suitable fire-control devices, such as small hose or portable fire extinguishers, shall be available to locations where fires are likely to occur. Additional fire-control equipment may be required where a tank of more than 50,000 gallons individual capacity contains ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), and where an unusual exposure hazard exists from surrounding property. Such additional fire-control equipment shall be sufficient to extinguish a fire in the largest tank. The design and amount of such equipment shall be in accordance with approved engineering standards.

AMENDATORY SECTION (Amending WSR 01-17-033, filed 8/8/01, effective 9/1/01)

WAC 296-24-33015 Service stations. (1) Storage and handling.

(a) General provisions.

(i) Liquids shall be stored in approved closed containers not exceeding 60 gallons capacity, in tanks located underground, in tanks in special enclosures as described in (b) of this subsection, or in aboveground tanks as provided for in subsection (3)(b)(i), (ii), (iii), and (iv) of this section.

(ii) Aboveground tanks, located in an adjoining bulk plant, may be connected by piping to service station underground tanks if, in addition to valves at aboveground tanks, a valve is also installed within control of service station personnel.

(iii) Apparatus dispensing ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), into the fuel tanks of motor vehicles of the public shall not be located at a bulk plant unless separated by a fence or similar barrier from the area in which bulk operations are conducted.

(iv) The provisions of subsection (1) of this section shall not prohibit the dispensing of flammable liquids with a flashpoint below 100°F (37.8°C) in the open from a tank vehicle to a motor vehicle. Such dispensing shall be permitted provided:

(A) The tank vehicle complies with the requirements covered in the Standard on Tank Vehicles for Flammable Liquids, NFPA 385-1966.

(B) The dispensing is done on premises not open to the public.

(C) The dispensing hose does not exceed 50 feet in length.

(D) The dispensing nozzle is a listed automatic-closing type without a latch-open device.

(((~~(vi) Class I~~)) (v) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), shall not be stored or handled within a building having a basement or pit into which flammable vapors may travel, unless such area is provided with ventilation designed to prevent the accumulation of flammable vapors therein.

(((~~(vii)~~)) (vi) Accurate inventory records shall be maintained and reconciled on all Class I liquid storage tanks for possible indication of leakage from tanks or piping.

(b) Special enclosures.

(i) When installation of tanks in accordance with WAC 296-24-33005(3) is impractical because of property or building limitations, tanks for flammable ((~~or combustible~~)) liquids may be installed in buildings if properly enclosed.

(ii) The enclosure shall be substantially liquid and vapor-tight without backfill. Sides, top, and bottom of the enclosure shall be of reinforced concrete at least ((~~6~~)) six inches thick, with openings for inspection through the top only. Tank connections shall be so piped or closed that neither vapors nor liquid can escape into the enclosed space. Means shall be provided whereby portable equipment may be employed to discharge to the outside any liquid or vapors which might accumulate should leakage occur.

(iii) At automotive service stations provided in connection with tenant or customer parking facilities at or below grade level in large buildings of commercial, mercantile, or residential occupancy, tanks containing Class I liquids, installed of necessity in accordance with ((~~subsection (1)~~))(b)(ii) of this ((~~section~~)) subsection, shall not exceed 6,000 gallons individual or 18,000 gallons aggregate capacity.

(c) Inside buildings.

(i) Except where stored in tanks as provided in ((~~subsection (1)~~))(b) of this ((~~section~~)) subsection, no ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), shall be stored within any service station building except in closed containers of aggregate capacity not exceeding 60 gallons. One container not exceeding 60 gallons capacity equipped with an approved pump is permitted.

(ii) ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), may be transferred from one container to another in lubrication or service rooms of a service station building provided the electrical installation complies with Table H-19 and provided that any heating equipment complies with subsection (5) of this section.

(iii) ((~~Class II and Class III~~)) Category 3 flammable liquids with a flashpoint at or above 100°F (37.8°C) and Category 4 flammable liquids may be stored and dispensed inside service station buildings from tanks of not more than 120 gallons capacity each.

(d) Labeling. No sale or purchase of any Class I, II, or III liquids shall be made in containers unless such containers are clearly marked with the name of the product contained therein.

(e) Dispensing into portable containers. No delivery of any ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), shall be made into portable containers unless the container is constructed of metal, has a tight closure with screwed or spring cover, and is fitted with a spout or so designed that the contents can be poured without spilling.

(2) Dispensing systems.

(a) Location. Dispensing devices at automotive service stations shall be so located that all parts of the vehicle being served will be on the premises of the service station.

(b) Inside location. Approved dispensing units may be located inside of buildings. The dispensing area shall be separated from other areas in an approved manner. The dispensing unit and its piping shall be mounted either on a concrete island or protected against collision damage by suitable means and shall be located in a position where it cannot be struck by a vehicle descending a ramp or other slope out of control. The dispensing area shall be provided with an approved mechanical or gravity ventilation system. When dispensing units are located below grade, only approved mechanical ventilation shall be used and the entire dispensing area shall be protected by an approved automatic sprinkler system. Ventilating systems shall be electrically interlocked with gasoline dispensing units so that the dispensing units cannot be operated unless the ventilating fan motors are energized.

(c) Emergency power cutoff. A clearly identified and easily accessible switch(es) or a circuit breaker(s) shall be provided at a location remote from dispensing devices, including remote pumping systems, to shut off the power to all dispensing devices in the event of an emergency.

(d) Dispensing units.

(i) ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), shall be transferred from tanks by means of fixed pumps so designed and equipped as to allow control of the flow and to prevent leakage or accidental discharge.

(ii) Only listed devices may be used for dispensing ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C). No such device may be used if it shows evidence of having been dismantled.

(iii) Every dispensing device for ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), installed after December 31, 1978, shall contain evidence of listing so placed that any attempt to dismantle the device will result in damage to such evidence, visible without disassembly or dismounting of the nozzle.

(iv) ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), shall not be dispensed by pressure from drums, barrels, and similar containers. Approved pumps taking suction

through the top of the container or approved self-closing faucets shall be used.

(v) The dispensing units, except those attached to containers, shall be mounted either on a concrete island or protected against collision damage by suitable means.

(e) Remote pumping systems.

(i) This subdivision shall apply to systems for dispensing ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), where such liquids are transferred from storage to individual or multiple dispensing units by pumps located elsewhere than at the dispensing units.

(ii) Pumps shall be designed or equipped so that no part of the system will be subjected to pressures above its allowable working pressure. Pumps installed above grade, outside of buildings, shall be located not less than ((~~10~~)) ten feet from lines of adjoining property which is/or may be built upon, and not less than ((~~5~~)) five feet from any building opening. When an outside pump location is impractical, pumps may be installed inside of buildings, as provided for dispensers in (b) of this subsection, or in pits as provided in (e)(iii) of this subsection. Pumps shall be substantially anchored and protected against physical damage by vehicles.

(iii) Pits for subsurface pumps or piping manifolds of submersible pumps shall withstand the external forces to which they may be subjected without damage to the pump, tank, or piping. The pit shall be no larger than necessary for inspection and maintenance and shall be provided with a fitted cover.

(iv) A control shall be provided that will permit the pump to operate only when a dispensing nozzle is removed from its bracket on the dispensing unit and the switch on this dispensing unit is manually actuated. This control shall also stop the pump when all nozzles have been returned to their brackets.

(v) An approved impact valve, incorporating a fusible link, designed to close automatically in the event of severe impact or fire exposure shall be properly installed in the dispensing supply line at the base of each individual dispensing device.

(vi) Testing. After the completion of the installation, including any paving, that section of the pressure piping system between the pump discharge and the connection for the dispensing facility shall be tested for at least ((~~30~~)) thirty minutes at the maximum operating pressure of the system. Such tests shall be repeated at ((~~5~~)) five-year intervals thereafter.

(f) Delivery nozzles.

(i) A listed manual or automatic-closing type hose nozzle valve shall be provided on dispensers used for the dispensing of ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C).

(ii) Manual-closing type valves shall be held open manually during dispensing. Automatic-closing type valves may be used in conjunction with an approved latch-open device.

(g) Special type dispensers.

(i) Emergency controls shall be installed at an acceptable location, but controls shall not be more than ((~~100~~)) one hundred feet from dispensers.

(ii) Instructions for the operation of dispensers shall be conspicuously posted.

(3) Marine service stations.

(a) Dispensing.

(i) The dispensing area shall be located away from other structures so as to provide room for safe ingress and egress of craft to be fueled. Dispensing units shall in all cases be at least 20 feet from any activity involving fixed sources of ignition.

(ii) Dispensing shall be by approved dispensing units with or without integral pumps and may be located on open piers, wharves, or floating docks or on shore or on piers of the solid fill type.

(iii) Dispensing nozzles shall be automatic-closing without a hold-open latch.

(b) Tanks and pumps.

(i) Tanks, and pumps not integral with the dispensing unit, shall be on shore or on a pier of the solid fill type, except as provided below.

(ii) Where shore location would require excessively long supply lines to dispensers, tanks may be installed on a pier provided that applicable portions of WAC 296-24-33005 relative to spacing, diking, and piping are complied with and the quantity so stored does not exceed 1,100 gallons aggregate capacity.

(iii) Shore tanks supplying marine service stations may be located above ground, where rock ledges or high water table make underground tanks impractical.

(iv) Where tanks are at an elevation which would produce gravity head on the dispensing unit, the tank outlet shall be equipped with a pressure control valve positioned adjacent to and outside the tank block valve specified in WAC 296-24-33005 (2)(h)(ii), so adjusted that liquid cannot flow by gravity from the tank in case of piping or hose failure.

(c) Piping.

(i) Piping between shore tanks and dispensing units shall be as described in WAC 296-24-33007, except that, where dispensing is from a floating structure, suitable lengths of oil-resistant flexible hose may be employed between the shore piping and the piping on the floating structure as made necessary by change in water level or shoreline.

(ii) A readily accessible valve to shut off the supply from shore shall be provided in each pipeline at or near the approach to the pier and at the shore end of each pipeline adjacent to the point where flexible hose is attached.

(iii) Piping shall be located so as to be protected from physical damage.

(iv) Piping handling ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C) shall be grounded to control stray currents.

(4) Electrical equipment.

(a) Application. This subsection shall apply to areas where ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), are stored or handled. For areas where ((~~Class II or Class III~~)) Category 3 flammable liquids with a flashpoint at or above 100°F (37.8°C) or Category 4 flammable liquids are stored or handled the electrical equipment may be installed

according to the provisions of chapter 296-24 WAC Part L for ordinary locations.

(b) All electrical equipment and wiring shall be of a type specified by and shall be installed according to chapter 296-24 WAC Part L.

(c) So far as it applies, Table H-19 shall be used to delineate and classify hazardous areas for the purpose of installation of electrical equipment under normal circumstances. A classified area shall not extend beyond an unpierced wall, roof, or other solid partition.

(d) The area classifications listed shall be based on the assumption that the installation meets the applicable requirements of this section in all respects.

TABLE H-19

ELECTRICAL EQUIPMENT HAZARDOUS AREAS—SERVICE STATIONS

Location	Class I, Group D division	Extent of classified area
Underground tank:		
Fill opening		
	1	Any pit, box or space below grade level, any part of which is within the Division 1 or 2 classified area.
	2	Up to 18 inches above grade level within a horizontal radius of 10 feet from a loose fill connection and within a horizontal radius of 5 feet from a tight fill connection.
Vent—Discharging upward		
	1	Within 3 feet of open end of vent, extending in all directions.
	2	Area between 3 feet and 5 feet of open end of vent, extending in all directions.
Dispenser: Pits	1	Any pit, box or space below grade level, any part of which is within the Division 1 or 2 classified area.
Dispenser enclosure	1	The area 4 feet vertically above base within the enclosure and 18 inches horizontally in all directions.
Outdoor	2	Up to 18 inches above grade level within 20 feet horizontally of any edge of enclosure.
Indoor:		
With mechanical ventilation		
	2	Up to 18 inches above grade or floor level within 20 feet horizontally of any edge of enclosure.
With gravity ventilation	2	Up to 18 inches above grade or floor level within 25 feet horizontally of any edge of enclosure.
Remote pump—Outdoor	1	Any pit, box or space below grade level if any part is within a horizontal distance of 10 feet from any edge of pump.
	2	Within 3 feet of any edge of pump, extending in all directions. Also up to 18 inches above grade level within 10 feet horizontally from any edge of pump.
Remote pump—Indoor	1	Entire area within any pit.
	2	Within 5 feet of any edge of pump, extending in all directions. Also up to 3 feet above floor or grade level within 25 feet horizontally from any edge of pump.
Lubrication or service room		
	1	Entire area within any pit.
	2	Area up to 18 inches above floor or grade level within entire lubrication room.
Dispenser for Class I liquids		
	2	Within 3 feet of any fill or dispensing point, extending in all directions.
Special enclosure inside building per WAC 296-24-33013 (1)(b)		
	1	Entire enclosure.

Location	Class I, Group D division	Extent of classified area
Sales, storage and rest rooms	((~~Ordinary~~)) (1)	If there is any opening to these rooms within the extent of a Division 1 area, the entire room shall be classified as Division 1.

Footnote (1) Ordinary.

(5) Heating equipment.

(a) Conformance. Heating equipment shall be installed as provided in (b) through (e) of this subsection.

(b) Application. Heating equipment may be installed in the conventional manner in an area except as provided in (c), (d) or (e) of this subsection.

(c) Special room. Heating equipment may be installed in a special room separated from an area classified by Table H-19 by walls having a fire resistance rating of at least ((~~1~~)) one hour and without any openings in the walls within ((~~8~~)) eight feet of the floor into an area classified in Table H-19. This room shall not be used for combustible storage and all air for combustion purposes shall come from outside the building.

(d) Work areas. Heating equipment using gas or oil fuel may be installed in the lubrication, sales, or service room where there is no dispensing or transferring of ((~~Class I~~)) Category 1 or 2 flammable liquids or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), provided the bottom of the combustion chamber is at least ((~~18~~)) eighteen inches above the floor and the heating equipment is protected from physical damage by vehicles. Heating equipment using gas or oil fuel listed for use in garages may be installed in the lubrication or service room where ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), are dispensed provided the equipment is installed at least ((~~8~~)) eight feet above the floor.

(e) Electric heat. Electrical heating equipment shall conform to subsection (4) of this section.

(6) Drainage and waste disposal. Provision shall be made in the area where ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), are dispensed to prevent spilled liquids from flowing into the interior of service station buildings. Such provision may be by grading driveways, raising door sills, or other equally effective means. Crankcase drainings and flammable ((~~or combustible~~)) liquids shall not be dumped into sewers but shall be stored in tanks or drums outside of any building until removed from the premises.

(7) Sources of ignition. In addition to the previous restrictions of this section, the following shall apply: There shall be no smoking or open flames in the areas used for fueling, servicing fuel systems for internal combustion engines, receiving or dispensing of flammable ((~~or combustible~~)) liquids. Conspicuous and legible signs prohibiting smoking shall be posted within sight of the customer being served. The motors of all equipment being fueled shall be shut off during the fueling operation.

(8) Fire control. Each service station shall be provided with at least one fire extinguisher having a minimum approved classification of 6 B, C located so that an extinguisher will be within ((~~75~~)) seventy-five feet of each pump, dispenser, underground fill pipe opening, and lubrication or service room.

Note: For additional requirements relating to portable fire extinguishers see WAC 296-800-300.

AMENDATORY SECTION (Amending WSR 91-24-017, filed 11/22/91, effective 12/24/91)

WAC 296-24-33017 Processing plants. (1) Scope. This section shall apply to those plants or buildings which contain chemical operations such as oxidation, reduction, halogenation, hydrogenation, alkylation, polymerization, and other chemical processes but shall not apply to chemical plants, refineries or distilleries.

(2) Location.

(a) Classification. The location of each processing vessel shall be based upon its flammable ((~~or combustible~~)) liquid capacity. Processing vessels shall be located, with respect to distances to lines of adjoining property which may be built upon, in accordance with Table H-20, except when the processing plant is designed in accordance with ((~~(2)~~))(b) of this ((~~section~~)) subsection.

TABLE H-20

Processing vessels with emergency relief venting to permit pressure	Stable liquids	Unstable liquids
Not in excess of 2.5 p.s.i.g.	Table H-9	2 1/2 times Table H-9.
Over 2.5. p.s.i.g.	1 1/2 times Table H-9.	4 times Table H-9.

(b) Exception. The distances required in ((~~(2)~~))(a) of this ((~~section~~)) subsection may be waived when the vessels are housed within a building and the exterior wall facing the line of adjoining property which may be built upon is a blank wall having a fire-resistance rating of not less than 4 hours. When Class IA or unstable liquids are handled, the blank wall shall have explosion resistance in accordance with good engineering practice, see subsection (3)(d) of this section.

(3) Processing building.

(a) Construction.

(i) Processing buildings shall be of fire-resistance or noncombustible construction, except heavy timber construction with load-bearing walls may be permitted for plants utilizing only stable ((~~Class II or Class III~~)) Category 3 flammable liquids with a flashpoint at or above 100°F (37.8°C) or Category 4 flammable liquids. Except as provided in subsection (2)(b) of this section or in the case of explosion resistant walls used in conjunction with explosion relieving facilities, see ((~~(3)~~))(d) of this ((~~section~~)) subsection, loadbearing walls are prohibited. Buildings shall be without basements or covered pits.

(ii) Areas shall have adequate exit facilities arranged to prevent occupants from being trapped in the event of fire.

Exits shall not be exposed by the drainage facilities described in (((~~(3)~~)))(b) of this ((~~section~~)) subsection.

(b) Drainage.

(i) Emergency drainage systems shall be provided to direct flammable ((~~or combustible~~)) liquid leakage and fire protection water to a safe location. This may require curbs, scuppers, or special drainage systems to control the spread of fire, see WAC 296-24-33005 (2)(g)(ii).

(ii) Emergency drainage systems, if connected to public sewers or discharged into public waterways, shall be equipped with traps or separators.

(iii) The processing plant shall be designed and operated to prevent the normal discharge of flammable ((~~or combustible~~)) liquids to public waterways, public sewers, or adjoining property.

(c) Ventilation.

(i) Enclosed processing buildings shall be ventilated at a rate of not less than ((~~1~~)) one cubic foot per minute per square foot of solid floor area. This shall be accomplished by natural or mechanical ventilation with discharge or exhaust to a safe location outside of the building. Provision shall be made for introduction of makeup air in such a manner as not to short circuit the ventilation. Ventilation shall be arranged to include all floor areas or pits where flammable vapors may collect.

(ii) Equipment used in a building and the ventilation of the building shall be designed so as to limit flammable vapor-air mixtures under normal operating conditions to the interior of equipment, and to not more than ((~~5~~)) five feet from equipment which exposes ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), to the air. Examples of such equipment are dispensing stations, open centrifuges, plate and frame filters, open vacuum filters, and surfaces of open equipment.

(d) Explosion relief. Areas where ((~~Class IA~~)) Category 1 or unstable liquids are processed shall have explosion venting through one or more of the following methods:

(i) Open air construction.

(ii) Lightweight walls and roof.

(iii) Lightweight wall panels and roof hatches.

(iv) Windows of explosion venting type.

(4) Liquid handling.

(a) Storage.

(i) The storage of flammable ((~~or combustible~~)) liquids in tanks shall be in accordance with the applicable provisions of WAC 296-24-33005.

(ii) If the storage of flammable ((~~or combustible~~)) liquids in outside aboveground or underground tanks is not practical because of temperature or production considerations, tanks may be permitted inside of buildings or structures in accordance with the applicable provisions of WAC 296-24-33005.

(iii) Storage tanks inside of buildings shall be permitted only in areas at or above grade which have adequate drainage and are separated from the processing area by construction having a fire resistance rating of at least ((~~2~~)) two hours.

(iv) The storage of flammable ((~~or combustible~~)) liquids in containers shall be in accordance with the applicable provisions of WAC 296-24-33009.

(b) Piping, valves, and fittings.

(i) Piping, valves, and fittings shall be in accordance with WAC 296-24-33007.

(ii) Approved flexible connectors may be used where vibration exists or where frequent movement is necessary. Approved hose may be used at transfer stations.

(iii) Piping containing flammable ((~~or combustible~~)) liquids shall be identified.

(c) Transfer.

(i) The transfer of large quantities of flammable ((~~or combustible~~)) liquids shall be through piping by means of pumps or water displacement. Except as required in process equipment, gravity flow shall not be used. The use of compressed air as a transferring medium is prohibited.

(ii) Positive displacement pumps shall be provided with pressure relief discharging back to the tank or to pump suction.

(d) Equipment.

(i) Equipment shall be designed and arranged to prevent the unintentional escape of liquids and vapors and to minimize the quantity escaping in the event of accidental release.

(ii) Where the vapor space of equipment is usually within the flammable range, the probability of explosion damage to the equipment can be limited by inerting, by providing an explosion suppression system, or by designing the equipment to contain the peak explosion pressure which may be modified by explosion relief. Where the special hazards of operation, sources of ignition, or exposures indicate a need, consideration shall be given to providing protection by one or more of the above means.

(5) Tank vehicle and tank car loading and unloading. Tank vehicle and tank car loading or unloading facilities shall be separated from aboveground tanks, warehouses, other plant buildings, or nearest line of adjoining property which may be built upon by a distance of ((~~25~~)) twenty-five feet for ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), and ((~~15~~)) fifteen feet for ((~~Class II and Class III~~)) Category 3 flammable liquids with a flashpoint at or above 100°F (37.8°C) and Category 4 flammable liquids measured from the nearest position of any fill stem. Buildings for pumps or shelters for personnel may be a part of the facility. Operations of the facility shall comply with the appropriate portions of WAC 296-24-33013(3).

(6) Fire control.

(a) Portable extinguishers. Approved portable fire extinguishers of appropriate size, type and number shall be provided.

(b) Other controls. Where the special hazards of operation or exposure indicate a need, the following fire control provision shall be provided.

(i) A reliable water supply shall be available in pressure and quantity adequate to meet the probable fire demands.

(ii) Hydrants shall be provided in accordance with accepted good practice.

(iii) Hose connected to a source of water shall be installed so that all vessels, pumps, and other equipment containing flammable ((~~or combustible~~)) liquids can be reached with at least one hose stream. Nozzles that are capable of discharging a water spray shall be provided.

(iv) Processing plants shall be protected by an approved automatic sprinkler system or equivalent extinguishing system. If special extinguishing systems including but not limited to those employing foam, carbon dioxide, or dry chemical are provided, approved equipment shall be used and installed in an approved manner.

(c) Alarm systems. An approved means for prompt notification of fire to those within the plant and any public fire department available shall be provided. It may be advisable to connect the plant system with the public system where public fire alarm system is available.

(d) Maintenance. All plant fire protection facilities shall be adequately maintained and periodically inspected and tested to make sure they are always in satisfactory operating condition and that they will serve their purpose in time of emergency.

(7) Sources of ignition.

(a) General.

(i) Precautions shall be taken to prevent the ignition of flammable vapors. Sources of ignition include but are not limited to open flames; lightning; smoking; cutting and welding; hot surfaces; frictional heat; static, electrical, any mechanical sparks; spontaneous ignition, including heat-producing chemical reactions; and radiant heat.

(ii) ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), shall not be dispensed into containers unless the nozzle and container are electrically interconnected. Where the metallic floorplate on which the container stands while filling is electrically connected to the fill stem or where the fill stem is bonded to the container during filling operations by means of a bond wire, the provisions of this section shall be deemed to have been complied with.

(b) Maintenance and repair.

(i) When necessary to do maintenance work in a flammable ((~~or combustible~~)) liquid processing area, the work shall be authorized by a responsible representative of the employer.

(ii) Hot work such as welding or cutting operations, use of spark-producing power tools, and chipping operations shall be permitted only under supervision of an individual in responsible charge who shall make an inspection of the area to be sure that it is safe for the work to be done and that safe procedures will be followed for the work specified.

(c) Electrical.

(i) All electrical wiring and equipment within storage or processing areas shall be installed according to chapter 296-24 WAC Part L.

(ii) Locations where flammable vapor-air mixtures may exist under normal operations shall be classified ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), Division 1 according to the requirements of chapter 296-24 WAC Part L. For those pieces of equipment installed in accordance with subsection (3)(c)(ii) of this section, the Division 1 area shall extend ((~~5~~)) five feet in all directions from all points of vapor liberation. All areas within pits shall be classified Division 1 if any part of the pit is within a Division 1 or 2 classified area, unless the pit is provided with mechanical ventilation.

(iii) Locations where flammable vapor-air mixtures may exist under abnormal conditions and for a distance beyond Division 1 locations shall be classified Division 2 according to the requirements of chapter 296-24 WAC Part L. These locations include an area within ((~~20~~)) twenty feet horizontally, ((~~3~~)) three feet vertically beyond a Division 1 area, and up to ((~~3~~)) three feet above floor or grade level within ((~~25~~)) twenty-five feet, if indoors, or ((~~10~~)) ten feet if outdoors, from any pump, bleeder, withdrawal fittings, meter, or similar device handling ((~~Class I~~)) Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C). Pits provided with adequate mechanical ventilation within a Division 1 or 2 area shall be classified Division 2. If ((~~Class II or Class III~~)) Category 3 flammable liquids with a flashpoint at or above 100°F (37.8°C) or Category 4 flammable liquids only are handled, then ordinary electrical equipment is satisfactory though care shall be used in locating electrical apparatus to prevent hot metal from falling into open equipment.

(iv) Where the provisions of (((~~7~~)))(c)(i), (ii), and (iii) of this ((~~section~~)) subsection require the installation of explosion-proof equipment, ordinary electrical equipment including switchgear may be used if installed in a room or enclosure which is maintained under positive pressure with respect to the hazardous area. Ventilation makeup air shall be uncontaminated by flammable vapors.

(8) Housekeeping.

(a) General. Maintenance and operating practices shall be in accordance with established procedures which will tend to control leakage and prevent the accidental escape of flammable ((~~or combustible~~)) liquids. Spills shall be cleaned up promptly.

(b) Access. Adequate aisles shall be maintained for unobstructed movement of personnel and so that fire protection equipment can be brought to bear on any part of the processing equipment.

(c) Waste and residues. Combustible waste material and residues in a building or operating area shall be kept to a minimum, stored in closed metal waste cans, and disposed of daily.

(d) Clear zone. Ground area around buildings and operating areas shall be kept free of tall grass, weeds, trash, or other combustible materials.

AMENDATORY SECTION (Amending Order 73-5, filed 5/9/73)

WAC 296-24-33019 Refineries, chemical plants, and distilleries. (1) Storage tanks. Flammable ((~~or combustible~~)) liquids shall be stored in tanks, in containers, or in portable tanks. Tanks shall be installed in accordance with WAC 296-24-33005. Tanks for the storage of flammable ((~~or combustible~~)) liquids in tank farms and in locations other than process areas shall be located in accordance with WAC 296-24-33005 (2)(a) and (b).

(2) Wharves. Wharves handling flammable ((~~or combustible~~)) liquids shall be in accordance with WAC 296-24-33013(4).

(3) Fired and unfired pressure vessels.

(a) Fired vessels. Fired pressure vessels shall be constructed in accordance with the Code for Fired Pressure Vessels, section I of the ASME Boiler and Pressure Vessel Code—1968.

(b) Unfired vessels shall be constructed in accordance with the Code for Unfired Pressure Vessels, section VIII of the ASME Boiler and Pressure Vessel Code—1968.

(4) Location of process units. Process units shall be located so that they are accessible from at least one side for the purpose of fire control. Where topographical conditions are such that flammable ((~~or combustible~~)) liquids may flow from a processing area so as to constitute a fire hazard to property of others, provision shall be made to divert or impound the flow by curbs, drains, or other suitable means.

(5) Fire control.

(a) Portable equipment. Portable fire extinguishment and control equipment shall be provided in such quantities and types as are needed for the special hazards of operation and storage.

(b) Water supply. Water shall be available in volume and at adequate pressure to supply water hose streams, foam producing equipment, automatic sprinklers, or water spray systems as the need is indicated by the special hazards of operation and storage.

(c) Special equipment. Special extinguishing equipment such as that utilizing foam, inert gas, or dry chemical shall be provided as the need is indicated by the special hazards of operation and storage.

AMENDATORY SECTION (Amending Order 73-5, filed 5/9/73)

WAC 296-24-370 Spray finishing using flammable ((~~and combustible~~)) materials.

AMENDATORY SECTION (Amending WSR 91-24-017, filed 11/22/91, effective 12/24/91)

WAC 296-24-37005 Electrical and other sources of ignition. (1) Conformance. All electrical equipment, open flames and other sources of ignition shall conform to the requirements of this section, except as follows:

(a) Electrostatic apparatus shall conform to the requirements of WAC 296-24-37015 and 296-24-37017.

(b) Drying, curing, and fusion apparatus shall conform to the requirements of WAC 296-24-37019.

(c) Automobile undercoating spray operations in garages shall conform to the requirements of WAC 296-24-37021.

(d) Powder coating equipment shall conform to the requirements of WAC 296-24-37023.

(2) Minimum separation. There shall be no open flame or spark producing equipment in any spraying area nor within ((~~20~~)) twenty feet thereof, unless separated by a partition.

(3) Hot surfaces. Space-heating appliances, steampipes, or hot surfaces shall not be located in a spraying area where deposits of combustible residues may readily accumulate.

(4) Wiring conformance. Electrical wiring and equipment shall conform to the provisions of this section and chapter 296-24 WAC Part L.

(5) Combustible residues, areas. Unless specifically approved for locations containing both deposits of readily ignitable residue and explosive vapors, there shall be no electrical equipment in any spraying area, whereon deposits of combustible residues may readily accumulate, except wiring in rigid conduit or in boxes or fittings containing no taps, splices, or terminal connections.

(6) Wiring type approved. Electrical wiring and equipment not subject to deposits of combustible residues but located in a spraying area as herein defined shall be of explosion-proof type approved for Class I, Group D locations and conform to the provisions of chapter 296-24 WAC Part L, for Class I, Division 1, hazardous locations. Electrical wiring, motors, and other equipment outside of but within twenty feet of any spraying area, and not separated therefrom by partitions, shall not produce sparks under normal operating conditions and conform to the provisions of chapter 296-24 WAC Part L for Class I, Division 2, hazardous locations.

(7) Lamps. Electric lamps outside of, but within twenty feet of any spraying area, and not separated therefrom by a partition, shall be totally enclosed to prevent the falling of hot particles and shall be protected from mechanical injury by suitable guards or by location.

(8) Portable lamps. Portable electric lamps shall not be used in any spraying area during spraying operations. Portable electric lamps, if used during cleaning or repairing operations, shall be of the type approved for hazardous Class I locations.

(9) Grounding.

(a) All metal parts of spray booths, exhaust ducts, and piping systems conveying flammable ((~~or combustible~~)) liquids or liquids with a flashpoint greater than 199.4°F (93°C) or aerated solids shall be properly electrically grounded in an effective and permanent manner.

(b) "Airless" high-fluid pressure spray guns and any conductive object being sprayed should be properly electrically grounded.

AMENDATORY SECTION (Amending Order 73-5, filed 5/9/73)

WAC 296-24-37009 Flammable ((~~and combustible~~)) liquids((~~—Storage and handling~~)) and liquids with a flashpoint greater than 199.4°F (93°C). (1) Conformance. The storage of flammable ((~~or combustible~~)) liquids with a flashpoint greater than 199.4°F (93°C) in connection with spraying operations shall conform to the requirements of WAC 296-24-330, where applicable.

(2) Quantity. The quantity of flammable ((~~or combustible~~)) liquids or liquids with a flashpoint greater than 199.4°F (93°C) kept in the vicinity of spraying operations shall be the minimum required for operations and should ordinarily not exceed a supply for ((~~1~~)) one day or one shift. Bulk storage of portable containers of flammable ((~~or combustible~~)) liquids or liquids with a flashpoint greater than 199.4°F (93°C) shall be in a separate, constructed building detached from other important buildings or cut off in a standard manner.

(3) Containers. Original closed containers, approved portable tanks, approved safety cans or a properly arranged system of piping shall be used for bringing flammable ((~~or~~

~~combustible~~)) liquids or liquids with a flashpoint greater than 199.4°F (93°C) into spray finishing room. Open or glass containers shall not be used.

(4) Transferring liquids. Except as provided in subsection (5) of this section, the withdrawal of flammable ((~~and combustible~~)) liquids and liquids with a flashpoint greater than 199.4°F (93°C) from containers having a capacity of greater than 60 gallons shall be by approved pumps. The withdrawal of flammable ((~~or combustible~~)) liquids or liquids with a flashpoint greater than 199.4°F (93°C) from containers and the filling of containers, including portable mixing tanks, shall be done only in a suitable mixing room or in a spraying area when the ventilating system is in operation. Adequate precautions shall be taken to protect against liquid spillage and sources of ignition.

(5) Spraying containers. Containers supplying spray nozzles shall be of closed type or provided with metal covers kept closed. Containers not resting on floors shall be on metal supports or suspended by wire cables. Containers supplying spray nozzles by gravity flow shall not exceed 10 gallons capacity. Original shipping containers shall not be subject to air pressure for supplying spray nozzles. Containers under air pressure supplying spray nozzles shall be of limited capacity, not exceeding that necessary for ((~~1~~)) one day's operation; shall be designed and approved for such use; shall be provided with a visible pressure gage; and shall be provided with a relief valve set to operate in conformance with the requirements of the Code for Unfired Pressure Vessels, Section VIII of the ASME Boiler and Pressure Vessel Code—1968. Containers under air pressure supplying spray nozzles, air-storage tanks and coolers shall conform to the standards of the Code for Unfired Pressure Vessels, Section VIII of the ASME Boiler and Pressure Vessel Code—1968 for construction, tests, and maintenance.

(6) Pipes and hoses.

(a) All containers or piping to which is attached a hose or flexible connection shall be provided with a shutoff valve at the connection. Such valves shall be kept shut when spraying operations are not being conducted.

(b) When a pump is used to deliver products, automatic means shall be provided to prevent pressure in excess of the design working pressure of accessories, piping, and hose.

(c) All pressure hose and couplings shall be inspected at regular intervals appropriate to this service. The hose and couplings shall be tested with the hose extended, and using the "inservice maximum operating pressures." Any hose showing material deteriorations, signs of leakage, or weakness in its carcass or at the couplings, shall be withdrawn from service and repaired or discarded.

(d) Piping systems conveying flammable ((~~or combustible~~)) liquids or liquids with a flashpoint greater than 199.4°F (93°C) shall be of steel or other material having comparable properties of resistance to heat and physical damage. Piping systems shall be properly bonded and grounded.

(7) Spray liquid heaters. Electrically powered spray liquid heaters shall be approved and listed for the specific location in which used (see WAC 296-24-37005). Heaters shall not be located in spray booths nor other locations subject to the accumulation of deposits or combustible residue. Agitators, if used, should preferably be driven by compressed air, water, or low-pressure steam. If an electric motor is used, (see WAC 296-24-37005).

(8) Pump relief. If flammable ((~~or combustible~~)) liquids or liquids with a flashpoint greater than 199.4°F (93°C) are supplied to spray nozzles by positive displacement pumps, the pump discharge line shall be provided with an approved relief valve discharging to a pump suction or a safe detached location, or a device provided to stop the prime mover if the discharge pressure exceeds the safe operating pressure of the system.

(9) Grounding. Whenever flammable ((~~or combustible~~)) liquids or liquids with a flashpoint greater than 199.4°F (93°C) are transferred from one container to another, both containers shall be effectively bonded and grounded to prevent discharge sparks of static electricity.

AMENDATORY SECTION (Amending Order 73-5, filed 5/9/73)

WAC 296-24-71501 General. (1) Contamination. The requirements in this section have been established on the basis of the following three factors in arc and gas welding which govern the amount of contamination to which welders may be exposed:

(a) Dimensions of space in which welding is to be done (with special regard to height of ceiling).

(b) Number of welders.

(c) Possible evolution of hazardous fumes, gases, or dust according to the metals involved.

(2) Ventilation. It is recognized that in individual instances other factors may be involved in which case ventilation or respiratory protective devices should be provided as needed to meet the equivalent requirements of this section. Such factors would include:

(a) Atmospheric conditions.

(b) Heat generated.

(c) Presence of volatile solvents.

(3) Screens. When welding must be performed in a space entirely screened on all sides, the screens shall be so arranged that no serious restriction of ventilation exists. It is desirable to have the screens so mounted that they are about 2 feet above the floor unless the work is performed at so low a level that the screen must be extended nearer to the floor to protect nearby workers from the glare of welding.

(4) Maximum allowable concentration. Local exhaust or general ventilating systems shall be provided and arranged to keep the amount of toxic fumes, gases, or dusts below the maximum allowable concentration as specified in chapter 296-62 WAC.

Note: A number of potentially hazardous materials are employed in fluxes, coatings, coverings, and filler metals used in welding and cutting or are released to the atmosphere during welding and cutting. These include but are not limited to the materials itemized in WAC 296-24-71509 through 296-24-71523.

(5) ((~~Precautionary labels. The employer shall ascertain the potentially hazardous materials, associated with welding, cutting, etc., and inform the employee of same wither [whether]through signs, labels or other appropriate means.~~

~~(a)~~)) Hazard communication. The employer shall include the potentially hazardous materials employed in fluxes, coat-

ings, coverings, and filler metals, all of which are potentially used in welding and cutting, or are released to the atmosphere during welding and cutting, in the program established to comply with the Hazard Communication Standard (HCS), WAC 296-901-140. The employer shall ensure that each employee has access to labels on containers of such materials and safety data sheets, and is trained in accordance with the provisions of WAC 296-901-14014. Potentially hazardous materials shall include, but not be limited to, the materials itemized in WAC 296-24-71509 through 296-24-71523.

(a) Additional considerations for hazard communication in welding, cutting, and brazing.

(i) The suppliers shall determine and shall label in accordance with WAC 296-901-140 any hazards associated with the use of their materials in welding, cutting, and brazing.

(ii) In addition to any requirements imposed by WAC 296-901-140, all filler metals and fusible granular materials shall carry the following notice, at a minimum, on tags, boxes, or other containers:

Do not use in areas without adequate ventilation. See ANSI Z49.1-1967 Safety in Welding, Cutting, and Allied Processes published by the American Welding Society.

(iii) Where brazing (welding) filler metals contain cadmium in significant amounts, the labels shall indicate the hazards associated with cadmium including cancer, lung and kidney effects, and acute toxicity effects.

(iv) Where brazing and gas welding fluxes contain fluorine compounds, the labels shall indicate the hazards associated with fluorine compounds including eye and respiratory tract effects.

(b) Prior to June 1, 2015, employers may include the following information on labels in lieu of the labeling requirements in (a) of this subsection:

(i) All filler metals and fusible granular materials shall carry the following notice, as a minimum, on tags, boxes, or other containers:

CAUTION

Welding may produce fumes and gases hazardous to health. Avoid breathing these fumes and gases. Use adequate ventilation. See ANSI Z 49.1-1967 Safety in Welding and Cutting published by the American Welding Society.

(((~~(b)~~))) (ii) Brazing (welding) filler metals containing cadmium in significant amounts shall carry the following notice on tags, boxes, or other containers:

WARNING
CONTAINS CADMIUM—POISONOUS FUMES MAY BE FORMED ON HEATING

Do not breathe fumes. Use only with adequate ventilation such as fume collectors, exhaust ventilators, or air-supplied respirators. See ANSI Z49.1-1967.

If chest pain, cough, or fever develops after use call physician immediately.

Keep children away when using.

(((~~(c)~~))) (iii) Brazing and gas welding fluxes containing fluorine compounds shall have a cautionary wording to indicate that they contain fluorine compounds. One such cautionary wording recommended by the American Welding Society for brazing and gas welding fluxes reads as follows:

CAUTION
CONTAINS FLUORIDES

This flux when heated gives off fumes that may irritate eyes, nose and throat.

(((~~(i)~~))) (A) Avoid fumes((~~-~~)) - Use only in well-ventilated spaces.

(((~~(ii)~~))) (B) Avoid contact of flux with eyes or skin.

(((~~(iii)~~))) (C) Do not take internally.

AMENDATORY SECTION (Amending WSR 01-11-038, filed 5/9/01, effective 9/1/01)

WAC 296-32-230 Training. (1) Employers shall provide training in the various precautions and safe practices described in this section and shall insure that employees do not engage in the activities to which this chapter applies until such employees have received proper training in the various precautions and safe practices required by this section. However, where the employer can demonstrate that an employee is already trained in the precautions and safe practices required by this section prior to their employment, training need not be provided to that employee in accordance with this section.

(2) Where training is required, it shall consist of on-the-job training or classroom-type training or a combination of both.

(3) The training program shall include a list of the subject courses and the types of personnel required to receive such instruction. A written description of the training program and a record of employees who have received such training shall be maintained for the duration of the employee's employment and shall be made available upon request to the director of the department of labor and industries, or his/her authorized representative.

(4) Such training shall, where appropriate, include the following subjects:

(a) Recognition and avoidance of dangers relating to encounters with harmful substances, and animal, insect, or plant life.

(b) Procedures to be followed in emergency situations, and

(c) First-aid training, including instruction in artificial respiration.

(5) It shall be the responsibility of the employer to hold monthly safety meetings at practical points throughout the operation and insist upon employees attending said meetings. Minutes shall be kept of each safety meeting and retained for a period of one year.

(6) It shall be the responsibility of management to develop and maintain a ((~~chemical~~)) hazard communication program as required by WAC ((~~296-800-170~~)) 296-901-140, which will provide information to all employees relative to hazardous chemicals or substances to which they are exposed, or may become exposed, in the course of their employment.

AMENDATORY SECTION (Amending WSR 01-11-038, filed 5/9/01, effective 9/1/01)

WAC 296-45-035 Definitions. These definitions apply to chapter 296-45 WAC.

"Aerial manlift equipment" - Equipment such as extended towers, boom-mounted cages or baskets, and truck-mounted ladders, that is primarily designed to place personnel and equipment aloft to work on elevated structures and equipment.

"Affected employee" - An employee whose job requires him or her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires him or her to work in an area in which such servicing or maintenance is being performed.

"Apprentice" - An employee who is being trained to be journey level.

"Approved" - Meets or exceeds the recognized standards of safety within the industry.

"Approved protectors" - Gloves worn over rubber insulating gloves which are of such material or substance and so constructed as to protect the rubber gloves from abrasions, lacerations, or other physical damage which might otherwise occur to rubber gloves. Approved protectors must conform to the standards which are recognized by the industry.

"Attendant" - An employee assigned to remain immediately outside the entrance to an enclosed or other space to render assistance as needed to employees inside the space.

"Authorized employee" - An employee who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance covered under this section.

"Automatic circuit recloser" - A self-controlled device for interrupting and reclosing an alternating current circuit with a predetermined sequence of opening and reclosing followed by resetting, hold-closed, or lockout operation.

"Barricade" - A physical obstruction such as tapes, cones, or A-frame type wood or metal structures intended to provide a warning about and to limit access to a hazardous area.

"Barrier" - A physical obstruction which is intended to prevent contact with energized lines or equipment or to prevent unauthorized access to a work area.

"Bond" - The electrical interconnection of conductive parts designed to maintain a common electrical potential.

"Bus" - A conductor or a group of conductors that serve as a common connection for two or more circuits.

"Bushing" - An insulating structure, including a through conductor or providing a passageway for such a conductor, with provision for mounting on a barrier, conducting or otherwise, for the purposes of insulating the conductor from the barrier and conducting current from one side of the barrier to the other.

"Cable" - A conductor with insulation, or a stranded conductor with or without insulation and other coverings (single-conductor cable), or a combination of conductors insulated from one another (multiple-conductor cable).

"Cable sheath" - A conductive protective covering applied to cables.

Note: A cable sheath may consist of multiple layers of which one or more is conductive.

"Circuit" - A conductor or system of conductors through which an electric current is intended to flow.

"Clearance" (between objects) - The clear distance between two objects measured surface to surface.

"Clearance" (for work) - Authorization to perform specified work or permission to enter a restricted area.

"Communication lines." (See "Lines, communication.")

"Conductor" - A material, usually in the form of a wire, cable, or bus bar, used for carrying an electric current.

"Covered conductor" - A conductor covered with a dielectric having no rated insulating strength or having a rated insulating strength less than the voltage of the circuit in which the conductor is used.

"Current-carrying part" - A conducting part intended to be connected in an electric circuit to a source of voltage. Noncurrent-carrying parts are those not intended to be so connected.

"Deenergized" - Free from any electrical connection to a source of potential difference and from electric charge; not having a potential difference from that of the earth.

Note: The term is used only with reference to current-carrying parts, which are sometimes energized (alive).

"Designated employee/person" - An employee/person who is designated by the employer to perform specific duties under the terms of this section and who is knowledgeable in the construction and operation of the equipment and the hazards involved.

"Electric line truck" - Any vehicle used to transport employees, tools, and material, which serves as a traveling workshop for electric power line construction and maintenance work. It may be equipped with a boom and auxiliary equipment for setting poles, digging holes, and elevating material and/or workers.

"Electric supply equipment" - Equipment that produces, modifies, regulates, controls, or safeguards a supply of electric energy.

"Electric supply lines." (See "Lines, electric supply.")

"Electric utility" - An organization responsible for the installation, operation, or maintenance of an electric supply system.

"Emergency" - An unforeseen occurrence endangering life, limb, or property.

"Enclosed" - Surrounded by a case, cage, fence or otherwise which will protect the contained equipment and prevent accidental contact of a person with live parts.

"Enclosed space" - A working space, such as a manhole, vault, tunnel, or shaft, that has a limited means of egress or entry, that is designed for periodic employee entry under normal operating conditions, and that under normal conditions does not contain a hazardous atmosphere, but that may contain a hazardous atmosphere under abnormal conditions.

Note: Spaces that are enclosed but not designed for employee entry under normal operating conditions are not considered to be enclosed spaces for the purposes of this section. Similarly, spaces that are enclosed and that are expected to contain a hazardous atmosphere are not considered to be enclosed spaces for the purposes of this section. Such spaces meet the definition of permit spaces in WAC 296-62-145, and entry into them must be performed in accordance with that standard.

"Energized" (alive, live) - Electrically connected to a source of potential difference, or electrically charged so as to have a potential significantly different from that of earth in the vicinity.

"Energy isolating device" - A physical device that prevents the transmission or release of energy, including, but not limited to, the following: A manually operated electric circuit breaker, a disconnect switch, a manually operated switch, a slide gate, a slip blind, a line valve, blocks, and any similar device with a visible indication of the position of the device. (Push buttons, selector switches, and other control-circuit-type devices are not energy isolating devices.)

"Energy source" - Any electrical, mechanical, hydraulic, pneumatic, chemical, nuclear, thermal, or other energy source that could cause injury to personnel.

"Equipment" (electric) - A general term including material, fittings, devices, appliances, fixtures, apparatus, and the like used as part of or in connection with an electrical installation.

"Exposed" - Not isolated or guarded.

"Fault current" - The current that flows in an electrical system because of a defect in the circuit induced accidentally or otherwise.

"Fixed ladder" - A ladder that is permanently secured to a structure.

"Ground" - A conducting connection, whether intentional or accidental, between an electric circuit or equipment and the earth, or to some conducting body that serves in place of the earth.

"Grounded" - Connected to earth or to some conducting body that serves in place of the earth.

"Grounded system" - A system of conductors in which at least one conductor or point (usually the middle wire, or neutral point of transformer or generator windings) is intentionally grounded either solidly or through a current-limiting device (not a current-interrupting device).

"Groundperson" - A member of crew working on ground under direction of a leadworker.

"Guarded" - Covered, fenced, enclosed, or otherwise protected, by means of suitable covers or casings, barrier rails or screens, mats, or platforms, designed to prevent the possibility, under normal conditions, of dangerous approach or accidental contact by persons or objects.

Note: Wires which are insulated, but not otherwise protected, are not considered as guarded.

"Hazardous atmosphere" - An atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (that is, escape unaided from an enclosed space), injury, or acute illness from one or more of the following causes:

• Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL);

• Airborne combustible dust at a concentration that meets or exceeds its LFL;

Note: This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet (1.52 m) or less;

• Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent;

• Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in chapter 296-62 WAC, Part L, or in chapter 296-62 WAC, toxic and hazardous substances, and which could result in employee exposure in excess of its dose or permissible exposure limit;

Note: An atmospheric concentration of any substance that is not capable of causing death, incapacitation, impairment of ability to self-rescue, injury, or acute illness due to its health effects is not covered by this provision.

• Any other atmospheric condition that is "immediately dangerous to life or health" (IDLH).

"IDLH" - Any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a permit space.

Note: Some materials (hydrogen fluoride gas and cadmium vapor, for example) may produce immediate transient effects that, even if severe, may pass without medical attention, but are followed by sudden, possibly fatal collapse 12-72 hours after exposure. The victim "feels normal" from recovery from transient effects until collapse. Such materials in hazardous quantities are considered to be "immediately" dangerous to life or health.

Note: For air contaminants for which WISHA has not determined a dose or permissible exposure limit, other sources of information, such as ((~~Material~~)) Safety Data Sheets that comply with the ((~~Chemical~~)) hazard communication program, WAC ((~~296-800-170~~)) 296-901-140, published information, and internal documents can provide guidance in establishing acceptable atmospheric conditions.

"High-power tests" - Tests in which fault currents, load currents, magnetizing currents, and line-dropping currents are used to test equipment, either at the equipment's rated voltage or at lower voltages.

"High-voltage tests" - Tests in which voltages of approximately 1000 volts are used as a practical minimum and in which the voltage source has sufficient energy to cause injury.

"High wind" - A wind of such velocity that the following hazards would be present:

• An employee would be exposed to being blown from elevated locations; or

• An employee or material handling equipment could lose control of material being handled; or

• An employee would be exposed to other hazards not controlled by the standard involved.

Note: Winds exceeding 40 miles per hour (64.4 kilometers per hour), or 30 miles per hour (48.3 kilometers per hour) if material handling is involved, are normally considered as meeting this criteria unless precautions are taken to protect employees from the hazardous effects of the wind.

"Insulated" - Separated from other conducting surfaces by a dielectric (including air space) offering a high resistance to the passage of current.

Note: When any object is said to be insulated, it is understood to be insulated for the conditions to which it is normally subjected. Otherwise, it is, within the purpose of this section, uninsulated.

"Insulation" (cable) - That which is relied upon to insulate the conductor from other conductors or conducting parts or from ground.

"Insulation shielding" - An envelope which encloses the insulation of a cable and provides an equipotential surface in contact with cable insulation.

"Isolated" - An object that is not readily accessible to persons unless special means of access are used.

"Leadworker" - The person directly in charge of workers doing the work, regardless of title.

"Line-clearance tree trimmer" - An employee who, through related training or on-the-job experience or both, is familiar with the special techniques and hazards involved in line-clearance tree trimming.

Note 1: An employee who is regularly assigned to a line-clearance tree-trimming crew and who is undergoing on-the-job training and who, in the course of such training, has demonstrated an ability to perform duties safely at his or her level of training and who is under the direct supervision of a line-clearance tree trimmer is considered to be a line-clearance tree trimmer.

Note 2: A line-clearance tree trimmer is not considered to be a "qualified employee" under this section unless he or she has the training required for a qualified employee under WAC 296-45-065. However, under the electrical safety-related work practices standard, a line-clearance tree trimmer is considered to be a "qualified employee." Tree trimming performed by such "qualified employees" is not subject to the electrical safety-related work practice requirements contained in WAC 296-24-970. (See also the note following WAC 296-24-970 for information regarding the training an employee must have to be considered a qualified employee.)

"Line-clearance tree trimming" - The pruning, trimming, repairing, maintaining, removing, or clearing of trees or the cutting of brush that is within 10 feet (305 cm) of electric supply lines and equipment.

"Lines" -

• **"Communication lines" -** The conductors and their supporting or containing structures which are used for public or private signal or communication service, and which operate at potentials not exceeding 400 volts to ground or 750 volts between any two points of the circuit, and the transmitted power of which does not exceed 150 watts. If the lines are operating at less than 150 volts, no limit is placed on the transmitted power of the system. Under certain conditions, communication cables may include communication circuits exceeding these limitations where such circuits are also used to supply power solely to communication equipment.

Note: Telephone, telegraph, railroad signal, data, clock, fire, police alarm, cable television, and other systems conforming with this definition are included. Lines used for signaling purposes, but not included under this definition, are considered as electric supply lines of the same voltage.

• **"Electric supply lines" -** Conductors used to transmit electric energy and their necessary supporting or containing structures. Signal lines of more than 400 volts are always supply lines within this section, and those of less than 400 volts are considered as supply lines, if so run and operated throughout.

"Live-line tools and ropes" - Tools and ropes specifically designed for work on energized high voltage lines and equipment.

"Load-break elbow" - A connector designed to close and interrupt current on energized circuits within the design current and voltage rating.

"Manhole" - A subsurface enclosure which personnel may enter and which is used for the purpose of installing, operating, and maintaining submersible equipment or cable.

"Manhole steps" - A series of steps individually attached to or set into the walls of a manhole structure.

"Minimum approach distance" - The closest distance an employee is permitted to approach an energized or a grounded object.

"Neutral" - A system in which one conductor is used as the neutral for one or more circuits; one conductor may be used as the neutral for both primary and secondary circuits of a distribution system.

"Pole" - Any device used to support a power distribution or transmission line. The pole may be made of any substance including wood, concrete, metal, is usually cylindrical in shape and comparatively slender. It is the upright standard to which is affixed part of the power distribution and transmission line system as defined in this chapter.

"Power dispatcher" (load dispatcher or system operator) - A person who has been designated by the employer as having authority over switching and clearances of high voltage lines and station equipment.

"Protective devices" - Devices such as rubber gloves, rubber blankets, line hose, rubber boots, or other insulating devices, which are specifically designed for the protection of employees.

"Public highway" - Every way, land, road, street, boulevard, and every other way or place in the state open as a matter of right to public vehicular travel, both inside and outside the limits of cities and towns, regardless of ownership.

"Qualified person or qualified employee" - A person who is familiar with the construction of, or operation of such lines and/or equipment that concerns his/her position and who is fully aware of the hazards connected therewith, or, one who has passed a journey status examination for the particular branch of the electrical trades with which he/she may be connected.

Note 1: An employee must have the training required by WAC 296-45-065(1) in order to be considered a qualified employee.

Note 2: (Apprentice) Except under WAC 296-45-25510(12), an employee who is undergoing on-the-job training and who, in the course of such training, has demonstrated an ability to perform duties safely at his or her level of training and who is under the direct supervision of a qualified person is considered to be a qualified person for the performance of those duties.

"Rubber" - Any goods, equipment, or tool made out of either natural or synthetic rubber.

"Secured ladder" - A ladder which is not capable of being dislodged from the top by lateral, or jerking motion(s).

"Sheath" - As applied to tools carried in a lineman's tool belt, a sheath that effectively covers the tool and prevents such tool from falling from the belt.

"Step bolt" - A bolt or rung attached at intervals along a structural member and used for foot placement during climbing or standing.

"Supporting structure" - The main supporting unit (usually a pole or tower).

"Switch" - A device for opening and closing or for changing the connection of a circuit. In these rules, a switch is understood to be manually operable, unless otherwise stated.

"System operator or power dispatcher" - A qualified person who has been designated by the employer and having authority over switching, clearances, and operation of the system and its parts.

"Tag" - A system or method of identifying circuits, systems, or equipment for the purpose of alerting employees and others that the circuit, system, or equipment is being worked on.

"Underground network" - An underground electrical installation fed from multiple primary sources directly associated with area-wide secondary network connected into a common grid.

"Underground residential distribution system" (URD) - An electrical installation normally fed from a single primary source which may feed one or more transformers with secondaries not connected to a common grid.

"Utility" - An organization responsible for the installation, operation, or maintenance of electric supply or communications systems.

"Vault" - An enclosure, above or below ground, which personnel may enter and which is used for the purpose of installing, operating, or maintaining equipment or cable.

"Vented vault" - A vault that has provision for air changes using exhaust flue stacks and low level air intakes operating on differentials of pressure and temperature providing for airflow which precludes a hazardous atmosphere from developing.

"Voltage" - The effective (rms) potential difference between any two conductors or between a conductor and ground. Voltages are expressed in nominal values unless otherwise indicated. The nominal voltage of a system or circuit is the value assigned to a system or circuit of a given voltage class for the purpose of convenient designation. The operating voltage of the system may vary above or below this value.

Note: Low voltage includes voltages from 50 to 600 volts. High voltage shall mean those voltages of 601 volts to 230,000. Extra high voltage means any voltage over 230,000 volts. Where the words "high voltage" are used in this chapter it shall include extra high voltage, unless otherwise specified.

AMENDATORY SECTION (Amending WSR 01-11-038, filed 5/9/01, effective 9/1/01)

WAC 296-45-055 Employer's responsibility. (1) The employer shall provide and maintain the necessary protective devices specified in these rules and require the employees to use them properly.

(2) The employer shall develop and maintain a ((~~chemical~~)) hazard communication program as required by WAC ((~~296-800-170~~)) 296-901-140, which will provide information to all employees relative to hazardous chemicals or substances to which they are exposed, or may become exposed, in the course of their employment.

(3) There shall be installed and maintained in every fixed establishment employing eight or more persons a safety bulletin board of a size to display and post safety bulletins, newsletters, posters, accident statistics and other safety educational material. It is recommended that safety bulletin boards be painted green and white.

(4) The employer shall require the leadworker to observe and enforce all safety rules and shall furnish a copy of the electrical workers' safety rules to each employee who is covered by these rules.

(5) The employer shall appoint only competent workers to supervise other employees and those appointed shall be responsible for the safety of the employees under their supervision.

AMENDATORY SECTION (Amending WSR 03-06-073, filed 3/4/03, effective 8/1/03)

WAC 296-52-69095 Ammonium nitrate. (1) **Storage.**

(a) Ammonium nitrate storage requirements do not apply to:

• The transportation of ammonium nitrates while under the jurisdiction of and in compliance with U.S. DOT regulations (see 49 C.F.R., Part 173)

• The storage of ammonium nitrates while under the jurisdiction of and in compliance with U.S. Coast Guard (see 49 C.F.R., Parts 146-149)

• The storage of ammonium nitrate and ammonium nitrate mixtures, which are more sensitive than allowed by the bulletin

"Definition and test procedures for ammonium nitrate fertilizers" from the Fertilizer Institute, 501 2nd ((~~St. NE~~)) Street N.E., Washington, D.C. 20006.

This definition limits the contents of organic materials, metals, sulfur, etc., in products that may be classified ammonium nitrate fertilizer.

• The production of ammonium nitrate or the storage of ammonium nitrate on the premises of the producing plant, if no hazards are created to the employees or public

• The standards for ammonium nitrate (nitrous oxide grade) that are found in the:

"Specifications, properties and recommendations for packaging, transportation, storage and use of ammonium nitrate," from the Compressed Gas Association, Inc., 1235 Jefferson Davis Highway, Suite 1004, Arlington, VA 22202-4100.

(b) Ammonium nitrate storage requirements apply to:

• Anyone, in addition to the owner or lessee of any building, premises, or structure having or storing ammonium nitrate in quantities of one thousand pounds (425 kg) or more

• Ammonium nitrate in the form of crystals, flakes, grains, or prills including fertilizer grade, dynamite grade, nitrous oxide grade, technical grade, and other mixtures containing sixty percent or more ammonium nitrate by weight

Note: The approval of large quantity storage is based on the fire and explosion hazards, including exposure to toxic vapors from burning or decomposing ammonium nitrate.

(c) Storage buildings housing ammonium nitrate must:

• Have adequate ventilation or be self-ventilating in the event of a fire

• Have fire resistant walls when the exposed side of a storage building is within fifty feet (15.2 m) of a combustible building, forest, piles of combustible materials, and similar exposure hazards. Other suitable means of exposure protection such as a freestanding wall may be used instead of a fire resistant wall

• Have roof coverings that are Division 1.4 or better as defined in Roof Coverings, NFPA 203M-1970

• Have flooring of noncombustible material or be protected against saturation by ammonium nitrate. In case of fire, the floor must not have open drains, traps, tunnels, pits, or pockets into which molten ammonium nitrate could flow and be confined

• Be dry and free from water seepage through the roof, walls, and floors

• Not have basements, unless the basements are open on at least one side

• Not be over one story in height

Note: The continued use of an existing storage building or structure may be approved in cases where continued use will not constitute a hazard to life or adjoining property.

Bags, drums, and other containers of ammonium nitrate must:

(d) Comply with specifications and standards required for use in interstate commerce (see 49 C.F.R., Chapter 1). Containers used on the premises in the actual manufacturing or processing do not need to comply.

• Not be used for storage when the temperature of the ammonium nitrate exceeds 130°F (54.4°C)

• Not be stored within thirty inches (76 cm) of the storage building walls and partitions

• Not be stacked higher than twenty feet (6.1 m) in height, twenty feet (6.1 m) in width, and fifty feet (15.2 m) in length. When buildings are constructed of noncombustible materials or protected by automatic sprinklers, there are no stacking height restrictions

• Never be stacked closer than thirty-six inches (.09 m) below the roof or overhead supporting and spreader beams

• Be separated by aisles a minimum of ((~~3~~)) three feet wide. There must be one main aisle in the storage area a minimum of four feet (1.2 m) wide

(e) Bulk ammonium nitrate must be stored:

• In warehouses with adequate ventilation or be capable of adequate ventilation in case of fire

• In structures that are not more than forty feet (12.2 m) high, unless:

– They are constructed of noncombustible material

OR

– Have adequate facilities for fighting a roof fire

• In clean bins that are free of materials that could cause contamination

• In bins or piles that are clearly identified by signs reading "AMMONIUM NITRATE" in letters a minimum of two inches (5 cm) high

• In bins or piles sized and arranged so all material is moved periodically to minimize the possibility of caking

• Adequately separated from easily combustible fuels. Bins cannot be made of galvanized iron, copper, lead, and zinc because of the:

– Corrosive and reactive properties of ammonium nitrate

AND

– To avoid contamination

• In tightly constructed wooden and aluminum bins that are protected against saturation from ammonium nitrate

• In tightly constructed partitions that divide the ammonium nitrate from other products to avoid contamination

• Where the temperature of the product does not exceed 130°F (54.4°C)

• No higher than thirty-six inches (0.9 m) below the roof or overhead supporting and spreader beams if stacked in piles. Stack limits (height and depth), should be determined by the pressure setting tendency of the product

(f) Bulk ammonium nitrate when caked, cannot be broken up or loosed by the use of dynamite, other explosives or blasting agents.

(g) Bulk ammonium nitrate cannot be stored with:

• LP Gas on the premises except when such storage complies with WAC 296-24-475, Storage and handling of liquefied petroleum gases

• Sulfur and finely divided metals in the same building except when such storage complies with this chapter and NFPA standard 495, Explosives Materials Code

• Explosives and blasting agents in the same building except on the premises of manufacturers, distributors, and user of explosives or blasting agents

• When explosives or blasting agents are stored in separate buildings, other than on the approval of manufacturers, distributors, and user, they must be separated from the ammonium nitrate by the distances and/or barricades specified in Table H-22 or a minimum of fifty feet (15.2 m)

• With flammable liquids, such as gasoline, kerosene, solvents, and light fuel oils on the premises except when such storage conforms to WAC 296-24-330, Flammable ((~~and combustible~~)) liquids, and when walls, sills or curbs are provided in accordance with WAC 296-52-69095, Ammonium nitrate

(2) Contaminants must be stored in a separate building from ammonium nitrate

OR

Be separated by an approved firewall of not less that one-hour fire resistance rating which should extend to the underside of the roof. Alternatively, the contaminants may be separated by a minimum of thirty feet (9.1 m), instead of using walls. These contaminants are:

• Organic chemicals

• Acids

• Other corrosive materials

• Materials that may require blasting during processing or handling

• Compressed flammable gases

• Flammable and combustible materials

• Other substances including:

Animal fats	Baled cotton	Baled rags	Baled scrap paper
Bleaching powder	Burlap or cotton bags	Caustic soda	Coal

Coke	Charcoal	Cork	Camphor
Excelsior	Fibers of any kind	Fish oil	Fish meal
Foam rubber	Hay	Lubricating oil	Linseed oil
Other oxidizable or drying oils	Naphthalene	Oakum	Oiled clothing
Oiled paper	Oiled textiles	Paint	Straw
Sawdust	Wood shavings	Vegetable oil	

(3) Housekeeping requirements must have:

• Electrical installations, which meet the requirements of chapter 296-24 WAC, Part L, Electrical, and WAC 296-800-280, Basic electrical rules, for ordinary locations and be designed to minimize damage from corrosion

• Adequate lightning protections in areas where lightning storms are prevalent (see NFPA 78-1992, Lightning Protection Code)

• Procedures to prevent unauthorized personnel from entering the ammonium nitrate storage area

(4) Fire protection must provide:

• Water supplies and fire hydrants

• Suitable fire control devices, such as a small hose or portable fire extinguishers, throughout the warehouse and in the loading/unloading areas. These devices must comply with the requirements of WAC 296-800-300, Portable fire extinguishers, and WAC 296-24-602, Standpipe and hose systems

• Approved sprinkler systems installed according to WAC 296-24-607, Automatic sprinkler systems

• Two thousand five hundred tons (two thousand two hundred seventy metric) or less of bagged ammonium nitrate may be stored in a structure that does not have an automatic sprinkler system.

AMENDATORY SECTION (Amending WSR 06-07-142, filed 3/21/06, effective 5/1/06)

WAC 296-54-507 Employer's responsibilities. The employer must comply with the requirements of all safety and health regulations and must:

(1) Provide safety training for each employee.

(2) Take additional precautions to ensure safe logging operations when extreme weather or other extreme conditions create hazards. If the logging operation cannot be made safe, the work must be discontinued until safe to resume.

(3) Ensure that danger trees within reach of landings, rigging, buildings, or work areas are either fell before regular logging operations begin, or arrange work so that employees are not exposed to the related hazards.

(4) Develop and maintain a ((~~chemical~~)) hazard communication program as required by WAC ((~~296-800-170~~)) 296-901-140. The program must provide information to all employees about hazardous chemicals or substances to which they are exposed, or may become exposed, in the course of their employment.

(5) Ensure that intoxicating beverages and narcotics are prohibited on or near the worksite. The employer must remove from the worksite any employee under the influence of alcohol or narcotics.

Note: Narcotics do not include prescription drugs taken under a doctor's direction if the use does not endanger any employee.

AMENDATORY SECTION (Amending WSR 99-17-117, filed 8/18/99, effective 12/1/99)

WAC 296-54-519 Miscellaneous requirements. (1) Spikes, drift bolts, nails, or other metal must not be left in any recoverable log.

(2) The employer must provide and maintain portable fire extinguishers on each machine and vehicle.

(3) Machines, vehicles, and portable powered tools (unless diesel powered) must not be fueled while the motors are running.

Note: See WAC 296-54-58130(3) for exceptions related to helicopters.

(4) Flammable ((~~and combustible~~)) liquids must be stored, handled, transported, and used according to the requirements of chapter 296-24 WAC, Part E, and the following:

(a) Flammable ((~~and combustible~~)) liquids must not be transported in the driver compartment or in any passenger-occupied area of a machine or vehicle.

(b) Flammable ((~~or combustible~~)) liquids, including chain-saw and diesel fuel, may be used to start a fire, if the employer ensures that in the particular situation its use does not create a hazard for an employee.

(5) Smoking is prohibited in battery charging areas and within fifty feet of all refueling operations. Precautions must be taken to prevent open flames, sparks, or electric arcs in battery charging or refueling areas.

(6) When charging batteries:

(a) The vent caps must be kept in place to avoid electrolyte spray;

(b) Caps must be functioning; and

(c) The battery (or compartment) cover(s) must be open to dissipate heat.

(7) Tools and other metallic objects must be kept away from the tops of uncovered batteries.

(8) Explosives and blasting agents must be stored, handled, transported, and used according to the requirements of chapter 296-52 WAC, Possession and handling of explosives.

AMENDATORY SECTION (Amending WSR 09-15-144, filed 7/21/09, effective 9/1/09)

WAC 296-56-60001 Scope and applicability. (1) The rules included in this chapter apply throughout the state of Washington, to any and all waterfront operations under the jurisdiction of the department of labor and industries.

(2) These minimum requirements are promulgated in order to augment the general safety and health standards, and any other safety and health standards promulgated by the department of labor and industries which are applicable to all places of employment under the jurisdiction of the department of labor and industries. The rules of this chapter, and the rules of chapters 296-24, 296-62 and 296-800 WAC are applicable to all longshore, stevedore and related waterfront operations: Provided, That such rules shall not be applicable

to those operations under the exclusive safety jurisdiction of the federal government.

(3) The provisions of this chapter shall prevail in the event of a conflict with, or duplication of, provisions contained in chapters 296-24, 296-62 and 296-800 WAC. Specific standards which are applicable include, but are not limited to:

(a) Electrical—Chapter 296-24 WAC Part L, and WAC 296-800-280.

(b) Toxic and hazardous substances are regulated by chapters 296-62 and 296-841 WAC. Where references to this chapter are given they are for informational purposes only. Where specific requirements of this chapter conflict with the provisions of chapters 296-62 and 296-841 WAC, this chapter prevails. Chapter 296-62 WAC does not apply when a substance or cargo is contained within a manufacturer's original, sealed, intact means of packaging or containment complying with the department of transportation or International Maritime Organization requirements.

(c) Hearing loss prevention (noise)—Chapter 296-817 WAC.

(d) Standards for commercial diving operations—Chapter 296-37 WAC.

(e) Safety requirements for scaffolding—Chapter 296-874 WAC.

(f) Safe practices of abrasive blasting operations—Chapter 296-818 WAC.

(g) Access to employee exposure and medical records—Chapter 296-802 WAC.

(h) Respiratory protection—Chapter 296-842 WAC.

(i) Safety standards for grain handling facilities—Chapter 296-99 WAC.

(j) ((~~Chemical~~)) Hazard communication ((~~program~~))—WAC ((~~296-800-170~~)) 296-901-140.

(k) Asbestos—Chapters 296-62 Part I-1 and 296-65 WAC.

(l) Permit - required confined spaces and confined space—Chapter 296-809 WAC.

(m) Servicing multipiece and single-piece rim wheels—Chapter 296-864 WAC.

(n) First-aid requirements—WAC 296-800-150.

(o) Employee emergency plans and fire prevention plans—Chapter 296-24 WAC Part G-1.

(4) The provisions of this chapter do not apply to the following:

(a) Fully automated bulk coal handling facilities contiguous to electrical power generating plants.

(b) Facilities subject to the regulations of the office of pipeline safety regulation of the materials transportation bureau, department of transportation, to the extent such regulations apply.

(5) WAC 296-62-074 shall apply to the exposure of every employee to cadmium in every employment and place of employment covered by chapter 296-56 WAC in lieu of any different standard on exposures to cadmium that would otherwise be applicable by virtue of those sections.

AMENDATORY SECTION (Amending WSR 09-15-144, filed 7/21/09, effective 9/1/09)

WAC 296-56-60235 Welding, cutting and heating (hot work) (see also definition of "hazardous cargo, material, substance or atmosphere"). (1) Definition. "Hot work" means riveting, welding, flame cutting or other fire or spark-producing operation.

(2) Hot work in confined spaces. Hot work shall not be performed in a confined space until all requirements of chapter 296-809 WAC, are met.

(3) Fire protection.

(a) To the extent possible, hot work shall be performed in designated locations that are free of fire hazards.

(b) When hot work must be performed in a location that is not free of fire hazards, all necessary precautions shall be taken to confine heat, sparks, and slag so that they cannot contact flammable or combustible material.

(c) Fire extinguishing equipment suitable for the location shall be immediately available and shall be maintained in readiness for use at all times.

(d) When the hot work operation is such that normal fire prevention precautions are not sufficient, additional personnel shall be assigned to guard against fire during hot work and for a sufficient time after completion of the work to ensure that no fire hazard remains. The employer shall instruct all employees involved in hot work operations as to potential fire hazards and the use of firefighting equipment.

(e) Drums and containers which contain or have contained flammable ((~~or combustible~~)) liquids shall be kept closed. Empty containers shall be removed from the hot work area.

(f) When openings or cracks in flooring cannot be closed, precautions shall be taken to ensure that no employees or flammable or combustible materials are exposed to sparks dropping through the floor. Similar precautions shall be taken regarding cracks or holes in walls, open doorways and open or broken windows.

(g) Hot work shall not be performed:

(i) In flammable or potentially flammable atmospheres;

(ii) On or in equipment or tanks that have contained flammable gas or liquid or combustible liquid or dust-producing material, until a designated person has tested the atmosphere inside the equipment or tanks and determined that it is not hazardous; or

(iii) Near any area in which exposed readily ignitable materials such as bulk sulphur, baled paper or cotton are stored. Bulk sulphur is excluded from this prohibition if suitable precautions are followed, the person in charge is knowledgeable and the person performing the work has been instructed in preventing and extinguishing sulphur fires.

(h)(i) Drums, containers or hollow structures that have contained flammable or combustible substances shall either be filled with water or cleaned, and shall then be ventilated. A designated person shall test the atmosphere and determine that it is not hazardous before hot work is performed on or in such structures.

(ii) Before heat is applied to a drum, container or hollow structure, an opening to release built-up pressure during heat application shall be provided.

(4) Gas welding and cutting.

(a) Compressed gas cylinders:

(i) Shall have valve protection caps in place except when in use, hooked up or secured for movement. Oil shall not be used to lubricate caps;

(ii) Shall be hoisted only while secured, as on a cradle or pallet, and shall not be hoisted by magnet, choker sling or cylinder caps;

(iii) Shall be moved only by tilting or rolling on their bottom edges;

(iv) Shall be secured when moved by vehicle;

(v) Shall be secured while in use;

(vi) Shall have valves closed when cylinders are empty, being moved or stored;

(vii) Shall be secured upright except when hoisted or carried;

(viii) Shall not be freed when frozen by prying the valves or caps with bars or by hitting the valve with a tool;

(ix) Shall not be thawed by boiling water;

(x) Shall not be exposed to sparks, hot slag, or flame;

(xi) Shall not be permitted to become part of electrical circuits or have electrodes struck against them to strike arcs;

(xii) Shall not be used as rollers or supports;

(xiii) Shall not have contents used for purposes not authorized by the supplier;

(xiv) Shall not be used if damaged or defective;

(xv) Shall not have gases mixed within, except by gas suppliers;

(xvi) Shall be stored so that oxygen cylinders are separated from fuel gas cylinders and combustible materials by either a minimum distance of twenty feet (6.1 m) or a barrier having a fire-resistance rating of thirty minutes; and

(xvii) Shall not have objects that might either damage the safety device or obstruct the valve placed on top of the cylinder when in use.

(b) Use of fuel gas. Fuel gas shall be used only as follows:

(i) Before regulators are connected to cylinder valves, the valves shall be opened slightly (cracked) and closed immediately to clear away dust or dirt. Valves shall not be cracked if gas could reach possible sources of ignition;

(ii) Cylinder valves shall be opened slowly to prevent regulator damage and shall not be opened more than one and one-half turns. Any special wrench required for emergency closing shall be positioned on the valve stem during cylinder use. For manifolded or coupled cylinders, at least one wrench shall be immediately available. Nothing shall be placed on top of a cylinder or associated parts when the cylinder is in use;

(iii) Pressure-reducing regulators shall be attached to cylinder valves when cylinders are supplying torches or devices equipped with shut-off valves;

(iv) Cylinder valves shall be closed and gas released from the regulator or manifold before regulators are removed;

(v) Leaking fuel gas cylinder valves shall be closed and the gland nut tightened. If the leak continues, the cylinder shall be tagged, removed from service, and moved to a location where the leak will not be hazardous. If a regulator attached to a valve stops a leak, the cylinder need not be removed from the workplace but shall be tagged and may not be used again before it is repaired; and

(vi) If a plug or safety device leaks, the cylinder shall be tagged, removed from service, and moved to a location where the leak will not be hazardous.

(c) Hose.

(i) Fuel gas and oxygen hoses shall be easily distinguishable from each other by color or sense of touch. Oxygen and fuel hoses shall not be interchangeable. Hoses having more than one gas passage shall not be used.

(ii) When oxygen and fuel gas hoses are taped together, not more than four of each twelve inches (10.16 cm of each 30.48 cm) shall be taped.

(iii) Hose shall be inspected before use. Hose subjected to flashback or showing evidence of severe wear or damage shall be tested to twice the normal working pressure but not less than two hundred p.s.i. (1378.96 kPa) before reuse. Defective hose shall not be used.

(iv) Hose couplings shall not unlock or disconnect without rotary motion.

(v) Hose connections shall be clamped or securely fastened to withstand twice the normal working pressure but not less than three hundred p.s.i. (2068.44 kPa) without leaking.

(vi) Gas hose storage boxes shall be ventilated.

(d) Torches.

(i) Torch tip openings shall only be cleaned with devices designed for that purpose.

(ii) Torches shall be inspected before each use for leaking shut-off valves, hose couplings and tip connections. Torches shall be inspected before each use for leaking shut-off valves, hose couplings and tip connections. Torches with such defects shall not be used.

(iii) Torches shall not be lighted from matches, cigarette lighters, other flames or hot work.

(e) Pressure regulators. Pressure regulators, including associated gauges, shall be maintained in safe working order.

(f) Operational precaution. Gas welding equipment shall be maintained free of oil and grease.

(5) Arc welding and cutting.

(a) Manual electrode holders.

(i) The employer shall ensure that only manual electrode holders intended for arc welding and cutting and capable of handling the maximum current required for such welding or cutting shall be used.

(ii) Current-carrying parts passing through those portions of the holder gripped by the user and through the outer surfaces of the jaws of the holder shall be insulated against the maximum voltage to ground.

(b) Welding cables and connectors.

(i) Arc welding and cutting cables shall be insulated, flexible and capable of handling the maximum current required by the operation, taking into account the duty cycles.

(ii) Only cable free from repair or splice for ten feet (3 m) from the electrode holder shall be used unless insulated connectors or splices with insulating quality equal to that of the cable are provided.

(iii) When a cable other than the lead mentioned in (b)(ii) of this subsection wears and exposes bare conductors, the portion exposed shall not be used until it is protected by insulation equivalent in performance capacity to the original.

(iv) Insulated connectors of equivalent capacity shall be used for connecting or splicing cable. Cable lugs, where used as connectors, shall provide electrical contact. Exposed metal parts shall be insulated.

(c) Ground returns and machine grounding.

(i) Ground return cables shall have current-carrying capacity equal to or exceeding the total maximum output capacities of the welding or cutting units served.

(ii) Structures or pipelines, other than those containing gases or flammable liquids or conduits containing electrical circuits, may be used in the ground return circuit if their current-carrying capacity equals or exceeds the total maximum output capacities of the welding or cutting units served.

(iii) Structures or pipelines forming a temporary ground return circuit shall have electrical contact at all joints. Arcs, sparks or heat at any point in the circuit shall cause rejection as a ground circuit.

(iv) Structures or pipelines acting continuously as ground return circuits shall have joints bonded and maintained to ensure that no electrolysis or fire hazard exists.

(v) Arc welding and cutting machine frames shall be grounded, either through a third wire in the cable containing the circuit conductor or through a separate wire at the source of the current. Grounding circuits shall have resistance low enough to permit sufficient current to flow to cause the fuse or circuit breaker to interrupt the current.

(vi) Ground connections shall be mechanically and electrically adequate to carry the current.

(d) When electrode holders are left unattended, electrodes shall be removed and holders placed to prevent employee injury.

(e) Hot electrode holders shall not be dipped in water.

(f) The employer shall ensure that when arc welders or cutters leave or stop work or when machines are moved, the power supply switch is kept in the off position.

(g) Arc welding or cutting equipment having a functional defect shall not be used.

(h)(i) Arc welding and cutting operations shall be separated from other operations by shields, screens, or curtains to protect employees in the vicinity from the direct rays and sparks of the arc.

(ii) Employees in areas not protected from the arc by screening shall be protected by appropriate filter lenses in accordance with subsection (8) of this section. When welders are exposed to their own arc or to each other's arc, they shall wear filter lenses complying with the requirements of subsection (8) of this section.

(i) The control apparatus of arc welding machines shall be enclosed, except for operating wheels, levers, and handles.

(j) Input power terminals, top change devices and live metal parts connected to input circuits shall be enclosed and accessible only by means of insulated tools.

(k) When arc welding is performed in wet or high-humidity conditions, employees shall use additional protection, such as rubber pads or boots, against electric shock.

(6) Ventilation and employee protection in welding, cutting and heating.

(a) Mechanical ventilation requirements. The employer shall ensure that general mechanical ventilation or local exhaust systems shall meet the following requirements:

(i) General mechanical ventilation shall maintain vapors, fumes and smoke below a hazardous level;

(ii) Local exhaust ventilation shall consist of movable hoods positioned close to the work and shall be of such capacity and arrangement as to keep breathing zone concentrations below hazardous levels;

(iii) Exhausts from working spaces shall be discharged into the open air, clear of intake air sources;

(iv) Replacement air shall be clean and respirable; and

(v) Oxygen shall not be used for ventilation, cooling or cleaning clothing or work areas.

(b) Hot work in confined spaces. Except as specified in (c)(ii) and (iii) of this subsection, when hot work is performed in a confined space the employer shall, in addition to the requirements of chapter 296-809 WAC, ensure that:

(i) General mechanical or local exhaust ventilations shall be provided; or

(ii) Employees in the space shall wear respirators in accordance with chapter 296-842 WAC.

(c) Welding, cutting or heating of toxic metals.

(i) In confined or enclosed spaces, hot work involving the following metals shall only be performed with general mechanical or local exhaust ventilation that ensures that employees are not exposed to hazardous levels of fumes:

(A) Lead base metals;

(B) Cadmium-bearing filler materials; and

(C) Chromium-bearing metals or metals coated with chromium-bearing materials.

(ii) In confined or enclosed spaces, hot work involving the following metals shall only be performed with local exhaust ventilation meeting the requirements of this subsection or by employees wearing supplied air respirators in accordance with chapter 296-842 WAC;

(A) Zinc-bearing base or filler metals or metals coated with zinc-bearing materials;

(B) Metals containing lead other than as an impurity, or coated with lead-bearing materials;

(C) Cadmium-bearing or cadmium-coated base metals; and

(D) Metals coated with mercury-bearing materials.

(iii) Employees performing hot work in confined or enclosed spaces involving beryllium-containing base or filler metals shall be protected by local exhaust ventilation and wear supplied air respirators or self-contained breathing apparatus, in accordance with the requirements of chapter 296-842 WAC.

(iv) The employer shall ensure that employees performing hot work in the open air that involves any of the metals listed in (c)(i) and (ii) of this subsection shall be protected by respirators in accordance with the requirements of chapter 296-842 WAC and those working on beryllium-containing base or filler metals shall be protected by supplied air respirators, in accordance with the requirements of chapter 296-842 WAC.

(v) Any employee exposed to the same atmosphere as the welder or burner shall be protected by the same type of respiratory and other protective equipment as that worn by the welder or burner.

(d) Inert-gas metal-arc welding. Employees shall not engage in and shall not be exposed to the inert-gas metal-arc welding process unless the following precautions are taken:

(i) Chlorinated solvents shall not be used within two hundred feet (61 m) of the exposed arc. Surfaces prepared with chlorinated solvents shall be thoroughly dry before welding is performed on them.

(ii) Employees in areas not protected from the arc by screening shall be protected by appropriate filter lenses in accordance with the requirements of subsection (8) of this section. When welders are exposed to their own arc or to each other's arc, filter lenses complying with the requirements of subsection (8) of this section shall be worn to protect against flashes and radiant energy.

(iii) Employees exposed to radiation shall have their skin covered completely to prevent ultraviolet burns and damage. Helmets and hand shields shall not have leaks, openings or highly reflective surfaces.

(iv) Inert-gas metal-arc welding on stainless steel shall not be performed unless exposed employees are protected either by local exhaust ventilation or by wearing supplied air respirators in accordance with the requirements of chapter 296-842 WAC.

(7) Welding, cutting and heating on preservative coatings.

(a) Before hot work is commenced on surfaces covered by a preservative coating of unknown flammability, a test shall be made by a designated person to determine the coating's flammability. Preservative coatings shall be considered highly flammable when scrapings burn with extreme rapidity.

(b) Appropriate precaution shall be taken to prevent ignition of highly flammable hardened preservative coatings. Highly flammable coatings shall be stripped from the area to be heated. An uncoiled fire hose with fog nozzle, under pressure, shall be immediately available in the hot work area.

(c) Surfaces covered with preservative coatings shall be stripped for at least four inches (10.16 cm) from the area of heat application or employees shall be protected by supplied air respirators in accordance with the requirements of chapter 296-842 WAC.

(8) Protection against radiant energy.

(a) Employees shall be protected from radiant energy eye hazards by spectacles, cup goggles, helmets, hand shields or face shields with filter lenses complying with the requirements of this subsection.

(b) Filter lenses shall have an appropriate shade number, as indicated in Table G-1, for the work performed. Variations of one or two shade numbers are permissible to suit individual preferences.

(c) If filter lenses are used in goggles worn under the helmet, the shade numbers of both lenses equals the value shown in Table G-1 for the operation.

Table G-1.—Filter Lenses for Protection Against Radiant Energy

Operation	Shade No.
Soldering	2
Torch Brazing	3 or 4

Table G-1.—Filter Lenses for Protection Against Radiant Energy

Operation	Shade No.
Light cutting, up to 1 inch	3 or 4
Medium cutting, 1-6 inches	4 or 5
Heavy cutting, over 6 inches	5 or 6
Light gas welding, up to 1/8 inch	4 or 5
Medium gas welding, 1/8-1/2 inch	5 or 6
Heavy gas welding, over 1/2 inch	6 or 8
Shielded Metal-Arc Welding 1/16 to 5/32-inch electrodes	10
Inert gas Metal-Arc Welding (nonferrous) 1/16 to 5/32-inch electrodes	11
Shielded Metal-Arc Welding:	
3/16 to 1/4-inch electrodes	12
5/16 and 3/8-inch electrodes	14

AMENDATORY SECTION (Amending WSR 06-19-074, filed 9/19/06, effective 12/1/06)

WAC 296-59-005 Incorporation of other standards. (1) Lifts and tows shall be designed, installed, operated, and maintained in accordance with American National Standard Institute (ANSI) B77.1-1982, Standards for Passenger Tramways—Aerial Tramways and Lifts, Surface Lifts, and Tows—Safety Requirements.

(2) Future revised editions of ANSI B77.1-1982 may be used for new installations or major modifications of existing installations, as recommended or approved by the equipment manufacturer or a qualified design engineer, except that, where specific provisions exist, variances shall be requested from the department.

(3) Reserved.

(4) The use of military type weapons for avalanche control shall comply with all requirements of the United States government and/or the military branch having jurisdiction. Compliance shall include qualification of employees, security requirements, and storage and handling of ammunition.

(5) The employer shall develop and maintain a ((~~chemical~~)) hazard communication program as required by WAC ((~~296-800-170~~)) 296-901-140, which will provide information to all employees relative to hazardous chemicals or substances to which they are exposed, or may become exposed, in the course of their employment.

(6) When employees perform activities such as construction work or logging, the WAC chapter governing the specific activity shall apply, e.g., chapter 296-155 or 296-54 WAC, et seq.

AMENDATORY SECTION (Amending WSR 03-01-096, filed 12/17/02, effective 6/1/03)

WAC 296-62-05520 Retain readily visible DOT labeling.

You must:

• Retain readily visible DOT labeling as specified in Table 1.

Table 1
Specifications for Retaining DOT Labeling

If you receive	Retain DOT markings, placards and labels UNTIL:
• Packages of hazardous materials	• Hazardous materials are sufficiently removed – Packaging must be ■ cleaned of residue ■ purged of vapors
• Freight containers • Rail freight cars • Motor vehicles • Transport vehicles	• Hazardous materials are sufficiently removed
• Nonbulk packages that will not be reshipped	• You replace the DOT labeling with labeling that complies with WAC ((~~296-800-170, Employer chemical~~)) 296-901-140, Hazard communication((~~—Introduction (see the *Safety and Health Core Rules Book*~~))

AMENDATORY SECTION (Amending WSR 91-11-070, filed 5/20/91, effective 6/20/91)

WAC 296-62-07544 Appendix B—Sampling strategy and analytical methods for formaldehyde. (1) To protect the health of employees, exposure measurements must be unbiased and representative of employee exposure. The proper measurement of employee exposure requires more than a token commitment on the part of the employer. WISHA's mandatory requirements establish a baseline; under the best of circumstances all questions regarding employee exposure will be answered. Many employers, however, will wish to conduct more extensive monitoring before undertaking expensive commitments, such as engineering controls, to assure that the modifications are truly necessary. The following sampling strategy, which was developed at NIOSH by Nelson A. Leidel, Kenneth A. Busch, and Jeremiah R. Lynch and described in NIOSH publication No. 77-173 (Occupational Exposure Sampling Strategy Manual) will assist the employer in developing a strategy for determining the exposure of his or her employees.

(2) There is no one correct way to determine employee exposure. Obviously, measuring the exposure of every employee exposed to formaldehyde will provide the most information on any given day. Where few employees are exposed, this may be a practical solution. For most employers, however, use of the following strategy will give just as much information at less cost.

(3) Exposure data collected on a single day will not automatically guarantee the employer that his or her workplace is always in compliance with the formaldehyde standard. This does not imply, however, that it is impossible for an employer to be sure that his or her worksite is in compliance with the standard. Indeed, a properly designed sampling strategy showing that all employees are exposed below the PELs, at least with a ninety-five percent certainty, is compelling evidence that the exposure limits are being achieved provided that measurements are conducted using valid sampling strategy and approved analytical methods.

(4) There are two PELs, the TWA concentration and the STEL.

(a) Most employers will find that one of these two limits is more critical in the control of their operations, and WISHA expects that the employer will concentrate monitoring efforts on the critical component.

(b) If the more difficult exposure is controlled, this information, along with calculations to support the assumptions, should be adequate to show that the other exposure limit is also being achieved.

(5) Sampling strategy.

(a) Determination of the need for exposure measurements.

(b) The employer must determine whether employees may be exposed to concentrations in excess of the action level. This determination becomes the first step in an employee exposure monitoring program that minimizes employer sampling burdens while providing adequate employee protection.

(c) If employees may be exposed above the action level, the employer must measure exposure. Otherwise, an objective determination that employee exposure is low provides adequate evidence that exposure potential has been examined.

(d) The employer should examine all available relevant information, e.g., insurance company and trade association data and information from suppliers or exposure data collected from similar operations.

(e) The employer may also use previously-conducted sampling including area monitoring. The employer must make a determination relevant to each operation although this need not be on a separate piece of paper.

(f) If the employer can demonstrate conclusively that no employee is exposed above the action level or the STEL through the use of objective data, the employer need proceed no further on employee exposure monitoring until such time that conditions have changed and the determination is no longer valid.

(g) If the employer cannot determine that employee exposure is less than the action level and the STEL, employee exposure monitoring will have to be conducted.

(6) Workplace material survey.

(a) The primary purpose of a survey of raw material is to determine if formaldehyde is being used in the work environment and if so, the conditions under which formaldehyde is being used.

(b) The first step is to tabulate all situations where formaldehyde is used in a manner such that it may be released into the workplace atmosphere or contaminate the skin. This information should be available through analysis of company records and information on the ((~~MSDSs~~)) SDS available through provisions of this standard and the hazard communication standard.

(c) If there is an indication from materials handling records and accompanying ((~~MSDSs~~)) SDS that formaldehyde is being used in the following types of processes or work operations, there may be a potential for releasing formaldehyde into the workplace atmosphere:

(i) Any operation that involves grinding, sanding, sawing, cutting, crushing, screening, sieving, or any other manipulation of material that generates formaldehyde-bearing dust.

(ii) Any processes where there have been employee complaints or symptoms indicative of exposure to formaldehyde.

(iii) Any liquid or spray process involving formaldehyde.

(iv) Any process that uses formaldehyde in preserved tissue.

(v) Any process that involves the heating of a formaldehyde-bearing resin.

Processes and work operations that use formaldehyde in these manners will probably require further investigation at the worksite to determine the extent of employee monitoring that should be conducted.

(7) Workplace observations.

(a) To this point, the only intention has been to provide an indication as to the existence of potentially exposed employees. With this information, a visit to the workplace is needed to observe work operations, to identify potential health hazards, and to determine whether any employees may be exposed to hazardous concentrations of formaldehyde.

(b) In many circumstances, sources of formaldehyde can be identified through the sense of smell. However, this method of detection should be used with caution because of olfactory fatigue.

(c) Employee location in relation to source of formaldehyde is important in determining if an employee may be significantly exposed to formaldehyde. In most instances, the closer a worker is to the source, the higher the probability that a significant exposure will occur.

(d) Other characteristics should be considered. Certain high temperature operations give rise to higher evaporation rates. Locations of open doors and windows provide natural ventilation that tend to dilute formaldehyde emissions. General room ventilation also provides a measure of control.

(8) Calculation of potential exposure concentrations.

(a) By knowing the ventilation rate in a workplace and the quantity of formaldehyde generated, the employer may be able to determine by calculation if the PELs might be exceeded.

(b) To account for poor mixing of formaldehyde into the entire room, locations of fans and proximity of employees to the work operation, the employer must include a safety factor.

(c) If an employee is relatively close to a source, particularly if he or she is located downwind, a safety factor of one hundred may be necessary.

(d) For other situations, a factor of ten may be acceptable. If the employer can demonstrate through such calculations that employee exposure does not exceed the action level or the STEL, the employer may use this information as objective data to demonstrate compliance with the standard.

(9) Sampling strategy.

(a) Once the employer determines that there is a possibility of substantial employee exposure to formaldehyde, the employer is obligated to measure employee exposure.

(b) The next step is selection of a maximum risk employee. When there are different processes where employees may be exposed to formaldehyde, a maximum risk employee should be selected for each work operation.

(c) Selection of the maximum risk employee requires professional judgment. The best procedure for selecting the maximum risk employee is to observe employees and select the person closest to the source of formaldehyde. Employee mobility may affect this selection; e.g., if the closest employee is mobile in his tasks, he may not be the maximum risk employee. Air movement patterns and differences in work habits will also affect selection of the maximum risk employee.

(d) When many employees perform essentially the same task, a maximum risk employee cannot be selected. In this circumstance, it is necessary to resort to random sampling of the group of workers. The objective is to select a subgroup of adequate size so that there is a high probability that the random sample will contain at least one worker with high exposure if one exists. The number of persons in the group influences the number that need to be sampled to ensure that at least one individual from the highest ten percent exposure group is contained in the sample. For example, to have ninety percent confidence in the results, if the group size is ten, nine should be sampled; for fifty, only eighteen need to be sampled.

(e) If measurement shows exposure to formaldehyde at or above the action level or the STEL, the employer needs to identify all other employees who may be exposed at or above the action level or STEL and measure or otherwise accurately characterize the exposure of these employees.

(f) Whether representative monitoring or random sampling are conducted, the purpose remains the same to determine if the exposure of any employee is above the action level. If the exposure of the most exposed employee is less than the action level and the STEL, regardless of how the employee is identified, then it is reasonable to assume that measurements of exposure of the other employees in that operation would be below the action level and the STEL.

(10) Exposure measurements.

(a) There is no "best" measurement strategy for all situations. Some elements to consider in developing a strategy are:

(i) Availability and cost of sampling equipment;

(ii) Availability and cost of analytic facilities;

(iii) Availability and cost of personnel to take samples;

(iv) Location of employees and work operations;

(v) Intraday and interday variations in the process;

(vi) Precision and accuracy of sampling and analytic methods; and

(vii) Number of samples needed.

(b) Samples taken for determining compliance with the STEL differ from those that measure the TWA concentration in important ways. STEL samples are best taken in a nonrandom fashion using all available knowledge relating to the area, the individual, and the process to obtain samples during periods of maximum expected concentrations. At least three measurements on a shift are generally needed to spot gross errors or mistakes; however, only the highest value represents the STEL.

(c) If an operation remains constant throughout the workshift, a much greater number of samples would need to be taken over the thirty-two discrete nonoverlapping periods

in an 8-hour workshift to verify compliance with a STEL. If employee exposure is truly uniform throughout the workshift, however, an employer in compliance with the 1 ppm TWA would be in compliance with the 2 ppm STEL, and this determination can probably be made using objective data.

(11) Need to repeat the monitoring strategy.

(a) Interday and intraday fluctuations in employee exposure are mostly influenced by the physical processes that generate formaldehyde and the work habits of the employee. Hence, in-plant process variations influence the employer's determination of whether or not additional controls need to be imposed. Measurements that employee exposure is low on a day that is not representative of worst conditions may not provide sufficient information to determine whether or not additional engineering controls should be installed to achieve the PELs.

(b) The person responsible for conducting sampling must be aware of systematic changes which will negate the validity of the sampling results. Systematic changes in formaldehyde exposure concentration for an employee can occur due to:

(i) The employee changing patterns of movement in the workplace;

(ii) Closing of plant doors and windows;

(iii) Changes in ventilation from season to season;

(iv) Decreases in ventilation efficiency or abrupt failure of engineering control equipment; and

(v) Changes in the production process or work habits of the employee.

(c) Any of these changes, if they may result in additional exposure that reaches the next level of action (i.e., 0.5 or 1.0 ppm as an 8-hour average or 2 ppm over fifteen minutes) require the employer to perform additional monitoring to reassess employee exposure.

(d) A number of methods are suitable for measuring employee exposure to formaldehyde or for characterizing emissions within the worksite. The preamble to this standard describes some methods that have been widely used or subjected to validation testing. A detailed analytical procedure derived from the WISHA Method A.C.R.O. for acrolein and formaldehyde is presented below for informational purposes.

(e) Inclusion of WISHA's method in this appendix in no way implies that it is the only acceptable way to measure employee exposure to formaldehyde. Other methods that are free from significant interferences and that can determine formaldehyde at the permissible exposure limits within ± 25 percent of the "true" value at the ninety-five percent confidence level are also acceptable. Where applicable, the method should also be capable of measuring formaldehyde at the action level to ± 35 percent of the "true" value with a ninety-five percent confidence level. WISHA encourages employers to choose methods that will be best for their individual needs. The employer must exercise caution, however, in choosing an appropriate method since some techniques suffer from interferences that are likely to be present in workplaces of certain industry sectors where formaldehyde is used.

(12) WISHA's analytical laboratory method.

A.C.R.O. (also use methods F.O.R.M. and F.O.R.M. 2 when applicable).

(a) Matrix: Air.

(b) Target concentration: 1 ppm (1.2 mg/m3).

(c) Procedures: Air samples are collected by drawing known volumes of air through sampling tubes containing XAD-2 adsorbent which have been coated with 2-(hydroxymethyl) piperidine. The samples are desorbed with toluene and then analyzed by gas chromatography using a nitrogen selective detector.

(d) Recommended sampling rate and air volumes: 0.1 L/min and 24 L.

(e) Reliable quantitation limit: 16 ppb (20 ug/m3).

(f) Standard error of estimate at the target concentration: 7.3%.

(g) Status of the method: A sampling and analytical method that has been subjected to the established evaluation procedures of the organic methods evaluation branch.

(h) Date: March, 1985.

(13) General discussion.

(a) Background: The current WISHA method for collecting acrolein vapor recommends the use of activated 13X molecular sieves. The samples must be stored in an ice bath during and after sampling and also they must be analyzed within forty-eight hours of collection. The current WISHA method for collecting formaldehyde vapor recommends the use of bubblers containing ten percent methanol in water as the trapping solution.

(b) This work was undertaken to resolve the sample stability problems associated with acrolein and also to eliminate the need to use bubblers to sample formaldehyde. A goal of this work was to develop and/or to evaluate a common sampling and analytical procedure for acrolein and formaldehyde.

(c) NIOSH has developed independent methodologies for acrolein and formaldehyde which recommend the use of reagent-coated adsorbent tubes to collect the aldehydes as stable derivatives. The formaldehyde sampling tubes contain Chromosorb 102 adsorbent coated with N-benzylethanolamine (BEA) which reacts with formaldehyde vapor to form a stable oxazolidine compound. The acrolein sampling tubes contain XAD-2 adsorbent coated with 2-(hydroxymethyl) piperidine (2-HMP) which reacts with acrolein vapor to form a different, stable oxazolidine derivative. Acrolein does not appear to react with BEA to give a suitable reaction product. Therefore, the formaldehyde procedure cannot provide a common method for both aldehydes. However, formaldehyde does react with 2-HMP to form a very suitable reaction product. It is the quantitative reaction of acrolein and formaldehyde with 2-HMP that provides the basis for this evaluation.

(d) This sampling and analytical procedure is very similar to the method recommended by NIOSH for acrolein. Some changes in the NIOSH methodology were necessary to permit the simultaneous determination of both aldehydes and also to accommodate WISHA laboratory equipment and analytical techniques.

(14) Limit-defining parameters: The analyte air concentrations reported in this method are based on the recommended air volume for each analyte collected separately and a desorption volume of 1 mL. The amounts are presented as

acrolein and/or formaldehyde, even though the derivatives are the actual species analyzed.

(15) Detection limits of the analytical procedure: The detection limit of the analytical procedure was 386 pg per injection for formaldehyde. This was the amount of analyte which gave a peak whose height was about five times the height of the peak given by the residual formaldehyde derivative in a typical blank front section of the recommended sampling tube.

(16) Detection limits of the overall procedure: The detection limits of the overall procedure were 482 ng per sample (16 ppb or 20 ug/m3 for formaldehyde). This was the amount of analyte spiked on the sampling device which allowed recoveries approximately equal to the detection limit of the analytical procedure.

(17) Reliable quantitation limits:

(a) The reliable quantitation limit was 482 ng per sample (16 ppb or 20 ug/m3) for formaldehyde. These were the smallest amounts of analyte which could be quantitated within the limits of a recovery of at least seventy-five percent and a precision (± 1.96 SD) of ± 25% or better.

(b) The reliable quantitation limit and detection limits reported in the method are based upon optimization of the instrument for the smallest possible amount of analyte. When the target concentration of an analyte is exceptionally higher than these limits, they may not be attainable at the routine operating parameters.

(18) Sensitivity: The sensitivity of the analytical procedure over concentration ranges representing 0.4 to 2 times the target concentration, based on the recommended air volumes, was seven thousand five hundred eighty-nine area units per ug/mL for formaldehyde. This value was determined from the slope of the calibration curve. The sensitivity may vary with the particular instrument used in the analysis.

(19) Recovery: The recovery of formaldehyde from samples used in an eighteen-day storage test remained above ninety-two percent when the samples were stored at ambient temperature. These values were determined from regression lines which were calculated from the storage data. The recovery of the analyte from the collection device must be at least seventy-five percent following storage.

(20) Precision (analytical method only): The pooled coefficient of variation obtained from replicate determinations of analytical standards over the range of 0.4 to 2 times the target concentration was 0.0052 for formaldehyde ((d)(C)(iii) of this subsection).

(21) Precision (overall procedure): The precision at the ninety-five percent confidence level for the ambient temperature storage tests was ±14.3% for formaldehyde. These values each include an additional ±5% for sampling error. The overall procedure must provide results at the target concentrations that are ±25% at the ninety-five percent confidence level.

(22) Reproducibility: Samples collected from controlled test atmospheres and a draft copy of this procedure were given to a chemist unassociated with this evaluation. The formaldehyde samples were analyzed following fifteen days storage. The average recovery was 96.3% and the standard deviation was 1.7%.

(23) Advantages:

(a) The sampling and analytical procedures permit the simultaneous determination of acrolein and formaldehyde.

(b) Samples are stable following storage at ambient temperature for at least eighteen days.

(24) Disadvantages: None.

(25) Sampling procedure.

(a) Apparatus:

(i) Samples are collected by use of a personal sampling pump that can be calibrated to within ±5% of the recommended 0.1 L/min sampling rate with the sampling tube in line.

(ii) Samples are collected with laboratory prepared sampling tubes. The sampling tube is constructed of silane treated glass and is about 8-cm long. The ID is 4 mm and the OD is 6 mm. One end of the tube is tapered so that a glass wool end plug will hold the contents of the tube in place during sampling. The other end of the sampling tube is open to its full 4-mm ID to facilitate packing of the tube. Both ends of the tube are fire-polished for safety. The tube is packed with a 75-mg backup section, located nearest the tapered end and a 150-mg sampling section of pretreated XAD-2 adsorbent which has been coated with 2-HMP. The two sections of coated adsorbent are separated and retained with small plugs of silanized glass wool. Following packing, the sampling tubes are sealed with two 7/32 inch OD plastic and caps. Instructions for the pretreatment and the coating of XAD-2 adsorbent are presented in (d) of this subsection.

(b) Sampling tubes, similar to those recommended in this method, are marketed by Supelco, Inc. These tubes were not available when this work was initiated; therefore, they were not evaluated.

(26) Reagents: None required.

(27) Technique:

(a) Properly label the sampling tube before sampling and then remove the plastic end caps.

(b) Attach the sampling tube to the pump using a section of flexible plastic tubing such that the large, front section of the sampling tube is exposed directly to the atmosphere. Do not place any tubing ahead of the sampling tube. The sampling tube should be attached in the worker's breathing zone in a vertical manner such that it does not impede work performance.

(c) After sampling for the appropriate time, remove the sampling tube from the pump and then seal the tube with plastic end caps.

(d) Include at least one blank for each sampling set. The blank should be handled in the same manner as the samples with the exception that air is not drawn through it.

(e) List any potential interferences on the sample data sheet.

(28) Breakthrough:

(a) Breakthrough was defined as the relative amount of analyte found on a backup sample in relation to the total amount of analyte collected on the sampling train.

(b) For formaldehyde collected from test atmospheres containing six times the PEL, the average five percent breakthrough air volume was 41 L. The sampling rate was 0.1 L/min and the average mass of formaldehyde collected was 250 ug.

(29) Desorption efficiency: No desorption efficiency corrections are necessary to compute air sample results because analytical standards are prepared using coated adsorbent. Desorption efficiencies were determined, however, to investigate the recoveries of the analytes from the sampling device. The average recovery over the range of 0.4 to 2 times the target concentration, based on the recommended air volumes, was 96.2% for formaldehyde. Desorption efficiencies were essentially constant over the ranges studied.

(30) Recommended air volume and sampling rate:

(a) The recommended air volume for formaldehyde is 24 L.

(b) The recommended sampling rate is 0.1 L/min.

(31) Interferences:

(a) Any collected substance that is capable of reacting with 2-HMP and thereby depleting the derivatizing agent is a potential interference. Chemicals which contain a carbonyl group, such as acetone, may be capable of reacting with 2-HMP.

(b) There are no other known interferences to the sampling method.

(32) Safety precautions:

(a) Attach the sampling equipment to the worker in such a manner that it will not interfere with work performance or safety.

(b) Follow all safety practices that apply to the work area being sampled.

(33) Analytical procedure.

(a) Apparatus:

(i) A gas chromatograph (GC), equipped with a nitrogen selective detector. A Hewlett-Packard model 5840A GC fitted with a nitrogen phosphorus flame ionization detector (NPD) was used for this evaluation. Injections were performed using a Hewlett-Packard model 7671A automatic sampler.

(ii) A GC column capable of resolving the analytes from any interference. A 6 ft x 1/4 in OD (2mm ID) glass GC column containing 10% UCON 50-HB-5100+ 2% KOH on 80/100 mesh Chromosorb W-AW was used for the evaluation. Injections were performed on-column.

(iii) Vials, glass 2-mL with Teflon-lined caps.

(iv) Volumetric flasks, pipets, and syringes for preparing standards, making dilutions, and performing injections.

(b) Reagents:

(i) Toluene and dimethylformamide. Burdick and Jackson solvents were used in this evaluation.

(ii) Helium, hydrogen, and air, GC grade.

(iii) Formaldehyde, thirty-seven percent by weight, in water. Aldrich Chemical, ACS Reagent Grade formaldehyde was used in this evaluation.

(iv) Amberlite XAD-2 adsorbent coated with 2-(hydroxymethyl) piperidine (2-HMP), 10% by weight ((d) of this subsection).

(v) Desorbing solution with internal standard. This solution was prepared by adding 20 uL of dimethylformamide to 100 mL of toluene.

(c) Standard preparation:

(i) Formaldehyde: Prepare stock standards by diluting known volumes of thirty-seven percent formaldehyde solution with methanol. A procedure to determine the formaldehyde content of these standards is presented in (d) of this subsection. A standard containing 7.7 mg/mL formaldehyde was prepared by diluting 1 mL of the thirty-seven percent reagent to 50 mL with methanol.

(ii) It is recommended that analytical standards be prepared about sixteen hours before the air samples are to be analyzed in order to ensure the complete reaction of the analytes with 2-HMP. However, rate studies have shown the reaction to be greater than ninety-five percent complete after four hours. Therefore, one or two standards can be analyzed after this reduced time if sample results are outside the concentration range of the prepared standards.

(iii) Place 150-mg portions of coated XAD-2 adsorbent, from the same lot number as used to collect the air samples, into each of several glass 2-mL vials. Seal each vial with a Teflon-lined cap.

(iv) Prepare fresh analytical standards each day by injecting appropriate amounts of the diluted analyte directly onto 150-mg portions of coated adsorbent. It is permissible to inject both acrolein and formaldehyde on the same adsorbent portion. Allow the standards to stand at room temperature. A standard, approximately the target levels, was prepared by injecting 11 uL of the acrolein and 12 uL of the formaldehyde stock standards onto a single coated XAD-2 adsorbent portion.

(v) Prepare a sufficient number of standards to generate the calibration curves. Analytical standard concentrations should bracket sample concentrations. Thus, if samples are not in the concentration range of the prepared standards, additional standards must be prepared to determine detector response.

(vi) Desorb the standards in the same manner as the samples following the sixteen-hour reaction time.

(d) Sample preparation:

(i) Transfer the 150-mg section of the sampling tube to a 2-mL vial. Place the 75-mg section in a separate vial. If the glass wool plugs contain a significant number of adsorbent beads, place them with the appropriate sampling tube section. Discard the glass wool plugs if they do not contain a significant number of adsorbent beads.

(ii) Add 1 mL of desorbing solution to each vial.

(iii) Seal the vials with Teflon-lined caps and then allow them to desorb for one hour. Shake the vials by hand with vigorous force several times during the desorption time.

(iv) Save the used sampling tubes to be cleaned and recycled.

(e) Analysis:

(f) GC conditions.

(34) Column temperature:

(a) Bi-level temperature program.

(i) First level: 100°C to 140°C at 4°C/min following completion of the first level.

(ii) Second level: 140°C to 180°C at 20°C/min following completion of the first level.

(b) Isothermal period: Hold column at 180°C until the recorder pen returns to baseline (usually about twenty-five minutes after injection).

(c) Injector temperature: 180°C.

(d) Helium flow rate: 30 mL/min (detector response will be reduced if nitrogen is substituted for helium carrier gas).

(e) Injection volume: 51 0.8 uL.

(f) GC column: Six-ft x 1/4-in OD (2 mm ID) glass GC column containing 10% UCON 50-HB-5100NZG651+512% KOH on 80/100 Chromosorb W-AW.

(g) NPD conditions:

(i) Hydrogen flow rate: 3 mL/min.

(ii) Air flow rate: 50 mL/min.

(h) Detector temperature: 275 5151C.

(i) Use a suitable method, such as electronic integration, to measure detector response.

(ii) Use an internal standard method to prepare the calibration curve with several standard solutions of different concentrations. Prepare the calibration curve daily. Program the integrator to report results in ug/mL.

(iii) Bracket sample concentrations with standards.

(iv) Interferences (analytical).

(A) Any compound with the same general retention time as the analytes and which also gives a detector response is a potential interference. Possible interferences should be reported to the laboratory with submitted samples by the industrial hygienist.

(B) GC parameters (temperature, column, etc.), may be changed to circumvent interferences.

(C) A useful means of structure designation is GC/MS. It is recommended this procedure be used to confirm samples whenever possible.

(D) The coated adsorbent usually contains a very small amount of residual formaldehyde derivative.

(i) Calculations:

(i) Results are obtained by use of calibration curves. Calibration curves are prepared by plotting detector response against concentration for each standard. The best line through the data points is determined by curve fitting.

(ii) The concentration, in ug/mL, for a particular sample is determined by comparing its detector response to the calibration curve. If either of the analytes is found on the backup section, it is added to the amount found on the front section. Blank corrections should be performed before adding the results together.

(iii) The acrolein and/or formaldehyde air concentration can be expressed using the following equation:

Mg/m3=(A)(B)/C.

where A=ug/mL from 3.7.2, B=desorption volume, and C=L of air sampled.

No desorption efficiency corrections are required.

(iv) The following equation can be used to convert results in mg/m51351 to ppm.

ppm=(mg/m3)(24.45)/MW

where mg/m3=result from 3.7.3, 24.45=molar volume of an ideal gas at 760 mm Hg and 25 5151C, MW=molecular weight (Formaldehyde=30.0).

(j) Backup data. Backup data on detection limits, reliable quantitation limits, sensitivity and precision of the analytical method, breakthrough, desorption efficiency, storage, reproducibility, and generation of test atmospheres are available in OSHA Method 52, developed by the Organics Methods Evaluation Branch, OSHA Analytical Laboratory, Salt Lake City, Utah.

(k) Procedure to coat XAD-2 adsorbent with 2-HMP:

(i) Apparatus: Soxhlet extraction apparatus, rotary evaporation apparatus, vacuum dessicator, 1-L vacuum flask, 1-L round-bottomed evaporative flask, 1-L Erlenmeyer flask, 250-mL Buchner funnel with a coarse fritted disc, etc.

(ii) Reagents:

(A) Methanol, isooctane, and toluene.

(B) (Hydroxymethyl) piperidine.

(C) Amberlite XAD-2 nonionic polymeric adsorbent, twenty to sixty mesh, Aldrich Chemical XAD-2 was used in this evaluation.

(l) Procedure: Weigh 125 g of crude XAD-2 adsorbent into a 1-L Erlenmeyer flask. Add about 200 mL of water to the flask and then swirl the mixture to wash the adsorbent. Discard any adsorbent that floats to the top of the water and then filter the mixture using a fritted Buchner funnel. Air dry the adsorbent for two minutes. Transfer the adsorbent back to the Erlenmeyer flask and then add about 200 mL of methanol to the flask. Swirl and then filter the mixture as before. Transfer the washed adsorbent back to the Erlenmeyer flask and then add about 200 mL of methanol to the flask. Swirl and then filter the mixture as before. Transfer the washed adsorbent to a 1-L round-bottomed evaporative flask, add 13 g of 2-HMP and then 200 mL of methanol, swirl the mixture and then allow it to stand for one hour. Remove the methanol at about 40°C and reduced pressure using a rotary evaporation apparatus. Transfer the coated adsorbent to a suitable container and store it in a vacuum desiccator at room temperature overnight. Transfer the coated adsorbent to a Soxhlet extractor and then extract the material with toluene for about twenty-four hours. Discard the contaminated toluene, add methanol in its place and then continue the Soxhlet extraction for an additional four hours. Transfer the adsorbent to a weighted 1-L round-bottom evaporative flask and remove the methanol using the rotary evaporation apparatus. Determine the weight of the adsorbent and then add an amount of 2-HMP, which is ten percent by weight of the adsorbent. Add 200 mL of methanol and then swirl the mixture. Allow the mixture to stand for one hour. Remove the methanol by rotary evaporation. Transfer the coated adsorbent to a suitable container and store it in a vacuum dessicator until all traces of solvents are gone. Typically, this will take two to three days. The coated adsorbent should be protected from contamination. XAD-2 adsorbent treated in this manner will probably not contain residual acrolein derivative. However, this adsorbent will often contain residual formaldehyde derivative levels of about 0.1 ug per 150 mg of adsorbent. If the blank values for a batch of coated adsorbent are too high, then the batch should be returned to the Soxhlet extractor, extracted with toluene again and then recoated. This process can be repeated until the desired blank levels are attained.

The coated adsorbent is now ready to be packed into sampling tubes. The sampling tubes should be stored in a sealed container to prevent contamination. Sampling tubes should be stored in the dark at room temperature. The sampling tubes should be segregated by coated adsorbent lot number. A sufficient amount of each lot number of coated adsorbent should be retained to prepare analytical standards for use with air samples from that lot number.

(m) A procedure to determine formaldehyde by acid titration:

(i) Standardize the 0.1 N HC1 solution using sodium carbonate and methyl orange indicator.

(ii) Place 50 mL of 0.1 M sodium sulfite and three drops of thymophthalein indicator into a 250-mL Erlenmeyer flask. Titrate the contents of the flask to a colorless endpoint with 0.1 N HC1 (usually one or two drops is sufficient). Transfer 10 mL of the formaldehyde/methanol solution ((b)(iii)(A) of this subsection) into the same flask and titrate the mixture with 0.1 N HC1, again, to a colorless endpoint. The formaldehyde concentration of the standard may be calculated by the following equation:

$$\text{Formaldehyde, mg/mL} = \frac{\text{acid titer x acid normality x 30.0}}{\text{mL of Sample}}$$

(iii) This method is based on the quantitative liberation of sodium hydroxide when formaldehyde reacts with sodium sulfite to form the formaldehyde-bisulfite addition product. The volume of sample may be varied depending on the formaldehyde content but the solution to be titrated must contain excess sodium sulfite. Formaldehyde solutions containing substantial amounts of acid or base must be neutralized before analysis.

AMENDATORY SECTION (Amending WSR 12-02-053, filed 1/3/12, effective 1/1/14)

WAC 296-62-50035 Safe handling practices. (1) Receiving and storage.

(a) Label hazardous drug containers in accordance with WAC ((~~296-800-170, Employer chemical~~)) 296-901-140, Hazard communication((~~—Introduction~~)).

(b) Store and transport hazardous drugs in a manner that minimizes the risk of breakage.

(2) Preparation and administration.

(a) Provide designated work areas for the preparation of hazardous drugs and limit access during preparation.

(b) Coordinate tasks associated with preparing and administering hazardous drugs for the most effective control of worker exposure.

(c) Spike and prime the IV tubing and prepare syringes in a manner that most effectively limits occupational exposure.

(d) Do not remove tubing from an IV bag containing a hazardous drug.

(e) When drug preparation is completed in a ventilated cabinet:

(i) Seal the final product in a plastic bag or other sealed container for transport before taking it out of the cabinet.

(ii) Seal and wipe all waste containers inside the ventilated cabinet before removing them from the cabinet.

(iii) Remove all outer gloves and sleeve covers and bag them for disposal while inside the cabinet.

(3) Waste handling.

(a) Dispose of pharmaceutical waste in accordance with applicable state and federal regulations.

(b) Place disposable items in designated containers.

(4) Personal hygiene.

(a) Prohibit eating or drinking in areas where hazardous drugs are handled.

(b) Wash hands with soap and water before donning gloves, immediately after removal, and whenever hands become contaminated.

AMENDATORY SECTION (Amending WSR 02-12-098, filed 6/5/02, effective 8/1/02)

WAC 296-62-07302 ((~~List of carcinogens~~)) Communication of hazards. (1) ((~~The following substances are deemed to be carcinogens for the purposes of WAC 296-62-073 through 296-62-07316.~~

~~(2) Any reference to carcinogens in WAC 296-62-07304 through 296-62-07316 shall mean only those carcinogens listed in WAC 296-62-07302.~~)) Hazard communication.

(a) Chemical manufacturers, importers, distributors, and employers shall comply with all requirements of the Hazard Communication Standard (HCS), WAC 296-901-140 for each carcinogen listed in subsection (2) of this section.

(b) In classifying the hazards of carcinogens listed in subsection (2) of this section, at least the hazards listed in subsection (2) of this section are to be addressed.

(c) Employers shall include the carcinogens listed in subsection (2) of this section in the hazard communication program established to comply with the HCS, WAC 296-901-140. Employers shall ensure that each employee has access to labels on containers of the carcinogens listed in subsection (2) of this section and to safety data sheets, and is trained in accordance with the requirements of HCS and subsection (2) of this section.

(2) List of carcinogens:

(a) 4-Nitrobiphenyl((~~—Chemical Abstracts Service Registry Number~~)): Cancer (CAS 92-93-3).

(b) Alpha-Naphthylamine((~~—Chemical Abstracts Service Registry Number~~)): Cancer; skin irritation; and acute toxicity effects (CAS 134-32-7).

(c) ((~~4,4' Methylene bis (2 chloroaniline) Chemical Abstracts Service Registry Number 101-14-4.~~

~~(d)~~)) Methyl chloromethyl ether((~~— Chemical Abstracts Service Registry Number~~)): Cancer; skin, eye and respiratory effects; acute toxicity effects; and flammability (CAS 107-30-2).

(((~~(e)~~))) (d) 3,3'-Dichlorobenzidine (and its salts)((~~— Chemical Abstracts Service Registry Number~~)): Cancer and skin sensitization (CAS 91-94-1).

(((~~(f)~~))) (e) Bis-Chloromethyl ether((~~— Chemical Abstracts Service Registry Number~~)): Cancer; skin, eye, and respiratory tract effects; acute toxicity effects; and flammability (CAS 542-88-1).

(((~~(g)~~))) (f) Beta-Naphthylamine((~~— Chemical Abstracts Service Registry Number~~)): Cancer and acute toxicity effects (CAS 91-59-8).

(((~~(h)~~))) (g) Benzidine((~~— Chemical Abstracts Service Registry Number~~)): Cancer and acute toxicity effects (CAS 92-87-5).

(((~~(i)~~))) (h) 4-Aminodiphenyl((~~— Chemical Abstracts Service Registry Number~~)): Cancer (CAS 92-67-1).

(((~~(j)~~))) (i) Ethyleneimine((~~— Chemical Abstracts Service Registry Number~~)): Cancer; mutagenicity; skin and eye

effects; liver effects; kidney effects; acute toxicity effects; and flammability (CAS 151-56-4).

(((~~k~~))) (j) Beta-Propiolactone((~~ Chemical Abstracts Service Registry Number~~)): Cancer; skin irritation; eye effects; and acute toxicity effects (CAS 57-57-8).

(((~~l~~))) (k) 2-Acetylaminofluorene((~~ Chemical Abstracts Service Registry Number~~)): Cancer (CAS 53-96-3).

(((~~m~~))) (l) 4-Dimethylaminoazo-benzene((~~ Chemical Abstract Service Registry Number~~)): Cancer, skin effects; and respiratory tract irritation (CAS 60-11-7).

(((~~n~~))) (m) N-Nitrosodimethylamine((~~ Chemical Abstracts Service Registry Number~~)): Cancer; liver effects; and acute toxicity effects (CAS 62-75-9).

AMENDATORY SECTION (Amending WSR 12-24-071, filed 12/4/12, effective 1/4/13)

WAC 296-62-07306 Requirements for areas containing carcinogens listed in WAC 296-62-07302. (1) A regulated area shall be established by an employer where listed carcinogens are manufactured, processed, used, repackaged, released, handled or stored.

(2) All such areas shall be controlled in accordance with the requirements for the following category or categories describing the operation involved:

(a) Isolated systems. Employees working with carcinogens within an isolated system such as a "glove box" shall wash their hands and arms upon completion of the assigned task and before engaging in other activities not associated with the isolated system.

(b) Closed system operation. Within regulated areas where carcinogens are stored in sealed containers, or contained in a closed system including piping systems with any sample ports or openings closed while carcinogens are contained within:

(i) Access shall be restricted to authorized employees only;

(ii) Employees shall be required to wash hands, forearms, face and neck upon each exit from the regulated areas, close to the point of exit and before engaging in other activities.

(c) Open vessel system operations. Open vessel system operations as defined in WAC 296-62-07304(12) are prohibited.

(d) Transfer from a closed system. Charging or discharging point operations, or otherwise opening a closed system. In operations involving "laboratory-type hoods," or in locations where a carcinogen is contained in an otherwise "closed system," but is transferred, charged, or discharged into other normally closed containers, the provisions of this section shall apply.

(i) Access shall be restricted to authorized employees only;

(ii) Each operation shall be provided with continuous local exhaust ventilation so that air movement is always from ordinary work areas to the operation. Exhaust air shall not be discharged to regulated areas, nonregulated areas or the external environment unless decontaminated. Clean makeup air shall be introduced in sufficient volume to maintain the correct operation of the local exhaust system.

(iii) Employees shall be provided with, and required to wear, clean, full body protective clothing (smocks, coveralls, or long-sleeved shirt and pants), shoe covers and gloves prior to entering the regulated area.

(iv) Each employee engaged in handling operations involving the following carcinogens must be provided with and required to wear and use a NIOSH-certified self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode, or any supplied air respirator that has a full facepiece and is operated in a pressure-demand or other positive pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus as required in chapter 296-842 WAC. A respirator affording higher levels of protection than this respirator may be substituted.

- Methyl Chloromethyl Ether;
- bis-Chloromethyl Ether;
- Ethylenemine;
- beta-Propiolactone;
- 4-Amino Diphenyl.

(v) Each employee engaged in handling operations involving the following carcinogens must be provided with, and required to wear and use, NIOSH-certified air-purifying, half-mask respirator with particulate filters as required in chapter 296-842 WAC. A respirator affording higher levels of protection than this respirator may be substituted.

- 4-Nitrobiphenyl;
- alpha-Naphthylamine;
- 4-4'Methylene bis(2-Chloroaniline);
- 3-3'Dichlorobenzidine (and its salts);
- beta-Naphthylamine;
- Benzidine;
- 2-acetylamino fluroene;
- 4-imethylaminoazobenzene;
- n-nitrosodimethylamine.

must be provided with, and required to wear and use, a half-face, filter-type respirator certified for solid or liquid particulates with minimum efficiency rating of 95% as required in chapter 296-842 WAC. A respirator affording higher levels of protection than this respirator may be substituted.

(vi) Prior to each exit from a regulated area, employees shall be required to remove and leave protective clothing and equipment at the point of exit and at the last exit of the day, to place used clothing and equipment in impervious containers at the point of exit for purposes of decontamination or disposal. The contents of such impervious containers shall be identified, as required under WAC ((~~296-62-07310 (2), (3) and (4)~~)) 296-62-07302.

(vii) Employees shall be required to wash hands, forearms, face and neck on each exit from the regulated area, close to the point of exit, and before engaging in other activities.

(viii) Employees shall be required to shower after the last exit of the day.

(ix) Drinking fountains are prohibited in the regulated area.

(e) Maintenance and decontamination activities. In clean up of leaks or spills, maintenance or repair operations on contaminated systems or equipment, or any operations involving work in an area where direct contact with carcinogens could result, each authorized employee entering the area shall:

(i) Be provided with and required to wear, clean, impervious garments, including gloves, boots and continuous-air supplied hood in accordance with WAC 296-800-160, and respiratory protective equipment required by this chapter 296-842 WAC;

(ii) Be decontaminated before removing the protective garments and hood;

(iii) Be required to shower upon removing the protective garments and hood.

(f) Laboratory activities. The requirements of this subdivision shall apply to research and quality control activities involving the use of carcinogens listed in WAC 296-62-07302.

(i) Mechanical pipetting aids shall be used for all pipetting procedures.

(ii) Experiments, procedures and equipment which could produce aerosols shall be confined to laboratory-type hoods or glove boxes.

(iii) Surfaces on which carcinogens are handled shall be protected from contamination.

(iv) Contaminated wastes and animal carcasses shall be collected in impervious containers which are closed and decontaminated prior to removal from the work area. Such wastes and carcasses shall be incinerated in such a manner that no carcinogenic products are released.

(v) All other forms of listed carcinogens shall be inactivated prior to disposal.

(vi) Laboratory vacuum systems shall be protected with high efficiency scrubbers or with disposable absolute filters.

(vii) Employees engaged in animal support activities shall be:

(A) Provided with, and required to wear, a complete protective clothing change, clean each day, including coveralls or pants and shirt, foot covers, head covers, gloves, and appropriate respiratory protective equipment or devices; and

(B) Prior to each exit from a regulated area, employees shall be required to remove and leave protective clothing and equipment at the point of exit and at the last exit of the day, to place used clothing and equipment in impervious containers at the point of exit for purposes of decontamination or disposal. The contents of such impervious containers shall be identified as required under WAC 296-62-07310 (2), (3) and (4).

(C) Required to wash hands, forearms, face and neck upon each exit from the regulated area close to the point of exit, and before engaging in other activities; and

(D) Required to shower after the last exit of the day.

(viii) Employees, other than those engaged only in animal support activities, each day shall be:

(A) Provided with and required to wear a clean change of appropriate laboratory clothing, such as a solid front gown, surgical scrub suit, or fully buttoned laboratory coat.

(B) Prior to each exit from a regulated area, employees shall be required to remove and leave protective clothing and equipment at the point of exit and at the last exit of the day, to place used clothing and equipment in impervious containers at the point of exit for purposes of decontamination or disposal. The contents of such impervious containers shall be identified as required under WAC 296-62-07310 (2), (3) and (4).

(C) Required to wash hands, forearms, face and neck upon each exit from the regulated area close to the point of exit, and before engaging in other activities.

(ix) Air pressure in laboratory areas and animal rooms where carcinogens are handled and bioassay studies are performed shall be negative in relation to the pressure in surrounding areas. Exhaust air shall not be discharged to regulated areas, nonregulated areas or the external environment unless decontaminated.

(x) There shall be no connection between regulated areas and any other areas through the ventilation system.

(xi) A current inventory of the carcinogens shall be maintained.

(xii) Ventilated apparatus such as laboratory-type hoods, shall be tested at least semi-annually or immediately after ventilation modification or maintenance operations, by personnel fully qualified to certify correct containment and operation.

AMENDATORY SECTION (Amending WSR 87-24-051, filed 11/30/87)

WAC 296-62-07310 Signs, information and training. (1) Signs.

(a) The employer shall post entrances to regulated areas ((~~shall be posted~~)) with signs bearing the legend:

((~~CANCER-SUSPECT AGENT~~))

DANGER

(CHEMICAL IDENTIFICATION)

MAY CAUSE CANCER

AUTHORIZED PERSONNEL ONLY

(b) The employer shall post signs at entrances to regulated areas containing operations covered in WAC 296-62-07306 (2)(e). The signs shall ((~~be posted with signs bearing~~)) bear the legend:

((~~CANCER-SUSPECT AGENT EXPOSED IN THIS AREA~~

~~IMPERVIOUS SUIT INCLUDING GLOVES,~~

~~BOOTS, AND AIR-SUPPLIED HOOD~~

~~REQUIRED AT ALL TIMES~~))

DANGER
(CHEMICAL IDENTIFICATION)
MAY CAUSE CANCER

WEAR AIR-SUPPLIED HOODS, IMPERVIOUS SUITS, AND PROTECTIVE EQUIPMENT IN THIS AREA

AUTHORIZED PERSONNEL ONLY

(c) Prior to June 1, 2016, employers may use the following legend in lieu of that specified in (a) of this subsection:

CANCER-SUSPECT AGENT

AUTHORIZED PERSONNEL ONLY

(d) Prior to June 1, 2016, employers may use the following legend in lieu of that specified in (b) of this subsection:

CANCER-SUSPECT AGENT EXPOSED IN THIS AREA

IMPERVIOUS SUIT INCLUDING GLOVES, BOOTS, AND AIR-SUPPLIED HOOD REQUIRED AT ALL TIMES

AUTHORIZED PERSONNEL ONLY

(e) Appropriate signs and instructions shall be posted at the entrance to, and exit from, regulated areas, informing employees of the procedures that must be followed in entering and leaving a regulated area.

(2) ((~~Container contents, identification.~~

~~(a) Containers of carcinogens named in WAC 296-62-07302 and containers required in WAC 296-62-07306 (2)(d)(v) and 296-62-07306 (2)(f)(vii)(B) and 296-62-07306 (2)(f)(viii)(B) which are accessible only to, and handled only by authorized employees, or by other employees training in accordance with WAC 296-62-07310(5), may have contents identification limited to a generic or proprietary name, or other proprietary identification of the carcinogen and percent.~~

~~(b) Containers of carcinogens and containers required under WAC 296-62-07306 (2)(d)(v) and 296-62-07306 (2)(f)(vii)(B) and 296-62-07306 (2)(f)(viii)(B) which are accessible to, or handled by employees other than authorized employees or employees trained in accordance with WAC 296-62-07310(5) shall have contents identification which includes the full chemical name and Chemical Abstracts Service Registry number as listed in WAC 296-62-07302.~~

~~(c) Containers shall have the warning words "CANCER-SUSPECT AGENT" displayed immediately under or adjacent to the contents identification.~~

~~(d) Containers which have carcinogenic contents with corrosive or irritating properties shall have label statements warning of such hazards, noting, if appropriate, particularly sensitive or affected portions of the body.~~

~~(3) Lettering. Lettering on signs and instructions required by WAC 296-62-07310(1) shall be a minimum letter height of two inches. Labels on containers required under this section shall not be less than one-half the size of the largest lettering on the package, and not less than eight point type in any instance: Provided, that no such required lettering need be more than one inch in height.~~

~~(4)~~)) Prohibited statements. No statements shall appear on or near any required sign, label, or instruction ((~~which~~)) that contradicts or detracts from the effect of any required warning, information or instruction.

((~~(5)~~)) (3) Training and indoctrination.

(a) Each employee prior to being authorized to enter a regulated area, shall receive a training and indoctrination program including, but not necessarily limited to:

(i) The nature of the carcinogenic hazards of listed carcinogens, including local and systemic toxicity;

(ii) The specific nature of the operation involving carcinogens which could result in exposure;

(iii) The purpose for and application of the medical surveillance program, including, as appropriate, methods of self-examination;

(iv) The purpose for and application of decontamination practices and purposes;

(v) The purpose for and significance of emergency practices and procedures;

(vi) The employee's specific role in emergency procedures;

(vii) Specific information to aid the employee in recognition and evaluation of conditions and situations which may result in the release of listed carcinogens;

(viii) The purpose for and application of specific first-aid procedures and practices;

(ix) A review of this section at the employee's first training and indoctrination program and annually thereafter.

(b) Specific emergency procedures shall be prescribed, and posted, and employees, shall be familiarized with their terms, and rehearsed in their application.

(c) All materials relating to the program shall be provided upon request to the director.

AMENDATORY SECTION (Amending WSR 12-24-071, filed 12/4/12, effective 1/4/13)

WAC 296-62-07329 Vinyl chloride. (1) Scope and application.

(a) This section includes requirements for the control of employee exposure to vinyl chloride (chloroethene), Chemical Abstracts Service Registry No. 75014.

(b) This section applies to the manufacture, reaction, packaging, repackaging, storage, handling or use of vinyl chloride or polyvinyl chloride, but does not apply to the handling or use of fabricated products made of polyvinyl chloride.

(c) This section applies to the transportation of vinyl chloride or polyvinyl chloride except to the extent that the department of transportation may regulate the hazards covered by this section.

(2) Definitions.

(a) "Action level" means a concentration of vinyl chloride of 0.5 ppm averaged over an eight-hour work day.

(b) "Authorized person" means any person specifically authorized by the employer whose duties require him/her to enter a regulated area or any person entering such an area as a designated representative of employees for the purpose of exercising an opportunity to observe monitoring and measuring procedures.

(c) "Director" means the director of department of labor and industries or his/her designated representative.

(d) "Emergency" means any occurrence such as, but not limited to, equipment failure, or operation of a relief device

which is likely to, or does, result in massive release of vinyl chloride.

(e) "Fabricated product" means a product made wholly or partly from polyvinyl chloride, and which does not require further processing at temperatures, and for times, sufficient to cause mass melting of the polyvinyl chloride resulting in the release of vinyl chloride.

(f) "Hazardous operation" means any operation, procedure, or activity where a release of either vinyl chloride liquid or gas might be expected as a consequence of the operation or because of an accident in the operation, which would result in an employee exposure in excess of the permissible exposure limit.

(g) "Polyvinyl chloride" means polyvinyl chloride homopolymer or copolymer before such is converted to a fabricated product.

(h) "Vinyl chloride" means vinyl chloride monomer.

(3) Permissible exposure limit.

(a) No employee may be exposed to vinyl chloride at concentrations greater than 1 ppm averaged over any 8-hour period, and

(b) No employee may be exposed to vinyl chloride at concentrations greater than 5 ppm averaged over any period not exceeding 15 minutes.

(c) No employee may be exposed to vinyl chloride by direct contact with liquid vinyl chloride.

(4) Monitoring.

(a) A program of initial monitoring and measurement shall be undertaken in each establishment to determine if there is any employee exposed, without regard to the use of respirators, in excess of the action level.

(b) Where a determination conducted under subdivision (a) of this subsection shows any employee exposures without regard to the use of respirators, in excess of the action level, a program for determining exposures for each such employee shall be established. Such a program:

(i) Shall be repeated at least monthly where any employee is exposed, without regard to the use of respirators, in excess of the permissible exposure limit.

(ii) Shall be repeated not less than quarterly where any employee is exposed, without regard to the use of respirators, in excess of the action level.

(iii) May be discontinued for any employee only when at least two consecutive monitoring determinations, made not less than five working days apart, show exposures for that employee at or below the action level.

(c) Whenever there has been a production, process or control change which may result in an increase in the release of vinyl chloride, or the employer has any other reason to suspect that any employee may be exposed in excess of the action level, a determination of employee exposure under subdivision (a) of this subsection shall be performed.

(d) The method of monitoring and measurement shall have an accuracy (with a confidence level of 95 percent) of not less than plus or minus fifty percent from 0.25 through 0.5 ppm, plus or minus thirty-five percent from over 0.5 ppm through 1.0 ppm, plus or minus twenty-five percent over 1.0 ppm, (methods meeting these accuracy requirements are available from the director).

(e) Employees or their designated representatives shall be afforded reasonable opportunity to observe the monitoring and measuring required by this subsection.

(5) Regulated area.

(a) A regulated area shall be established where:

(i) Vinyl chloride or polyvinyl chloride is manufactured, reacted, repackaged, stored, handled or used; and

(ii) Vinyl chloride concentrations are in excess of the permissible exposure limit.

(b) Access to regulated areas shall be limited to authorized persons.

(6) Methods of compliance. Employee exposures to vinyl chloride shall be controlled to at or below the permissible exposure limit provided in subsection (3) of this section by engineering, work practice, and personal protective controls as follows:

(a) Feasible engineering and work practice controls shall immediately be used to reduce exposures to at or below the permissible exposure limit.

(b) Wherever feasible engineering and work practice controls which can be instituted immediately are not sufficient to reduce exposures to at or below the permissible exposure limit, they shall nonetheless be used to reduce exposures to the lowest practicable level, and shall be supplemented by respiratory protection in accordance with subsection (7) of this section. A program shall be established and implemented to reduce exposures to at or below the permissible exposure limit, or to the greatest extent feasible, solely by means of engineering and work practice controls, as soon as feasible.

(c) Written plans for such a program shall be developed and furnished upon request for examination and copying to the director. Such plans shall be updated at least every six months.

(7) Respiratory protection.

(a) General. For employees who use respirators required by this section, the employer must provide each employee an appropriate respirator that complies with the requirements of this section.

(b) Respirator program. The employer must develop, implement, and maintain a respiratory protection program as required in chapter 296-842 WAC, Respirators, which covers each employee required by this chapter to use a respirator. Exception: The requirements in WAC 296-842-13005 that address change out of vapor or gas respirator cartridges or canisters.

(c) Respirator selection. The employer must:

(i) Select and provide to employees appropriate respirators as specified in this section and WAC 296-842-13005 in the respirator rule.

(ii) Provide organic vapor cartridges that have a service life of at least one hour when employees use air-purifying respirators in vinyl chloride concentrations up to 10 parts per million (ppm).

(iii) Make sure the following respirators, when selected, are equipped with a canister with a service life of at least four hours when used in vinyl chloride concentrations up to 25 ppm:

(A) Helmet, hood, or full-facepiece PAPRs

OR

(B) Gas masks with a front- or back-mounted canister.

(d) Where air-purifying respirators are used:

(i) Air-purifying canisters or cartridges must be replaced prior to the expiration of their service life or the end of the shift in which they are first used, whichever occurs first, and

(ii) A continuous monitoring and alarm system must be provided when concentrations of vinyl chloride could reasonably exceed the allowable concentrations for the devices in use. Such system shall be used to alert employees when vinyl chloride concentrations exceed the allowable concentrations for the devices in use, and

(iii) Respirators specified for higher concentrations may be used for lower concentration.

(8) Hazardous operations.

(a) Employees engaged in hazardous operations, including entry of vessels to clean polyvinyl chloride residue from vessel walls, shall be provided and required to wear and use;

(i) Respiratory protection in accordance with subsections (3) and (7) of this section; and

(ii) Protective garments to prevent skin contact with liquid vinyl chloride or with polyvinyl chloride residue from vessel walls. The protective garments shall be selected for the operation and its possible exposure conditions.

(b) Protective garments shall be provided clean and dry for each use.

(c) Emergency situations. A written operational plan for emergency situations shall be developed for each facility storing, handling, or otherwise using vinyl chloride as a liquid or compressed gas. Appropriate portions of the plan shall be implemented in the event of an emergency. The plan shall specifically provide that:

(i) Employees engaged in hazardous operations or correcting situations of existing hazardous releases shall be equipped as required in ((~~subdivisions~~)) (a) and (b) of this subsection;

(ii) Other employees not so equipped shall evacuate the area and not return until conditions are controlled by the methods required in subsection (6) of this section and the emergency is abated.

(9) Training. Each employee engaged in vinyl chloride or polyvinyl chloride operations shall be provided training in a program relating to the hazards of vinyl chloride and precautions for its safe use.

(a) The program shall include:

(i) The nature of the health hazard from chronic exposure to vinyl chloride including specifically the carcinogenic hazard;

(ii) The specific nature of operations which could result in exposure to vinyl chloride in excess of the permissible limit and necessary protective steps;

(iii) The purpose for, proper use, and limitations of respiratory protective devices;

(iv) The fire hazard and acute toxicity of vinyl chloride, and the necessary protective steps;

(v) The purpose for and a description of the monitoring program;

(vi) The purpose for and a description of, the medical surveillance program;

(vii) Emergency procedures:

(A) Specific information to aid the employee in recognition of conditions which may result in the release of vinyl chloride; and

(B) A review of this standard at the employee's first training and indoctrination program, and annually thereafter.

(b) All materials relating to the program shall be provided upon request to the director.

(10) Medical surveillance. A program of medical surveillance shall be instituted for each employee exposed, without regard to the use of respirators, to vinyl chloride in excess of the action level. The program shall provide each such employee with an opportunity for examinations and tests in accordance with this subsection. All medical examinations and procedures shall be performed by or under the supervision of a licensed physician and shall be provided without cost to the employee.

(a) At the time of initial assignment, or upon institution of medical surveillance;

(i) A general physical examination shall be performed with specific attention to detecting enlargement of liver, spleen or kidneys, or dysfunction in these organs, and for abnormalities in skin, connective tissues and the pulmonary system (see Appendix A).

(ii) A medical history shall be taken, including the following topics:

(A) Alcohol intake,

(B) Past history of hepatitis,

(C) Work history and past exposure to potential hepatotoxic agents, including drugs and chemicals,

(D) Past history of blood transfusions, and

(E) Past history of hospitalizations.

(iii) A serum specimen shall be obtained and determinations made of:

(A) Total bilirubin,

(B) Alkaline phosphatase,

(C) Serum glutamic oxalacetic transaminase (SGOT),

(D) Serum glutamic pyruvic transaminase (SGPT), and

(E) Gamma glustamyl transpeptidase.

(b) Examinations provided in accordance with this subdivision shall be performed at least:

(i) Every six months for each employee who has been employed in vinyl chloride or polyvinyl chloride manufacturing for ten years or longer; and

(ii) Annually for all other employees.

(c) Each employee exposed to an emergency shall be afforded appropriate medical surveillance.

(d) A statement of each employee's suitability for continued exposure to vinyl chloride including use of protective equipment and respirators, shall be obtained from the examining physician promptly after any examination. A copy of the physician's statement shall be provided each employee.

(e) If any employee's health would be materially impaired by continued exposure, such employee shall be withdrawn from possible contact with vinyl chloride.

(f) Laboratory analyses for all biological specimens included in medical examinations shall be performed in laboratories licensed under 42 C.F.R. Part 74.

(g) If the examining physician determines that alternative medical examinations to those required by ((~~subdivision~~)) (a) of this subsection will provide at least equal assur-

ance of detecting medical conditions pertinent to the exposure to vinyl chloride, the employer may accept such alternative examinations as meeting the requirements of ((~~subdivision~~)) (a) of this subsection, if the employer obtains a statement from the examining physician setting forth the alternative examinations and the rationale for substitution. This statement shall be available upon request for examination and copying to authorized representatives of the director.

(11) Communication of hazards.

(a) Hazard communication – General.

(b) Chemical manufacturers, importers, distributors and employers shall comply with all requirements of the Hazard Communication Standard (HCS), WAC 296-901-140 for vinyl chloride and polyvinyl chloride.

(c) In classifying the hazards of vinyl chloride at least the following hazards are to be addressed: Cancer; central nervous system effects; liver effects; blood effects; and flammability.

(d) Employers shall include vinyl chloride in the hazard communication program established to comply with the HCS, WAC 296-901-140. Employers shall ensure that each employee has access to labels on containers of vinyl chloride and to safety data sheets, and is trained in accordance with the requirements of HCS and subsection (9) of this section.

(12) Signs ((~~and labels~~)).

(a) ((~~Entrances~~)) The employers shall post entrances to regulated areas ((~~shall be posted~~)) with legible signs bearing the legend:

((~~CANCER-SUSPECT AGENT AREA AUTHORIZED PERSONNEL ONLY~~

~~(b) Areas containing hazardous operations or where an emergency currently exists shall be posted with legible signs bearing the legend:~~))

DANGER
VINYL CHLORIDE
MAY CAUSE CANCER
AUTHORIZED PERSONNEL ONLY

(b) The employer shall post signs at areas containing hazardous operations or where emergencies currently exist. The signs shall be legible and bear the legend:

DANGER
VINYL CHLORIDE
MAY CAUSE CANCER
WEAR RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA
AUTHORIZED PERSONNEL ONLY

(c) Prior to June 1, 2016, employers may use the following legend in lieu of that specified in (a) of this subsection:

CANCER-SUSPECT AGENT IN THIS AREA PROTECTIVE EQUIPMENT REQUIRED AUTHORIZED PERSONNEL ONLY

(((~~c~~))) (d) Prior to June 1, 2016, employers may use the following legend in lieu of that specified in (b) of this subsection:

CANCER-SUSPECT AGENT IN THIS AREA
PROTECTIVE EQUIPMENT REQUIRED
AUTHORIZED PERSONNEL ONLY

(13) Labels.

(a) In addition to the other requirements in this section, the employer shall ensure that labels for containers of polyvinyl chloride resin waste from reactors or other waste contaminated with vinyl chloride ((~~shall be legibly labeled~~)) are legible and include the following information:

CONTAMINATED WITH VINYL CHLORIDE ((~~CANCER-SUSPECT AGENT~~)) MAY CAUSE CANCER

(((~~d~~))) (b) Prior to June 1, 2015, employers may include the following information on labels of containers of polyvinyl chloride resin waste from reactors or other waste contaminated with vinyl chloride in lieu of the labeling requirements in (a) of this subsection:

CONTAMINATED WITH VINYL CHLORIDE
CANCER-SUSPECT AGENT

(c) Prior to June 1, 2015, employers may include the following information for containers of polyvinyl chloride ((~~shall be legibly labeled~~)) in lieu of the labeling requirements in subsection (11)(b) of this section:

POLYVINYL CHLORIDE (OR TRADE NAME) CONTAINS VINYL CHLORIDE VINYL CHLORIDE IS A CANCER-SUSPECT AGENT

(((~~e~~))) (d) Containers of vinyl chloride shall be legibly labeled either:

(i) Prior to June 1, 2015, employers may include either the following information in either subsection (13)(d)(i) or (ii) of this section on containers of vinyl chloride in lieu of the labeling requirements in subsection (11)(b) of this section:

VINYL CHLORIDE EXTREMELY FLAMMABLE GAS UNDER PRESSURE CANCER-SUSPECT AGENT

(or)

(((~~f~~))) (ii) In accordance with 49 C.F.R. Parts ((~~173, Subpart H~~)) 170-189, with the additional legend((~~s~~)) applied near the label or placard:

CANCER-SUSPECT AGENT

((~~Applied near the label or placard.~~

(~~g~~))) (e) No statement shall appear on or near any required sign, label, or instruction which contradicts or detracts from the effect of any required warning, information, or instruction.

(((~~12~~))) (14) Records.

(a) All records maintained in accordance with this section shall include the name and Social Security number of each employee where relevant.

(b) Records of required monitoring and measuring and medical records shall be provided upon request to employees, designated representatives, and the director in accordance with chapter 296-802 WAC. These records shall be provided upon request to the director. Authorized personnel rosters shall also be provided upon request to the director.

(i) Monitoring and measuring records shall:

(A) State the date of such monitoring and measuring and the concentrations determined and identify the instruments and methods used;

(B) Include any additional information necessary to determine individual employee exposures where such exposures are determined by means other than individual monitoring of employees; and

(C) Be maintained for not less than 30 years.

(ii) Medical records shall be maintained for the duration of the employment of each employee plus 20 years, or 30 years, whichever is longer.

(c) The employer shall comply with any additional requirements set forth in chapter 296-802 WAC.

(d) Employees or their designated representatives shall be provided access to examine and copy records of required monitoring and measuring.

(e) Former employees shall be provided access to examine and copy required monitoring and measuring records reflecting their own exposures.

(f) Upon written request of any employee, a copy of the medical record of that employee shall be furnished to any physician designated by the employee.

(((~~(13)~~))) (15) Reports.

(a) Not later than 1 month after the establishment of a regulated area, the following information shall be reported to the director. Any changes to such information shall be reported within fifteen days.

(i) The address and location of each establishment which has one or more regulated areas; and

(ii) The number of employees in each regulated area during normal operations, including maintenance.

(b) Emergencies and the facts obtainable at that time, shall be reported within twenty-four hours to the director. Upon request of the director, the employer shall submit additional information in writing relevant to the nature and extent of employee exposures and measures taken to prevent future emergencies of similar nature.

(c) Within ten working days following any monitoring and measuring which discloses that any employee has been exposed, without regard to the use of respirators, in excess of the permissible exposure limit, each such employee shall be notified in writing of the results of the exposure measurement and the steps being taken to reduce the exposure to within the permissible exposure limit.

(((~~(14)~~))) (16) Appendix A supplementary medical information.

When required tests under subsection (10)(a) of this section show abnormalities, the tests should be repeated as soon as practicable, preferably within three to four weeks. If tests remain abnormal, consideration should be given to withdrawal of the employee from contact with vinyl chloride, while a more comprehensive examination is made.

Additional tests which may be useful:

(a) For kidney dysfunction: Urine examination for albumin, red blood cells, and exfoliative abnormal cells.

(b) Pulmonary system: Forced vital capacity, forced expiratory volume at one second, and chest roentgenogram (posterior-anterior, 14 x 17 inches).

(c) Additional serum tests: Lactic acid dehydrogenase, lactic acid dehydrogenase isoenzyme, protein determination, and protein electrophoresis.

(d) For a more comprehensive examination on repeated abnormal serum tests: Hepatitis B antigen, and liver scanning.

AMENDATORY SECTION (Amending WSR 12-24-071, filed 12/4/12, effective 1/4/13)

WAC 296-62-07336 Acrylonitrile. (1) Scope and application.

(a) This section applies to all occupational exposure to acrylonitrile (AN), Chemical Abstracts Service Registry No. 000107131, except as provided in (b) and (c) of this subsection.

(b) This section does not apply to exposures which result solely from the processing, use, and handling of the following materials:

(i) ABS resins, SAN resins, nitrile barrier resins, solid nitrile elastomers, and acrylic and modacrylic fibers, when these listed materials are in the form of finished polymers, and products fabricated from such finished polymers;

(ii) Materials made from and/or containing AN for which objective data is reasonably relied upon to demonstrate that the material is not capable of releasing AN in airborne concentrations in excess of 1 ppm as an eight-hour time-weighted average, under the expected conditions of processing, use, and handling which will cause the greatest possible release; and

(iii) Solid materials made from and/or containing AN which will not be heated above 170°F during handling, use, or processing.

(c) An employer relying upon exemption under (1)(b)(ii) shall maintain records of the objective data supporting that exemption, and of the basis of the employer's reliance on the data as provided in subsection (17) of this section.

(2) Definitions, as applicable to this section:

(a) "Acrylonitrile" or "AN" - Acrylonitrile monomer, chemical formula CH2=CHCN.

(b) "Action level" - A concentration of AN of 1 ppm as an eight-hour time-weighted average.

(c) "Authorized person" - Any person specifically authorized by the employer whose duties require the person to enter a regulated area, or any person entering such an area as a designated representative of employees for the purpose of exercising the opportunity to observe monitoring procedures under subsection (18) of this section.

(d) "Decontamination" means treatment of materials and surfaces by water washdown, ventilation, or other means, to assure that the materials will not expose employees to airborne concentrations of AN above 1 ppm as an eight-hour time-weighted average.

(e) "Director" - The director of labor and industries, or his authorized representative.

(f) "Emergency" - Any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment, which is likely to, or does, result in unexpected exposure to AN in excess of the ceiling limit.

(g) "Liquid AN" means AN monomer in liquid form, and liquid or semiliquid polymer intermediates, including slurries, suspensions, emulsions, and solutions, produced during the polymerization of AN.

(h) "Polyacrylonitrile" or "PAN" - Polyacrylonitrile homopolymers or copolymers, except for materials as exempted under subsection (1)(b) of this section.

(3) Permissible exposure limits.

(a) Inhalation.

(i) Time-weighted average limit (TWA). The employer shall assure that no employee is exposed to an airborne concentration of acrylonitrile in excess of two parts acrylonitrile per million parts of air (2 ppm), as an eight-hour time-weighted average.

(ii) Ceiling limit. The employer shall assure that no employee is exposed to an airborne concentration of acrylonitrile in excess of 10 ppm as averaged over any fifteen-minute period during the working day.

(b) Dermal and eye exposure. The employer shall assure that no employee is exposed to skin contact or eye contact with liquid AN or PAN.

(4) Notification of use and emergencies.

(a) Use. Within ten days of the effective date of this standard, or within fifteen days following the introduction of AN into the workplace, every employer shall report, unless he has done so pursuant to the emergency temporary standard, the following information to the director for each such workplace:

(i) The address and location of each workplace in which AN is present;

(ii) A brief description of each process of operation which may result in employee exposure to AN;

(iii) The number of employees engaged in each process or operation who may be exposed to AN and an estimate of the frequency and degree of exposure that occurs; and

(iv) A brief description of the employer's safety and health program as it relates to limitation of employee exposure to AN. Whenever there has been a significant change in the information required by this subsection, the employer shall promptly amend such information previously provided to the director.

(b) Emergencies and remedial action. Emergencies, and the facts obtainable at that time, shall be reported within twenty-four hours of the initial occurrence to the director. Upon request of the director, the employer shall submit additional information in writing relevant to the nature and extent of employee exposures and measures taken to prevent future emergencies of a similar nature.

(5) Exposure monitoring.

(a) General.

(i) Determinations of airborne exposure levels shall be made from air samples that are representative of each employee's exposure to AN over an eight-hour period.

(ii) For the purposes of this section, employee exposure is that which would occur if the employee were not using a respirator.

(b) Initial monitoring. Each employer who has a place of employment in which AN is present shall monitor each such workplace and work operation to accurately determine the airborne concentrations of AN to which employees may be exposed. Such monitoring may be done on a representative basis, provided that the employer can demonstrate that the determinations are representative of employee exposures.

(c) Frequency.

(i) If the monitoring required by this section reveals employee exposure to be below the action level, the employer may discontinue monitoring for that employee. The employer shall continue these quarterly measurements until at least two consecutive measurements taken at least seven days apart, are below the action level, and thereafter the employer may discontinue monitoring for that employee.

(ii) If the monitoring required by this section reveals employee exposure to be at or above the action level but below the permissible exposure limits, the employer shall repeat such monitoring for each such employee at least quarterly.

(iii) If the monitoring required by this section reveals employee exposure to be in excess of the permissible exposure limits, the employer shall repeat these determinations for each such employee at least monthly. The employer shall continue these monthly measurements until at least two consecutive measurements, taken at least seven days apart, are below the permissible exposure limits, and thereafter the employer shall monitor at least quarterly.

(d) Additional monitoring. Whenever there has been a production, process, control or personnel change which may result in new or additional exposure to AN, or whenever the employer has any other reason to suspect a change which may result in new or additional exposures to AN, additional monitoring which complies with this subsection shall be conducted.

(e) Employee notification.

(i) Within five working days after the receipt of monitoring results, the employer shall notify each employee in writing of the results which represent that employee's exposure.

(ii) Whenever the results indicate that the representative employee exposure exceeds the permissible exposure limits, the employer shall include in the written notice a statement that the permissible exposure limits were exceeded and a description of the corrective action being taken to reduce exposure to or below the permissible exposure limits.

(f) Accuracy of measurement. The method of measurement of employee exposures shall be accurate, to a confidence level of ninety-five percent, to within plus or minus twenty-five percent for concentrations of AN at or above the permissible exposure limits, and plus or minus thirty-five percent for concentrations of AN between the action level and the permissible exposure limits.

(g) Weekly survey of operations involving liquid AN. In addition to monitoring of employee exposures to AN as otherwise required by this subsection, the employer shall survey areas of operations involving liquid AN at least weekly to detect points where AN liquid or vapor are being released into the workplace. The survey shall employ an infra-red gas analyzer calibrated for AN, a multipoint gas chromatographic monitor, or comparable system for detection of AN. A listing of levels detected and areas of AN release, as determined from the survey, shall be posted prominently in the workplace, and shall remain posted until the next survey is completed.

(6) Regulated areas.

(a) The employer shall establish regulated areas where AN concentrations are in excess of the permissible exposure limits.

(b) Regulated areas shall be demarcated and segregated from the rest of the workplace, in any manner that minimizes the number of persons who will be exposed to AN.

(c) Access to regulated areas shall be limited to authorized persons or to persons otherwise authorized by the act or regulations issued pursuant thereto.

(d) The employer shall assure that in the regulated area, food or beverages are not present or consumed, smoking products are not present or used, and cosmetics are not applied, (except that these activities may be conducted in the lunchrooms, change rooms and showers required under subsection (13)(a) through (c) of this section.

(7) Methods of compliance.

(a) Engineering and work practice controls.

(i) The employer shall institute engineering or work practice controls to reduce and maintain employee exposures to AN, to or below the permissible exposure limits, except to the extent that the employer establishes that such controls are not feasible.

(ii) Wherever the engineering and work practice controls which can be instituted are not sufficient to reduce employee exposures to or below the permissible exposure limits, the employer shall nonetheless use them to reduce exposures to the lowest levels achievable by these controls and shall supplement them by the use of respiratory protection which complies with the requirements of subsection (8) of this section.

(b) Compliance program.

(i) The employer shall establish and implement a written program to reduce employee exposures to or below the permissible exposure limits solely by means of engineering and work practice controls, as required by subsection (7)(a) of this section.

(ii) Written plans for these compliance programs shall include at least the following:

(A) A description of each operation or process resulting in employee exposure to AN above the permissible exposure limits;

(B) Engineering plans and other studies used to determine the controls for each process;

(C) A report of the technology considered in meeting the permissible exposure limits;

(D) A detailed schedule for the implementation of engineering or work practice controls; and

(E) Other relevant information.

(iii) The employer shall complete the steps set forth in the compliance program by the dates in the schedule.

(iv) Written plans for such a program shall be submitted upon request to the director, and shall be available at the worksite for examination and copying by the director, or any affected employee or representative.

(v) The plans required by this subsection shall be revised and updated at least every six months to reflect the current status of the program.

(8) Respiratory protection.

(a) General. For employees who use respirators required by this section, the employer must provide each employee an appropriate respirator that complies with the requirements of this subsection. Respirators must be used during:

(i) Periods necessary to install or implement feasible engineering and work-practice controls;

(ii) Work operations, such as maintenance and repair activities or reactor cleaning, for which the employer establishes that engineering and work-practice controls are not feasible;

(iii) Work operations for which feasible engineering and work-practice controls are not yet sufficient to reduce employee exposure to or below the permissible exposure limits;

(iv) In emergencies.

(b) Respirator program.

Employers must develop, implement and maintain a respiratory protection program in accordance with chapter 296-842 WAC, Respirators, which covers each employee required by this chapter to use a respirator.

(c) Respirator selection. The employer must:

(i) Select and provide to employees appropriate respirators by following the requirements in this section and WAC 296-842-13005 in the respirator rule.

(ii) Provide to employees, for escape, any organic vapor, air-purifying respirator or any self-contained breathing apparatus (SCBA) that meets the selection requirements of WAC 296-842-13005 in the respirator rule.

(9) Emergency situations.

(a) Written plans.

(i) A written plan for emergency situations shall be developed for each workplace where AN is present. Appropriate portions of the plan shall be implemented in the event of an emergency.

(ii) The plan shall specifically provide that employees engaged in correcting emergency conditions shall be equipped as required in subsection (8) of this section until the emergency is abated.

(b) Alerting employees.

(i) Where there is the possibility of employee exposure to AN in excess of the ceiling limit due to the occurrence of an emergency, a general alarm shall be installed and maintained to promptly alert employees of such occurrences.

(ii) Employees not engaged in correcting the emergency shall be evacuated from the area and shall not be permitted to return until the emergency is abated.

(10) Protective clothing and equipment.

(a) Provision and use. Where eye or skin contact with liquid AN or PAN may occur, the employer shall provide at no cost to the employee, and assure that employees wear, appropriate protective clothing or other equipment in accordance with WAC 296-800-160 to protect any area of the body which may come in contact with liquid AN or PAN.

(b) Cleaning and replacement.

(i) The employer shall clean, launder, maintain, or replace protective clothing and equipment required by this subsection, as needed to maintain their effectiveness. In addition, the employer shall provide clean protective clothing and equipment at least weekly to each affected employee.

(ii) The employer shall assure that impermeable protective clothing which contacts or is likely to have contacted liq-

uid AN shall be decontaminated before being removed by the employee.

(iii) The employer shall assure that AN- or PAN-contaminated protective clothing and equipment is placed and stored in closable containers which prevent dispersion of the AN or PAN outside the container.

(iv) The employer shall assure that an employee whose nonimpermeable clothing becomes wetted with liquid AN shall immediately remove that clothing and proceed to shower. The clothing shall be decontaminated before it is removed from the regulated area.

(v) The employer shall assure that no employee removes AN- or PAN-contaminated protective equipment or clothing from the change room, except for those employees authorized to do so for the purpose of laundering, maintenance, or disposal.

(vi) The employer shall inform any person who launders or cleans AN- or PAN-contaminated protective clothing or equipment of the potentially harmful effects of exposure to AN.

(vii) The employer shall assure that containers of contaminated protective clothing and equipment which are to be removed from the workplace for any reason are labeled in accordance with subsection (16)(c)(ii) of this section, and that such labels remain affixed when such containers leave the employer's workplace.

(11) Housekeeping.

(a) All surfaces shall be maintained free of accumulations of liquid AN and of PAN.

(b) For operations involving liquid AN, the employer shall institute a program for detecting leaks and spills of liquid AN, including regular visual inspections.

(c) Where spills of liquid AN are detected, the employer shall assure that surfaces contacted by the liquid AN are decontaminated. Employees not engaged in decontamination activities shall leave the area of the spill, and shall not be permitted in the area until decontamination is completed.

(d) Liquids. Where AN is present in a liquid form, or as a resultant vapor, all containers or vessels containing AN shall be enclosed to the maximum extent feasible and tightly covered when not in use, with adequate provision made to avoid any resulting potential explosion hazard.

(e) Surfaces.

(i) Dry sweeping and the use of compressed air for the cleaning of floors and other surfaces where AN and PAN are found is prohibited.

(ii) Where vacuuming methods are selected, either portable units or a permanent system may be used.

(A) If a portable unit is selected, the exhaust shall be attached to the general workplace exhaust ventilation system or collected within the vacuum unit, equipped with high efficiency filters or other appropriate means of contaminant removal, so that AN is not reintroduced into the workplace air; and

(B) Portable vacuum units used to collect AN may not be used for other cleaning purposes and shall be labeled as prescribed by subsection (16)(c)(ii) of this section.

(iii) Cleaning of floors and other contaminated surfaces may not be performed by washing down with a hose, unless a fine spray has first been laid down.

(12) Waste disposal. AN and PAN waste, scrap, debris, bags, containers or equipment, shall be disposed of in sealed bags or other closed containers which prevent dispersion of AN outside the container, and labeled as prescribed in subsection (16)(c)(ii) of this section.

(13) Hygiene facilities and practices. Where employees are exposed to airborne concentrations of AN above the permissible exposure limits, or where employees are required to wear protective clothing or equipment pursuant to subsection (11) of this section, or where otherwise found to be appropriate, the facilities required by WAC 296-800-230 shall be provided by the employer for the use of those employees, and the employer shall assure that the employees use the facilities provided. In addition, the following facilities or requirements are mandated.

(a) Change rooms. The employer shall provide clean change rooms in accordance with WAC 296-800-230.

(b) Showers.

(i) The employer shall provide shower facilities in accordance with WAC 296-800-230.

(ii) In addition, the employer shall also assure that employees exposed to liquid AN and PAN shower at the end of the work shift.

(iii) The employer shall assure that, in the event of skin or eye exposure to liquid AN, the affected employee shall shower immediately to minimize the danger of skin absorption.

(c) Lunchrooms.

(i) Whenever food or beverages are consumed in the workplace, the employer shall provide lunchroom facilities which have a temperature controlled, positive pressure, filtered air supply, and which are readily accessible to employees exposed to AN above the permissible exposure limits.

(ii) In addition, the employer shall also assure that employees exposed to AN above the permissible exposure limits wash their hands and face prior to eating.

(14) Medical surveillance.

(a) General.

(i) The employer shall institute a program of medical surveillance for each employee who is or will be exposed to AN above the action level. The employer shall provide each such employee with an opportunity for medical examinations and tests in accordance with this subsection.

(ii) The employer shall assure that all medical examinations and procedures are performed by or under the supervision of a licensed physician, and shall be provided without cost to the employee.

(b) Initial examinations. At the time of initial assignment, or upon institution of the medical surveillance program, the employer shall provide each affected employee an opportunity for a medical examination, including at least the following elements:

(i) A work history and medical history with special attention to skin, respiratory, and gastrointestinal systems, and those nonspecific symptoms, such as headache, nausea, vomiting, dizziness, weakness, or other central nervous system dysfunctions that may be associated with acute or chronic exposure to AN.

(ii) A physical examination giving particular attention to central nervous system, gastrointestinal system, respiratory system, skin and thyroid.

(iii) A 14" x 17" posteroanterior chest X ray.

(iv) Further tests of the intestinal tract, including fecal occult blood screening, and proctosigmoidoscopy, for all workers forty years of age or older, and for any other affected employees for whom, in the opinion of the physician, such testing is appropriate.

(c) Periodic examinations.

(i) The employer shall provide examinations specified in this subsection at least annually for all employees specified in subsection (14)(a) of this section.

(ii) If an employee has not had the examinations prescribed in subsection (14)(b) of this section within six months of termination of employment, the employer shall make such examination available to the employee upon such termination.

(d) Additional examinations. If the employee for any reason develops signs or symptoms commonly associated with exposure to AN, the employer shall provide appropriate examination and emergency medical treatment.

(e) Information provided to the physician. The employer shall provide the following information to the examining physician:

(i) A copy of this standard and its appendices;

(ii) A description of the affected employee's duties as they relate to the employee's exposure;

(iii) The employee's representative exposure level;

(iv) The employee's anticipated or estimated exposure level (for preplacement examinations or in cases of exposure due to an emergency);

(v) A description of any personal protective equipment used or to be used; and

(vi) Information from previous medical examinations of the affected employee, which is not otherwise available to the examining physician.

(f) Physician's written opinion.

(i) The employer shall obtain a written opinion from the examining physician which shall include:

(A) The results of the medical examination and test performed;

(B) The physician's opinion as to whether the employee has any detected medical condition which would place the employee at an increased risk of material impairment of the employee's health from exposure to AN;

(C) Any recommended limitations upon the employee's exposure to AN or upon the use of protective clothing and equipment such as respirators; and

(D) A statement that the employee has been informed by the physician of the results of the medical examination and any medical conditions which require further examination or treatment.

(ii) The employer shall instruct the physician not to reveal in the written opinion specific findings or diagnoses unrelated to occupational exposure to AN.

(iii) The employer shall provide a copy of the written opinion to the affected employee.

(15) Employee information and training.

(a) Training program.

(i) The employer shall train each employee exposed to AN above the action level, each employee whose exposures are maintained below the action level by engineering and work practice controls, and each employee subject to potential skin or eye contact with liquid AN in accordance with the requirements of this section. The employer shall institute a training program and ensure employee participation in the training program.

(ii) The training program shall be provided at the time of initial assignment, or upon institution of the training program, and at least annually thereafter, and the employer shall assure that each employee is informed of the following:

(A) The information contained in Appendices A, B and C;

(B) The quantity, location, manner of use, release or storage of AN and the specific nature of operations which could result in exposure to AN, as well as any necessary protective steps;

(C) The purpose, proper use, and limitations of respirators and protective clothing;

(D) The purpose and a description of the medical surveillance program required by subsection (14) of this section;

(E) The emergency procedures developed, as required by subsection (9) of this section; and

(F) The engineering and work practice controls, their function and the employee's relationship thereto; and

(G) A review of this standard.

(b) Access to training materials.

(i) The employer shall make a copy of this standard and its appendices readily available to all affected employees.

(ii) The employer shall provide, upon request, all materials relating to the employee information and training program to the director.

(16) ((~~Signs and labels.~~)) Communication of hazards.

(a) Hazard communication - General.

(i) Chemical manufacturers, importers, distributors and employers shall comply with all requirements of the Hazard Communication Standard (HCS), WAC 296-901-140 for AN and AN-based materials not exempted under subsection (1)(b) of this section.

(ii) In classifying the hazards of AN and AN-based materials at least the following hazards are to be addressed: Cancer; central nervous system effects; liver effects; skin sensitization; skin, respiratory, and eye irritation; acute toxicity effects; and flammability.

(iii) Employers shall include AN and AN-based materials in the hazard communication program established to comply with the HCS, WAC 296-901-140. Employers shall ensure that each employee has access to labels on containers of AN and AN-based materials and to safety data sheets, and is trained in accordance with the requirements of HCS and subsection (15) of this section.

(iv) The employer may use labels or signs required by other statutes, regulations, or ordinances in addition to, or in combination with, signs and labels required by this subsection.

((~~(ii)~~)) (v) The employer shall ((~~assure~~)) ensure that no statement appears on or near any sign or label, required by this subsection, ((~~which~~)) that contradicts or detracts from ((~~such effects of~~)) the required sign or label.

(b) Signs.

(i) The employer shall post signs to clearly indicate all workplaces where AN concentrations exceed the permissible exposure limits. The signs shall bear the following legend:

DANGER
ACRYLONITRILE (AN)
MAY CAUSE CANCER ((~~HAZARD~~))
RESPIRATORY PROTECTION MAY BE REQUIRED IN THIS AREA
AUTHORIZED PERSONNEL ONLY
((~~RESPIRATORS REQUIRED~~))

(ii) The employer shall ((~~assure~~)) ensure that signs required by (b) of this subsection are illuminated and cleaned as necessary so that the legend is readily visible.

(iii) Prior to June 1, 2016, employers may use the following legend in lieu of that specified in (b)(i) of this subsection:

DANGER
ACRYLONITRILE (AN)
CANCER HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS MAY BE REQUIRED

(c) Labels.

(i) The employer shall ((~~assure~~)) ensure that precautionary labels are in compliance with (a)(i) of this subsection and are affixed to all containers of liquid AN((~~, and to containers of PAN and products fabricated from PAN, except for those materials for which objective data is provided as to the conditions specified in~~)) and AN-based materials not exempted under subsection (1)(b) of this section. The employer shall ((~~assure~~)) ensure that the labels remain affixed when the ((~~AN or PAN~~)) materials are sold, distributed or otherwise leave the employer's workplace.

(ii) ((~~The~~)) Prior to June 1, 2015, employers ((~~shall assure that~~)) may include the following information on precautionary labels required by this subsection ((~~are readily visible and legible. The labels shall bear the following legend~~)) in lieu of the labeling requirements in (b)(i) of this subsection:

DANGER
CONTAINS ACRYLONITRILE (AN)
CANCER HAZARD

(iii) The employer shall ensure that the precautionary labels required by (c) of this subsection are readily visible and legible.

(17) Recordkeeping.

(a) Objective data for exempted operations.

(i) Where the processing, use, and handling of products fabricated from PAN are exempted pursuant to subsection (1)(b) of this section, the employer shall establish and maintain an accurate record of objective data reasonably relied upon in support of the exemption.

(ii) This record shall include the following information:

(A) The relevant condition in subsection (1)(b) upon which exemption is based;

(B) The source of the objective data;

(C) The testing protocol, results of testing, and/or analysis of the material for the release of AN;

(D) A description of the operation exempted and how the data supports the exemption; and

(E) Other data relevant to the operations, materials, and processing covered by the exemption.

(iii) The employer shall maintain this record for the duration of the employer's reliance upon such objective data.

(b) Exposure monitoring.

(i) The employer shall establish and maintain an accurate record of all monitoring required by subsection (5) of this section.

(ii) This record shall include:

(A) The dates, number, duration, and results of each of the samples taken, including a description of the sampling procedure used to determine representative employee exposure;

(B) A description of the sampling and analytical methods used and the data relied upon to establish that the methods used meet the accuracy and precision requirements of subsection (5)(f) of this section;

(C) Type of respiratory protective devices worn, if any; and

(D) Name, Social Security number and job classification of the employee monitored and of all other employees whose exposure the measurement is intended to represent.

(iii) The employer shall maintain this record for at least 40 years or the duration of employment plus 20 years, whichever is longer.

(c) Medical surveillance.

(i) The employer shall establish and maintain an accurate record for each employee subject to medical surveillance as required by subsection (14) of this section.

(ii) This record shall include:

(A) A copy of the physicians' written opinions;

(B) Any employee medical complaints related to exposure to AN;

(C) A copy of the information provided to the physician as required by subsection (14)(f) of this section; and

(D) A copy of the employee's medical and work history.

(iii) The employer shall assure that this record be maintained for at least forty years or for the duration of employment plus twenty years, whichever is longer.

(d) Availability.

(i) The employer shall assure that all records required to be maintained by this section be made available upon request to the director for examination and copying.

(ii) Records required by ((~~subdivisions~~)) (a) through (c) of this subsection shall be provided upon request to employees, designated representatives, and the assistant director in accordance with chapter 296-802 WAC. Records required by ((~~subdivision~~)) (a) of this ((~~section~~)) subsection shall be provided in the same manner as exposure monitoring records.

(iii) The employer shall assure that employee medical records required to be maintained by this section, be made available, upon request, for examination and copying, to the affected employee or former employee, or to a physician designated by the affected employee, former employee, or designated representative.

(e) Transfer of records.

(i) Whenever the employer ceases to do business, the successor employer shall receive and retain all records required to be maintained by this section.

(ii) The employer shall also comply with any additional requirements involving transfer of records set forth in WAC 296-802-60005.

(18) Observation of monitoring.

(a) Employee observation. The employer shall provide affected employees, or their designated representatives, an opportunity to observe any monitoring of employee exposure to AN conducted pursuant to subsection (5) of this section.

(b) Observation procedures.

(i) Whenever observation of the monitoring of employee exposure to AN requires entry into an area where the use of protective clothing or equipment is required, the employer shall provide the observer with personal protective clothing or equipment required to be worn by employees working in the area, assure the use of such clothing and equipment, and require the observer to comply with all other applicable safety and health procedures.

(ii) Without interfering with the monitoring, observers shall be entitled:

(A) To receive an explanation of the measurement procedures;

(B) To observe all steps related to the measurement of airborne concentrations of AN performed at the place of exposure; and

(C) To record the results obtained.

(19) Appendices. The information contained in the appendices is not intended, by itself, to create any additional obligation not otherwise imposed, or to detract from any obligation.

AMENDATORY SECTION (Amending WSR 12-24-071, filed 12/4/12, effective 1/4/13)

WAC 296-62-07342 1,2-Dibromo-3-chloropropane. (1) Scope and application.

(a) This section applies to occupational exposure to 1,2-dibromo-3-chloropropane (DBCP).

(b) This section does not apply to:

(i) Exposure to DBCP which results solely from the application and use of DBCP as a pesticide; or

(ii) The storage, transportation, distribution or sale of DBCP in intact containers sealed in such a manner as to prevent exposure to DBCP vapors or liquids, except for the requirements of subsections (11), (16), and (17) of this section.

(2) Definitions applicable to this section:

(a) "Authorized person" - Any person specifically authorized by the employer and whose duties require the person to be present in areas where DBCP is present; and any person entering this area as a designated representative of employees exercising an opportunity to observe employee exposure monitoring.

(b) "DBCP" - 1,2-dibromo-3-chloropropane, Chemical Abstracts Service Registry Number 96-12-8, and includes all forms of DBCP.

(c) "Director" - The director of labor and industries, or his authorized representative.

(d) "Emergency" - Any occurrence such as, but not limited to equipment failure, rupture of containers, or failure of control equipment which may, or does, result in unexpected release of DBCP.

(3) Permissible exposure limits.

(a) Inhalation.

(i) Time-weighted average limit (TWA). The employer shall assure that no employee is exposed to an airborne concentration in excess of one part DBCP per billion part of air (ppb) as an eight-hour time-weighted average.

(ii) Ceiling limit. The employer shall assure that no employee is exposed to an airborne concentration in excess of five parts DBCP per billion parts of air (ppb) as averaged over any fifteen minutes during the working day.

(b) Dermal and eye exposure. The employer shall assure that no employee is exposed to eye or skin contact with DBCP.

(4) Notification of use. Within ten days of the effective date of this section or within ten days following the introduction of DBCP into the workplace, every employer who has a workplace where DBCP is present shall report the following information to the director for each such workplace:

(a) The address and location of each workplace in which DBCP is present;

(b) A brief description of each process or operation which may result in employee exposure to DBCP;

(c) The number of employees engaged in each process or operation who may be exposed to DBCP and an estimate of the frequency and degree of exposure that occurs;

(d) A brief description of the employer's safety and health program as it relates to limitation of employee exposure to DBCP.

(5) Regulated areas. The employer shall establish, within each place of employment, regulated areas wherever DBCP concentrations are in excess of the permissible exposure limit.

(a) The employer shall limit access to regulated areas to authorized persons.

(b) All employees entering or working in a regulated area shall wear respiratory protection in accordance with Table I.

(6) Exposure monitoring.

(a) General. Determinations of airborne exposure levels shall be made from air samples that are representative of each employee's exposure to DBCP over an eight-hour period. (For the purposes of this section, employee exposure is that exposure which would occur if the employee were not using a respirator.)

(b) Initial. Each employer who has a place of employment in which DBCP is present shall monitor each workplace and work operation to accurately determine the airborne concentrations of DBCP to which employees may be exposed.

(c) Frequency.

(i) If the monitoring required by this section reveals employee exposures to be below the permissible exposure limits, the employer shall repeat these determinations at least quarterly.

(ii) If the monitoring required by this section reveals employee exposure to be in excess of the permissible exposure limits, the employer shall repeat these determinations for each such employee at least monthly. The employer shall continue these monthly determinations until at least two con-

secutive measurements, taken at least seven days apart, are below the permissible exposure limit, thereafter the employer shall monitor at least quarterly.

(d) Additional. Whenever there has been a production process, control or personnel change which may result in any new or additional exposure to DBCP, or whenever the employer has any other reason to suspect a change which may result in new or additional exposure to DBCP, additional monitoring which complies with subsection (6) shall be conducted.

(e) Employee notification.

(i) Within five working days after the receipt of monitoring results, the employer shall notify each employee in writing of results which represent the employee's exposure.

(ii) Whenever the results indicate that employee exposure exceeds the permissible exposure limit, the employer shall include in the written notice a statement that the permissible exposure limit was exceeded and a description of the corrective action being taken to reduce exposure to or below the permissible exposure limits.

(f) Accuracy of measurement. The method of measurement shall be accurate, to a confidence level of ninety-five percent, to within plus or minus twenty-five percent for concentrations of DBCP at or above the permissible exposure limits.

(7) Methods of compliance.

(a) Priority of compliance methods. The employer shall institute engineering and work practice controls to reduce and maintain employee exposures to DBCP at or below the permissible exposure limit, except to the extent that the employer establishes that such controls are not feasible. Where feasible engineering and work practice controls are not sufficient to reduce employee exposures to within the permissible exposure limit, the employer shall nonetheless use them to reduce exposures to the lowest level achievable by these controls, and shall supplement them by use of respiratory protection.

(b) Compliance program.

(i) The employer shall establish and implement a written program to reduce employee exposure to DBCP to or below the permissible exposure limit solely by means of engineering and work practice controls as required by this section.

(ii) The written program shall include a detailed schedule for development and implementation of the engineering and work practice controls. These plans shall be revised at least every six months to reflect the current status of the program.

(iii) Written plans for these compliance programs shall be submitted upon request to the director, and shall be available at the worksite for examination and copying by the director, and any affected employee or designated representative of employees.

(iv) The employer shall institute and maintain at least the controls described in his most recent written compliance program.

(8) Respiratory protection.

(a) General. For employees who are required to use respirators under this section, the employer must provide each employee an appropriate respirator that complies with the requirements of this subsection. Respirators must be used during:

(i) Period necessary to install or implement feasible engineering and work-practice controls;

(ii) Maintenance and repair activities for which engineering and work-practice controls are not feasible;

(iii) Work operations for which feasible engineering and work-practice controls are not yet sufficient to reduce employee exposure to or below the permissible exposure limit;

(iv) Emergencies.

(b) The employer must establish, implement, and maintain a respiratory protection program as required by chapter 296-842 WAC, Respirators, which covers each employee required by this chapter to use a respirator.

(c) Respirator selection. The employer must:

(i) Select and provide to employees appropriate respirators according to this chapter and WAC 296-842-13005 in the respirator rule.

(ii) Provide employees with one of the following respirator options to use for entry into, or escape from, unknown DBCP concentrations:

(A) A combination respirator that includes a full-facepiece air-line respirator operated in a pressure-demand or other positive-pressure mode or continuous-flow mode and an auxiliary self-contained breathing apparatus (SCBA) operated in a pressure-demand or positive-pressure mode;

OR

(B) A full-facepiece SCBA operated in a pressure-demand or other positive-pressure mode.

(9) Reserved.

(10) Emergency situations.

(a) Written plans.

(i) A written plan for emergency situations shall be developed for each workplace in which DBCP is present.

(ii) Appropriate portions of the plan shall be implemented in the event of an emergency.

(b) Employees engaged in correcting conditions shall be equipped as required in subsection (11) of this section until the emergency is abated.

(c) Evacuation. Employees not engaged in correcting the emergency shall be removed and restricted from the area and normal operations in the affected area shall not be resumed until the emergency is abated.

(d) Alerting employees. Where there is a possibility of employee exposure to DBCP due to the occurrence of an emergency, a general alarm shall be installed and maintained to promptly alert employees of such occurrences.

(e) Medical surveillance. For any employee exposed to DBCP in an emergency situation, the employer shall provide medical surveillance in accordance with subsection (14) of this section.

(f) Exposure monitoring.

(i) Following an emergency, the employer shall conduct monitoring which complies with subsection (6) of this section.

(ii) In workplaces not normally subject to periodic monitoring, the employer may terminate monitoring when two consecutive measurements indicate exposures below the permissible exposure limit.

(11) Protective clothing and equipment.

(a) Provision and use. Where eye or skin contact with liquid or solid DBCP may occur, employers shall provide at no cost to the employee, and assure that employees wear impermeable protective clothing and equipment in accordance with WAC 296-800-160 to protect the area of the body which may come in contact with DBCP.

(b) Cleaning and replacement.

(i) The employer shall clean, launder, maintain, or replace protective clothing and equipment required by this subsection to maintain their effectiveness. In addition, the employer shall provide clean protective clothing and equipment at least daily to each affected employee.

(ii) Removal and storage.

(A) The employer shall assure that employees remove DBCP contaminated work clothing only in change rooms provided in accordance with subsection (13) of this section.

(B) The employer shall assure that employees promptly remove any protective clothing and equipment which becomes contaminated with DBCP-containing liquids and solids. This clothing shall not be reworn until the DBCP has been removed from the clothing or equipment.

(C) The employer shall assure that no employee takes DBCP contaminated protective devices and work clothing out of the change room, except those employees authorized to do so for the purpose of laundering, maintenance, or disposal.

(iii) The employer shall assure that DBCP-contaminated protective work clothing and equipment is placed and stored in closed containers which prevent dispersion of DBCP outside the container.

(iv) The employer shall inform any person who launders or cleans DBCP-contaminated protective clothing or equipment of the potentially harmful effects of exposure to DBCP.

(v) ((~~The employer shall assure that the~~)) Containers of DBCP-contaminated protective devices or work clothing ((~~and equipment~~)) which are to be ((~~removed from~~)) taken out of change rooms or the workplace for ((~~any reason are labeled in accordance with subsection (16)(c) of this section~~)) cleaning, maintenance or disposal shall bear labels with the following information: CONTAMINATED WITH 1,2-Dibromo-3-chloropropane (DBCP), MAY CAUSE CANCER.

(vi) The employer shall prohibit the removal of DBCP from protective clothing and equipment by blowing or shaking.

(12) Housekeeping.

(a) Surfaces.

(i) All surfaces shall be maintained free of accumulations of DBCP.

(ii) Dry sweeping and the use of air for the cleaning of floors and other surfaces where DBCP dust or liquids are found is prohibited.

(iii) Where vacuuming methods are selected, either portable units or a permanent system may be used.

(A) If a portable unit is selected, the exhaust shall be attached to the general workplace exhaust ventilation system or collected within the vacuum unit, equipped with high efficiency filters or other appropriate means of contaminant removal, so that DBCP is not reintroduced into the workplace air; and

(B) Portable vacuum units used to collect DBCP may not be used for other cleaning purposes and shall be labeled as prescribed by subsection ((~~(16)(c)~~)) (11)(b)(v) of this section.

(iv) Cleaning of floors and other contaminated surfaces may not be performed by washing down with a hose, unless a fine spray has first been laid down.

(b) Liquids. Where DBCP is present in a liquid form, or as a resultant vapor, all containers or vessels containing DBCP shall be enclosed to the maximum extent feasible and tightly covered when not in use.

(c) Waste disposal. DBCP waste, scrap, debris, bags, containers or equipment, shall be disposed in sealed bags or other closed containers which prevent dispersion of DBCP outside the container.

(13) Hygiene facilities and practices.

(a) Change rooms. The employer shall provide clean change rooms equipped with storage facilities for street clothes and separate storage facilities for protective clothing and equipment whenever employees are required to wear protective clothing and equipment in accordance with subsections (8), (9), and (11) of this section.

(b) Showers.

(i) The employer shall assure that employees working in the regulated area shower at the end of the work shift.

(ii) The employer shall assure that employees whose skin becomes contaminated with DBCP-containing liquids or solids immediately wash or shower to remove any DBCP from the skin.

(iii) The employer shall provide shower facilities in accordance with WAC 296-800-230.

(c) Lunchrooms. The employer shall provide lunchroom facilities which have a temperature controlled, positive pressure, filtered air supply, and which are readily accessible to employees working in regulated areas.

(d) Lavatories.

(i) The employer shall assure that employees working in the regulated area remove protective clothing and wash their hands and face prior to eating.

(ii) The employer shall provide a sufficient number of lavatory facilities which comply with WAC 296-800-230.

(e) Prohibition of activities in regulated areas. The employer shall assure that, in regulated areas, food or beverages are not present or consumed, smoking products and implements are not present or used, and cosmetics are not present or applied.

(14) Medical surveillance.

(a) General. The employer shall institute a program of medical surveillance for each employee who is or will be exposed, without regard to the use of respirators, to DBCP. The employer shall provide each such employee with an opportunity for medical examinations and tests in accordance with this subsection. All medical examinations and procedures shall be performed by or under the supervision of a licensed physician, and shall be provided without cost to the employee.

(b) Frequency and content. At the time of initial assignment, annually thereafter, and whenever exposure to DBCP occurs, the employer shall provide a medical examination for employees who work in regulated areas, which includes at least the following:

(i) A complete medical and occupational history with emphasis on reproductive history.

(ii) A complete physical examination with emphasis on the genito-urinary tract, testicle size, and body habitus including the following tests:

(A) Sperm count;

(B) Complete urinalysis (U/A);

(C) Complete blood count; and

(D) Thyroid profile.

(iii) A serum specimen shall be obtained and the following determinations made by radioimmunoassay techniques utilizing National Institutes of Health (NIH) specific antigen or one of equivalent sensitivity:

(A) Serum multiphasic analysis (SMA 12);

(B) Serum follicle stimulating hormone (FSH);

(C) Serum luteinizing hormone (LH); and

(D) Serum estrogen (females).

(iv) Any other tests deemed appropriate by the examining physician.

(c) Additional examinations. If the employee for any reason develops signs or symptoms commonly associated with exposure to DBCP, the employer shall provide the employee with a medical examination which shall include those elements considered appropriate by the examining physician.

(d) Information provided to the physician. The employer shall provide the following information to the examining physician:

(i) A copy of this standard and its appendices;

(ii) A description of the affected employee's duties as they relate to the employee's exposure;

(iii) The level of DBCP to which the employee is exposed; and

(iv) A description of any personal protective equipment used or to be used.

(e) Physician's written opinion.

(i) For each examination under this section, the employer shall obtain and provide the employee with a written opinion from the examining physician which shall include:

(A) The results of the medical tests performed;

(B) The physician's opinion as to whether the employee has any detected medical condition which would place the employee at an increased risk of material impairment of health from exposure to DBCP;

(C) Any recommended limitations upon the employee's exposure to DBCP or upon the use of protective clothing and equipment such as respirators; and

(D) A statement that the employee was informed by the physician of the results of the medical examination, and any medical conditions which require further examination or treatment.

(ii) The employer shall instruct the physician not to reveal in the written opinion specific findings or diagnoses unrelated to occupational exposure to DBCP.

(iii) The employer shall provide a copy of the written opinion to the affected employee.

(f) Emergency situations. If the employee is exposed to DBCP in an emergency situation, the employer shall provide the employee with a sperm count test as soon as practicable, or, if the employee is unable to produce a semen specimen, the hormone tests contained in ((~~subsection (14)~~))(b) of this ((~~section~~)) subsection. The employer shall provide these same tests three months later.

(15) Employee information and training.

(a) Training program.

(i) Within thirty days of the effective date of this standard, the employer shall institute a training program for all employees who may be exposed to DBCP and shall assure their participation in such training program.

(ii) The employer shall assure that each employee is informed of the following:

(A) The information contained in Appendices A, B and C;

(B) The quantity, location, manner of use, release or storage of DBCP and the specific nature of operations which could result in exposure to DBCP as well as any necessary protective steps;

(C) The purpose, proper use, limitations, and other training requirements covering respiratory protection as required in chapter 296-62 WAC, Part E;

(D) The purpose and description of the medical surveillance program required by subsection (14) of this section; and

(E) A review of this standard.

(b) Access to training materials.

(i) The employer shall make a copy of this standard and its appendices readily available to all affected employees.

(ii) The employer shall provide, upon request, all materials relating to the employee information and training program to the director.

(16) ((~~Signs and labels.~~)) Communication of hazards.

(a) Hazard communication - General.

(i) ((~~The employer may use labels or signs required by other statutes, regulations, or ordinances in addition to or in combination with, signs and labels required by this subsection.~~

~~(ii)~~)) Chemical manufacturers, importers, distributors and employers shall comply with all requirements of the Hazard Communication Standard (HCS), WAC 296-901-140 for DBCP.

(ii) In classifying the hazards of DBCP at least the following hazards are to be addressed: Cancer; reproductive effects; liver effects; kidney effects; central nervous system effects; skin, eye and respiratory tract irritation; and acute toxicity effects.

(iii) Employers shall include DBCP in the hazard communication program established to comply with the HCS, WAC 296-901-140. Employers shall ensure that each employee has access to labels on containers of DBCP and to safety data sheets, and is trained in accordance with the requirements of HCS and subsection (15) of this section.

(iv) The employer may use labels or signs required by other statutes, regulations, or ordinances in addition to or in combination with, signs and labels required by this subsection.

(v) The employer shall ((~~assure~~)) ensure that no statement appears on or near any sign or label required by this subsection which contradicts or detracts from the required sign or label.

(b) Signs.

(i) The employer shall post signs to clearly indicate all ((~~work~~)) regulated areas ((~~where DBCP may be present~~)). These signs shall bear the legend:

((~~DANGER~~

~~1,2-Dibromo-3-chloropropane~~

~~(Insert appropriate trade or common names)~~)))

DANGER
1,2-Dibromo-3-chloropropane
MAY CAUSE CANCER ((~~HAZARD~~))
WEAR RESPIRATORY PROTECTION IN THIS AREA
AUTHORIZED PERSONNEL ONLY

(ii) ((~~Where airborne concentrations of DBCP exceed the permissible exposure limits, the signs shall bear the additional legend:~~)) Prior to June 1, 2016, employers may use the following legend in lieu of that specified in (b) of this subsection:

DANGER
1,2-Dibromo-3-chloropropane
(Insert appropriate trade or common names)
CANCER HAZARD
AUTHORIZED PERSONNEL ONLY

RESPIRATOR REQUIRED

(c) Labels.

(i) ((~~The employer shall assure that precautionary labels are affixed to all containers of DBCP and of products containing DBCP, and that the labels remain affixed when the DBCP or products containing DBCP are sold, distributed, or otherwise leave the employer's workplace.~~)) Where DBCP or products containing DBCP are sold, distributed or otherwise leave the employer's workplace bearing appropriate labels required by EPA under the regulations in 40 C.F.R. Part 162, the labels required by (c) of this subsection need not be affixed.

(ii) The employer shall ((~~assure~~)) ensure that the precautionary labels required by (c) of this subsection are readily visible and legible. ((~~The labels shall bear the following legend:~~))

(iii) Prior to June 1, 2015, employers may include the following information on containers of DBCP or products containing DBCP, DBCP-contaminated protective devices or work clothing or DBCP-contaminated portable vacuums in lieu of the labeling requirements in (11)(b)(v), (12)(a)(iii)(B) and (a)(i) of this subsection:

DANGER
1,2-Dibromo-3-chloropropane
CANCER HAZARD

(17) Recordkeeping.

(a) Exposure monitoring.

(i) The employer shall establish and maintain an accurate record of all monitoring required by subsection (6) of this section.

(ii) This record shall include:

(A) The dates, number, duration and results of each of the samples taken, including a description of the sampling procedure used to determine representative employee exposure;

(B) A description of the sampling and analytical methods used;

(C) Type of respiratory worn, if any; and

(D) Name, Social Security number, and job classification of the employee monitored and of all other employees whose exposure the measurement is intended to represent.

(iii) The employer shall maintain this record for at least forty years or the duration of employment plus twenty years, whichever is longer.

(b) Medical surveillance.

(i) The employer shall establish and maintain an accurate record for each employee subject to medical surveillance required by subsection (14) of this section.

(ii) This record shall include:

(A) The name and Social Security number of the employee;

(B) A copy of the physician's written opinion;

(C) Any employee medical complaints related to exposure to DBCP;

(D) A copy of the information provided the physician as required by subsection (14)(c) of this section; and

(E) A copy of the employee's medical and work history.

(iii) The employer shall maintain this record for at least forty years or the duration of employment plus twenty years, whichever is longer.

(c) Availability.

(i) The employer shall assure that all records required to be maintained by this section be made available upon request to the director for examination and copying.

(ii) Employee exposure monitoring records and employee medical records required by this subsection shall be provided upon request to employees' designated representatives and the assistant director in accordance with chapter 296-802 WAC.

(d) Transfer of records.

(i) If the employer ceases to do business, the successor employer shall receive and retain all records required to be maintained by this section for the prescribed period.

(ii) The employer shall also comply with any additional requirements involving transfer of records set forth in WAC 296-802-60005.

(18) Observation of monitoring.

(a) Employee observation. The employer shall provide affected employees, or their designated representatives, an opportunity to observe any monitoring of employee exposure to DBCP conducted under subsection (6) of this section.

(b) Observation procedures.

(i) Whenever observation of the measuring or monitoring of employee exposure to DBCP requires entry into an area where the use of protective clothing or equipment is required, the employer shall provide the observer with personal protective clothing or equipment required to be worn by employees working in the area, assure the use of such clothing and equipment, and require the observer to comply with all other applicable safety and health procedures.

(ii) Without interfering with the monitoring or measurement, observers shall be entitled to:

(A) Receive an explanation of the measurement procedures;

(B) Observe all steps related to the measurement of airborne concentrations of DBCP performed at the place of exposure; and

(C) Record the results obtained.

(19) Appendices. The information contained in the appendices is not intended, by itself, to create any additional obligations not otherwise imposed or to detract from any existing obligation.

AMENDATORY SECTION (Amending WSR 12-24-071, filed 12/4/12, effective 1/4/13)

WAC 296-62-07460 1,3-Butadiene. (1) Scope and application.

(a) This section applies to all occupational exposures to 1,3-Butadiene (BD), Chemical Abstracts Service Registry No. 106-99-0, except as provided in (b) of this subsection.

(b)(i) Except for the recordkeeping provisions in subsection (13)(a) of this section, this section does not apply to the processing, use, or handling of products containing BD or to other work operations and streams in which BD is present where objective data are reasonably relied upon that demonstrate the work operation or the product or the group of products or operations to which it belongs may not reasonably be foreseen to release BD in airborne concentrations at or above the action level or in excess of the STEL under the expected conditions of processing, use, or handling that will cause the greatest possible release or in any plausible accident.

(ii) This section also does not apply to work operations, products or streams where the only exposure to BD is from liquid mixtures containing 0.1% or less of BD by volume or the vapors released from such liquids, unless objective data become available that show that airborne concentrations generated by such mixtures can exceed the action level or STEL under reasonably predictable conditions of processing, use or handling that will cause the greatest possible release.

(iii) Except for labeling requirements and requirements for emergency response, this section does not apply to the storage, transportation, distribution or sale of BD or liquid mixtures in intact containers or in transportation pipelines sealed in such a manner as to fully contain BD vapors or liquids.

(c) Where products or processes containing BD are exempted under (b) of this subsection, the employer shall maintain records of the objective data supporting that exemption and the basis for the employer's reliance on the data, as provided in subsection (13)(a) of this section.

(2) Definitions: For the purpose of this section, the following definitions shall apply:

"Action level" means a concentration of airborne BD of 0.5 ppm calculated as an 8-hour time-weighted average.

((~~"Director" means the director of the department of labor and industries, or authorized representatives.~~))

"Authorized person" means any person specifically designated by the employer, whose duties require entrance into a regulated area, or a person entering such an area as a designated representative of employees to exercise the right to observe monitoring and measuring procedures under subsection (4)(h) of this section, or a person designated under the WISH Act or regulations issued under the WISH Act to enter a regulated area.

"1,3-Butadiene" means an organic compound with chemical formula CH(2)=CH-CH=CH(2) that has a molecular weight of approximately 54.15 gm/mole.

"Business day" means any Monday through Friday, except those days designated as federal, state, local or company specific holidays.

"Complete blood count (CBC)" means laboratory tests performed on whole blood specimens and includes the following: White blood cell count (WBC), hematocrit (Hct), red blood cell count (RBC), hemoglobin (Hgb), differential count of white blood cells, red blood cell morphology, red blood cell indices, and platelet count.

"Day" means any part of a calendar day.

"Director" means the director of the department of labor and industries, or authorized representatives.

"Emergency situation" means any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an uncontrolled significant release of BD.

"Employee exposure" means exposure of a worker to airborne concentrations of BD which would occur if the employee were not using respiratory protective equipment.

"Objective data" means monitoring data, or mathematical modelling or calculations based on composition, chemical and physical properties of a material, stream or product.

"Permissible exposure limits (PELs)" means either the 8-hour time-weighted average (8-hour TWA) exposure or the short-term exposure limit (STEL).

"Physician or other licensed health care professional" is an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide one or more of the specific health care services required by (k) of this subsection.

"Regulated area" means any area where airborne concentrations of BD exceed or can reasonably be expected to exceed the 8-hour time-weighted average (8-hour TWA) exposure of 1 ppm or the short-term exposure limit (STEL) of 5 ppm for 15 minutes.

"This section" means this 1,3-butadiene standard.

(3) Permissible exposure limits (PELs).

(a) Time-weighted average (TWA) limit. The employer shall ensure that no employee is exposed to an airborne concentration of BD in excess of one part BD per million parts of air (ppm) measured as an eight (8)-hour time-weighted average.

(b) Short-term exposure limit (STEL). The employer shall ensure that no employee is exposed to an airborne concentration of BD in excess of five parts of BD per million parts of air (5 ppm) as determined over a sampling period of fifteen minutes.

(4) Exposure monitoring.

(a) General.

(i) Determinations of employee exposure shall be made from breathing zone air samples that are representative of the 8-hour TWA and 15-minute short-term exposures of each employee.

(ii) Representative 8-hour TWA employee exposure shall be determined on the basis of one or more samples representing full-shift exposure for each shift and for each job classification in each work area.

(iii) Representative 15-minute short-term employee exposures shall be determined on the basis of one or more samples representing 15-minute exposures associated with operations that are most likely to produce exposures above the STEL for each shift and for each job classification in each work area.

(iv) Except for the initial monitoring required under (b) of this subsection, where the employer can document that exposure levels are equivalent for similar operations on different work shifts, the employer need only determine representative employee exposure for that operation from the shift during which the highest exposure is expected.

(b) Initial monitoring.

(i) Each employer who has a workplace or work operation covered by this section, shall perform initial monitoring to determine accurately the airborne concentrations of BD to which employees may be exposed, or shall rely on objective data pursuant to subsection (1)(b)(i) of this section to fulfill this requirement. The initial monitoring required under this subitem shall be completed within sixty days of the introduction of BD into the workplace.

(ii) Where the employer has monitored within two years prior to the effective date of this section and the monitoring satisfies all other requirements of this section, the employer may rely on such earlier monitoring results to satisfy the requirements of (b)(i) of this subsection, provided that the conditions under which the initial monitoring was conducted have not changed in a manner that may result in new or additional exposures.

(c) Periodic monitoring and its frequency.

(i) If the initial monitoring required by (b) of this subsection reveals employee exposure to be at or above the action level but at or below both the 8-hour TWA limit and the STEL, the employer shall repeat the representative monitoring required by (a) of this subsection every twelve months.

(ii) If the initial monitoring required by (b) of this subsection reveals employee exposure to be above the 8-hour TWA limit, the employer shall repeat the representative monitoring required by (a)(ii) of this subsection at least every three months until the employer has collected two samples per quarter (each at least 7 days apart) within a two-year period, after which such monitoring must occur at least every six months.

(iii) If the initial monitoring required by (b) of this subsection reveals employee exposure to be above the STEL, the employer shall repeat the representative monitoring required by (a)(iii) of this subsection at least every three months until the employer has collected two samples per quarter (each at least 7 days apart) within a two-year period, after which such monitoring must occur at least every six months.

(iv) The employer may alter the monitoring schedule from every six months to annually for any required representative monitoring for which two consecutive measurements taken at least 7 days apart indicate that employee exposure has decreased to or below the 8-hour TWA, but is at or above the action level.

(d) Termination of monitoring.

(i) If the initial monitoring required by (b) of this subsection reveals employee exposure to be below the action level and at or below the STEL, the employer may discontinue the monitoring for employees whose exposures are represented by the initial monitoring.

(ii) If the periodic monitoring required by (c) of this subsection reveals that employee exposures, as indicated by at least two consecutive measurements taken at least 7 days apart, are below the action level and at or below the STEL, the employer may discontinue the monitoring for those employees who are represented by such monitoring.

(e) Additional monitoring.

(i) The employer shall institute the exposure monitoring required under subsection (4) of this section whenever there has been a change in the production, process, control equipment, personnel or work practices that may result in new or additional exposures to BD or when the employer has any reason to suspect that a change may result in new or additional exposures.

(ii) Whenever spills, leaks, ruptures or other breakdowns occur that may lead to employee exposure above the 8-hour TWA limit or above the STEL, the employer shall monitor (using leak source, such as direct reading instruments, area or personal monitoring), after the cleanup of the spill or repair of the leak, rupture or other breakdown, to ensure that exposures have returned to the level that existed prior to the incident.

(f) Accuracy of monitoring.

Monitoring shall be accurate, at a confidence level of 95 percent, to within plus or minus 25 percent for airborne concentrations of BD at or above the 1 ppm TWA limit and to within plus or minus 35 percent for airborne concentrations of BD at or above the action level of 0.5 ppm and below the 1 ppm TWA limit.

(g) Employee notification of monitoring results.

(i) The employer shall, within 5 business days after the receipt of the results of any monitoring performed under this section, notify the affected employees of these results in writing either individually or by posting of results in an appropriate location that is accessible to affected employees.

(ii) The employer shall, within 15 business days after receipt of any monitoring performed under this section indicating the 8-hour TWA or STEL has been exceeded, provide the affected employees, in writing, with information on the corrective action being taken by the employer to reduce employee exposure to or below the 8-hour TWA or STEL and the schedule for completion of this action.

(h) Observation of monitoring.

(i) Employee observation. The employer shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to BD conducted in accordance with this section.

(ii) Observation procedures. When observation of the monitoring of employee exposure to BD requires entry into an area where the use of protective clothing or equipment is required, the employer shall provide the observer at no cost with protective clothing and equipment, and shall ensure that the observer uses this equipment and complies with all other applicable safety and health procedures.

(5) Regulated areas.

(a) The employer shall establish a regulated area wherever occupational exposures to airborne concentrations of BD exceed or can reasonably be expected to exceed the permissible exposure limits, either the 8-hour TWA or the STEL.

(b) Access to regulated areas shall be limited to authorized persons.

(c) Regulated areas shall be demarcated from the rest of the workplace in any manner that minimizes the number of employees exposed to BD within the regulated area.

(d) An employer at a multiemployer worksite who establishes a regulated area shall communicate the access restrictions and locations of these areas to other employers with work operations at that worksite whose employees may have access to these areas.

(6) Methods of compliance.

(a) Engineering controls and work practices.

(i) The employer shall institute engineering controls and work practices to reduce and maintain employee exposure to or below the PELs, except to the extent that the employer can establish that these controls are not feasible or where subsection (8)(a)(i) of this section applies.

(ii) Wherever the feasible engineering controls and work practices which can be instituted are not sufficient to reduce employee exposure to or below the 8-hour TWA or STEL, the employer shall use them to reduce employee exposure to the lowest levels achievable by these controls and shall supplement them by the use of respiratory protection that complies with the requirements of subsection (8) of this section.

(b) Compliance plan.

(i) Where any exposures are over the PELs, the employer shall establish and implement a written plan to reduce employee exposure to or below the PELs primarily by means of engineering and work practice controls, as required by (a) of this subsection, and by the use of respiratory protection where required or permitted under this section. No compliance plan is required if all exposures are under the PELs.

(ii) The written compliance plan shall include a schedule for the development and implementation of the engineering controls and work practice controls including periodic leak detection surveys.

(iii) Copies of the compliance plan required in (b) of this subsection shall be furnished upon request for examination and copying to the director, affected employees and designated employee representatives. Such plans shall be reviewed at least every 12 months, and shall be updated as necessary to reflect significant changes in the status of the employer's compliance program.

(iv) The employer shall not implement a schedule of employee rotation as a means of compliance with the PELs.

(7) Exposure goal program.

(a) For those operations and job classifications where employee exposures are greater than the action level, in addition to compliance with the PELs, the employer shall have an exposure goal program that is intended to limit employee exposures to below the action level during normal operations.

(b) Written plans for the exposure goal program shall be furnished upon request for examination and copying to the director, affected employees and designated employee representatives.

(c) Such plans shall be updated as necessary to reflect significant changes in the status of the exposure goal program.

(d) Respirator use is not required in the exposure goal program.

(e) The exposure goal program shall include the following items unless the employer can demonstrate that the item is not feasible, will have no significant effect in reducing employee exposures, or is not necessary to achieve exposures below the action level:

(i) A leak prevention, detection, and repair program.

(ii) A program for maintaining the effectiveness of local exhaust ventilation systems.

(iii) The use of pump exposure control technology such as, but not limited to, mechanical double-sealed or seal-less pumps.

(iv) Gauging devices designed to limit employee exposure, such as magnetic gauges on rail cars.

(v) Unloading devices designed to limit employee exposure, such as a vapor return system.

(vi) A program to maintain BD concentration below the action level in control rooms by use of engineering controls.

(8) Respiratory protection.

(a) General. For employees who use respirators required by this section, the employer must provide each employee an appropriate respirator that complies with the requirements of this subsection. Respirators must be used during:

(i) Periods necessary to install or implement feasible engineering and work-practice controls;

(ii) Nonroutine work operations that are performed infrequently and for which exposures are limited in duration;

(iii) Work operations for which feasible engineering controls and work-practice controls are not yet sufficient to reduce employee exposures to or below the PELs;

(iv) Emergencies.

(b) Respirator program.

(i) The employer must implement a respiratory protection program as required by chapter 296-842 WAC, except WAC 296-842-13005 and 296-842-14005, which covers each employee required by this section to use a respirator.

(ii) If air-purifying respirators are used, the employer must replace the air-purifying filter elements according to the replacement schedule set for the class of respirators listed in Table 1 of this section, and at the beginning of each work shift.

(iii) Instead of using the replacement schedule listed in Table 1 of this section, the employer may replace cartridges or canisters at 90% of their expiration service life, provided the employer:

(A) Demonstrates that employees will be adequately protected by this procedure;

(B) Uses BD breakthrough data for this purpose that have been derived from tests conducted under worst-case conditions of humidity, temperature, and air-flow rate through the filter element, and the employer also describes the data supporting the cartridge- or canister-change schedule, as well as the basis for using the data in the employer's respirator program.

(iv) A label must be attached to each filter element to indicate the date and time it is first installed on the respirator.

(v) If NIOSH approves an end-of-service-life indicator (ESLI) for an air-purifying filter element, the element may be used until the ESLI shows no further useful service life or until the element is replaced at the beginning of the next work shift, whichever occurs first.

(vi) Regardless of the air-purifying element used, if an employee detects the odor of BD, the employer must replace the air-purifying element immediately.

(c) Respirator selection.

(i) The employer must select appropriate respirators from Table 1 of this section.

Table 1. - Minimum Requirements for Respiratory Protection for Airborne BD

Concentration of Airborne BD (ppm) or condition of use	Minimum required respirator
Less than or equal to 5 ppm (5 times PEL)	(a) Air-purifying half mask or full facepiece respirator equipped with approved BD or organic vapor cartridges or canisters. Cartridges or canisters shall be replaced every 4 hours.
Less than or equal to 10 ppm (10 times PEL)	(a) Air-purifying half mask or full facepiece respirator equipped with approved BD or organic vapor cartridges or canisters. Cartridges or canisters shall be replaced every 3 hours.
Less than or equal to 25 ppm (25 times PEL)	(a) Air-purifying full facepiece respirator equipped with approved BD or organic vapor cartridges or canisters. Cartridges or canisters shall be replaced every 2 hours. (b) Any powered air-purifying respirator equipped with approved BD or organic vapor cartridges. PAPR cartridges shall be replaced every 2 hours. (c) Continuous flow supplied air respirator equipped with a hood or helmet.
Less than or equal to 50 ppm (50 times PEL)	(a) Air-purifying full facepiece respirator equipped with approved BD or organic vapor cartridges or canisters. Cartridges or canisters shall be replaced every 1 hour. (b) Powered air purifying respirator equipped with a tight-fitting facepiece and an approved BD or organic vapor cartridges. PAPR cartridges shall be replaced every 1 hour.
Less than or equal to 1,000 ppm (1,000 times PEL)	(a) Supplied air respirator equipped with a half mask or full facepiece and operated in a pressure demand or other positive pressure mode.
Greater than 1,000 ppm	(a) Self-contained breathing unknown concentration, or apparatus equipped with a fire fighting full facepiece and operated in a pressure demand or other positive pressure mode. (b) Any supplied air respirator equipped with a full facepiece and operated in a pressure demand or other positive pressure mode in combination with an auxiliary self-contained breathing apparatus operated in a pressure demand or other positive pressure mode.
Escape from IDLH Conditions	(a) Any positive pressure self-contained breathing apparatus with an appropriate service life. (b) Any air-purifying full facepiece respirator equipped with a front or back mounted BD or organic vapor canister.

Notes: Respirators approved for use in higher concentrations are permitted to be used in lower concentrations. Full facepiece is required when eye irritation is anticipated.

(ii) Air-purifying respirators must have filter elements certified by NIOSH for organic vapor or BD.

(iii) When an employee whose job requires the use of a respirator cannot use a negative-pressure respirator, the employer must provide the employee with a respirator that has less breathing resistance than the negative-pressure respirator, such as a powered air-purifying respirator or supplied-air respirator, when the employee is able to use it and if it provides the employee adequate protection.

(9) Protective clothing and equipment. Where appropriate to prevent eye contact and limit dermal exposure to BD, the employer shall provide protective clothing and equipment at no cost to the employee and shall ensure its use. Eye and face protection shall meet the requirements of WAC 296-800-160.

(10) Emergency situations. Written plan. A written plan for emergency situations shall be developed, or an existing plan shall be modified, to contain the applicable elements specified in WAC 296-24-567, Employee emergency plans and fire prevention plans, and in WAC 296-62-3112, hazardous waste operations and emergency responses, for each workplace where there is a possibility of an emergency.

(11) Medical screening and surveillance.

(a) Employees covered. The employer shall institute a medical screening and surveillance program as specified in this subsection for:

(i) Each employee with exposure to BD at concentrations at or above the action level on 30 or more days or for employees who have or may have exposure to BD at or above the PELs on 10 or more days a year;

(ii) Employers (including successor owners) shall continue to provide medical screening and surveillance for employees, even after transfer to a non-BD exposed job and regardless of when the employee is transferred, whose work histories suggest exposure to BD:

(A) At or above the PELs on 30 or more days a year for 10 or more years;

(B) At or above the action level on 60 or more days a year for 10 or more years; or

(C) Above 10 ppm on 30 or more days in any past year; and

(iii) Each employee exposed to BD following an emergency situation.

(b) Program administration.

(i) The employer shall ensure that the health questionnaire, physical examination and medical procedures are provided without cost to the employee, without loss of pay, and at a reasonable time and place.

(ii) Physical examinations, health questionnaires, and medical procedures shall be performed or administered by a physician or other licensed health care professional.

(iii) Laboratory tests shall be conducted by an accredited laboratory.

(c) Frequency of medical screening activities. The employer shall make medical screening available on the following schedule:

(i) For each employee covered under (a)(i) and (ii) of this subsection, a health questionnaire and complete blood count (CBC) with differential and platelet count every year, and a physical examination as specified below:

(A) An initial physical examination that meets the requirements of this rule, if twelve months or more have elapsed since the last physical examination conducted as part of a medical screening program for BD exposure;

(B) Before assumption of duties by the employee in a job with BD exposure;

(C) Every 3 years after the initial physical examination;

(D) At the discretion of the physician or other licensed health care professional reviewing the annual health questionnaire and CBC;

(E) At the time of employee reassignment to an area where exposure to BD is below the action level, if the employee's past exposure history does not meet the criteria of (a)(ii) of this subsection for continued coverage in the screening and surveillance program, and if twelve months or more have elapsed since the last physical examination; and

(F) At termination of employment if twelve months or more have elapsed since the last physical examination.

(ii) Following an emergency situation, medical screening shall be conducted as quickly as possible, but not later than 48 hours after the exposure.

(iii) For each employee who must wear a respirator, physical ability to perform the work and use the respirator must be determined as required by chapter 296-842 WAC.

(d) Content of medical screening.

(i) Medical screening for employees covered by (a)(i) and (ii) of this subsection shall include:

(A) A baseline health questionnaire that includes a comprehensive occupational and health history and is updated annually. Particular emphasis shall be placed on the hematopoietic and reticuloendothelial systems, including exposure to chemicals, in addition to BD, that may have an adverse effect on these systems, the presence of signs and symptoms that might be related to disorders of these systems, and any other information determined by the examining physician or other licensed health care professional to be necessary to evaluate whether the employee is at increased risk of material impairment of health from BD exposure. Health questionnaires shall consist of the sample forms in Appendix C to this section, or be equivalent to those samples;

(B) A complete physical examination, with special emphasis on the liver, spleen, lymph nodes, and skin;

(C) A CBC; and

(D) Any other test which the examining physician or other licensed health care professional deems necessary to evaluate whether the employee may be at increased risk from exposure to BD.

(ii) Medical screening for employees exposed to BD in an emergency situation shall focus on the acute effects of BD exposure and at a minimum include: A CBC within 48 hours of the exposure and then monthly for three months; and a physical examination if the employee reports irritation of the eyes, nose, throat, lungs, or skin, blurred vision, coughing, drowsiness, nausea, or headache. Continued employee participation in the medical screening and surveillance program, beyond these minimum requirements, shall be at the discretion of the physician or other licensed health care professional.

(e) Additional medical evaluations and referrals.

(i) Where the results of medical screening indicate abnormalities of the hematopoietic or reticuloendothelial systems, for which a nonoccupational cause is not readily apparent, the examining physician or other licensed health care professional shall refer the employee to an appropriate specialist for further evaluation and shall make available to the specialist the results of the medical screening.

(ii) The specialist to whom the employee is referred under this subsection shall determine the appropriate content for the medical evaluation, e.g., examinations, diagnostic tests and procedures, etc.

(f) Information provided to the physician or other licensed health care professional. The employer shall provide the following information to the examining physician or other licensed health care professional involved in the evaluation:

(i) A copy of this section including its appendices;

(ii) A description of the affected employee's duties as they relate to the employee's BD exposure;

(iii) The employee's actual or representative BD exposure level during employment tenure, including exposure incurred in an emergency situation;

(iv) A description of pertinent personal protective equipment used or to be used; and

(v) Information, when available, from previous employment-related medical evaluations of the affected employee which is not otherwise available to the physician or other licensed health care professional or the specialist.

(g) The written medical opinion.

(i) For each medical evaluation required by this section, the employer shall ensure that the physician or other licensed health care professional produces a written opinion and provides a copy to the employer and the employee within 15 business days of the evaluation. The written opinion shall be limited to the following information:

(A) The occupationally pertinent results of the medical evaluation;

(B) A medical opinion concerning whether the employee has any detected medical conditions which would place the employee's health at increased risk of material impairment from exposure to BD;

(C) Any recommended limitations upon the employee's exposure to BD; and

(D) A statement that the employee has been informed of the results of the medical evaluation and any medical conditions resulting from BD exposure that require further explanation or treatment.

(ii) The written medical opinion provided to the employer shall not reveal specific records, findings, and diagnoses that have no bearing on the employee's ability to work with BD.

Note: This provision does not negate the ethical obligation of the physician or other licensed health care professional to transmit any other adverse findings directly to the employee.

(h) Medical surveillance.

(i) The employer shall ensure that information obtained from the medical screening program activities is aggregated (with all personal identifiers removed) and periodically reviewed, to ascertain whether the health of the employee population of that employer is adversely affected by exposure to BD.

(ii) Information learned from medical surveillance activities must be disseminated to covered employees, as defined in (a) of this subsection, in a manner that ensures the confidentiality of individual medical information.

(12) Communication of BD hazards ((~~to employees~~)).

(a) Hazard communication - General.

((~~The~~)) (i) Chemical manufacturers, importers, distributors and employers shall ((~~communicate the hazards associated~~)) comply with ((~~BD exposure in accordance with the~~)) all requirements of the ((~~chemical~~)) Hazard Communication Standard (HCS), WAC ((~~296-800-170~~)) 296-901-140 for BD.

(ii) In classifying the hazards of BD at least the following hazards are to be addressed: Cancer; eye and respiratory tract irritation; central nervous system effects; and flammability.

(iii) Employers shall include BD in the hazard communication program established to comply with the HCS, WAC 296-901-140. Employers shall ensure that each employee has access to labels on containers of BD and to safety data sheets, and is trained in accordance with the requirements of HCS and (b) of this subsection.

(b) Employee information and training.

(i) The employer shall train each employee who is potentially exposed to BD at or above the action level or the STEL in accordance with the requirements of ((~~the chemical hazard communication standard, WAC 296-800-170~~)) WAC 296-901-140, Hazard communication.

(ii) The employer shall institute a training program for all employees who are potentially exposed to BD at or above the action level or the STEL, ensure employee participation in the program and maintain a record of the contents of such program.

(iii) Training shall be provided prior to or at the time of initial assignment to a job potentially involving exposure to BD at or above the action level or STEL and at least annually thereafter.

(iv) The training program shall be conducted in a manner that the employee is able to understand. The employer shall ensure that each employee exposed to BD over the action level or STEL is informed of the following:

(A) The health hazards associated with BD exposure, and the purpose and a description of the medical screening and surveillance program required by this section;

(B) The quantity, location, manner of use, release, and storage of BD and the specific operations that could result in exposure to BD, especially exposures above the PEL or STEL;

(C) The engineering controls and work practices associated with the employee's job assignment, and emergency procedures and personal protective equipment;

(D) The measures employees can take to protect themselves from exposure to BD;

(E) The contents of this standard and its appendices; and

(F) The right of each employee exposed to BD at or above the action level or STEL to obtain:

(I) Medical examinations as required by subsection (10) of this section at no cost to the employee;

(II) The employee's medical records required to be maintained by subsection (13)(c) of this section; and

(III) All air monitoring results representing the employee's exposure to BD and required to be kept by subsection (13)(b) of this section.

(c) Access to information and training materials.

(i) The employer shall make a copy of this standard and its appendices readily available without cost to all affected employees and their designated representatives and shall provide a copy if requested.

(ii) The employer shall provide to the director, or the designated employee representatives, upon request, all materials relating to the employee information and the training program.

(13) Recordkeeping.

(a) Objective data for exemption from initial monitoring.

(i) Where the processing, use, or handling of products or streams made from or containing BD are exempted from other requirements of this section under subsection (1)(b) of this section, or where objective data have been relied on in lieu of initial monitoring under subsection (4)(b)(ii) of this section, the employer shall establish and maintain a record of the objective data reasonably relied upon in support of the exemption.

(ii) This record shall include at least the following information:

(A) The product or activity qualifying for exemption;

(B) The source of the objective data;

(C) The testing protocol, results of testing, and analysis of the material for the release of BD;

(D) A description of the operation exempted and how the data support the exemption; and

(E) Other data relevant to the operations, materials, processing, or employee exposures covered by the exemption.

(iii) The employer shall maintain this record for the duration of the employer's reliance upon such objective data.

(b) Exposure measurements.

(i) The employer shall establish and maintain an accurate record of all measurements taken to monitor employee exposure to BD as prescribed in subsection (4) of this section.

(ii) The record shall include at least the following information:

(A) The date of measurement;

(B) The operation involving exposure to BD which is being monitored;

(C) Sampling and analytical methods used and evidence of their accuracy;

(D) Number, duration, and results of samples taken;

(E) Type of protective devices worn, if any;

(F) Name, Social Security number and exposure of the employees whose exposures are represented; and

(G) The written corrective action and the schedule for completion of this action required by subsection (4)(g)(ii) of this section.

(iii) The employer shall maintain this record for at least 30 years in accordance with chapter 296-802 WAC.

(c) Medical screening and surveillance.

(i) The employer shall establish and maintain an accurate record for each employee subject to medical screening and surveillance under this section.

(ii) The record shall include at least the following information:

(A) The name and Social Security number of the employee;

(B) Physician's or other licensed health care professional's written opinions as described in subsection (11)(e) of this section;

(C) A copy of the information provided to the physician or other licensed health care professional as required by subsection (11)(e) of this section.

(iii) Medical screening and surveillance records shall be maintained for each employee for the duration of employment plus 30 years, in accordance with chapter 296-802 WAC.

(d) Availability.

(i) The employer, upon written request, shall make all records required to be maintained by this section available for examination and copying to the director.

(ii) Access to records required to be maintained by (a) and (b) of this subsection shall be granted in accordance with chapter 296-802 WAC.

(e) Transfer of records. The employer shall transfer medical and exposure records as set forth in WAC 296-802-60005.

(14) Dates.

(a) Effective date. This section shall become effective (day, month), 1997.

(b) Start-up dates.

(i) The initial monitoring required under subsection (4)(b) of this section shall be completed immediately or within sixty days of the introduction of BD into the workplace.

(ii) The requirements of subsections (3) through (13) of this section, including feasible work practice controls but not including engineering controls specified in subsection (6)(a) of this section, shall be complied with immediately.

(iii) Engineering controls specified by subsection (6)(a) of this section shall be implemented by February 4, 1999, and the exposure goal program specified in subsection (7) of this section shall be implemented by February 4, 2000.

(15) Appendices.

Appendices A, B, C, D, and F to this section are informational and are not intended to create any additional obligations not otherwise imposed or to detract from any existing obligations.

Appendix A. Substance Safety Data Sheet For 1,3-Butadiene (Non-Mandatory)

(1) Substance Identification.

(a) Substance: 1,3-Butadiene (CH(2)=CH-CH=CH(2)).

(b) Synonyms: 1,3-Butadiene (BD); butadiene; biethylene; bi-vinyl; divinyl; butadiene-1,3; buta-1,3-diene; erythrene; NCI-C50602; CAS-106-99-0.

(c) BD can be found as a gas or liquid.

(d) BD is used in production of styrene-butadiene rubber and polybutadiene rubber for the tire industry. Other uses include copolymer latexes for carpet backing and paper coating, as well as resins and polymers for pipes and automobile and appliance parts. It is also used as an intermediate in the production of such chemicals as fungicides.

(e) Appearance and odor: BD is a colorless, noncorrosive, flammable gas with a mild aromatic odor at standard ambient temperature and pressure.

(f) Permissible exposure: Exposure may not exceed 1 part BD per million parts of air averaged over the 8-hour workday, nor may short-term exposure exceed 5 parts of BD per million parts of air averaged over any 15-minute period in the 8-hour workday.

(2) Health Hazard Data.

(a) BD can affect the body if the gas is inhaled or if the liquid form, which is very cold (cryogenic), comes in contact with the eyes or skin.

(b) Effects of overexposure: Breathing very high levels of BD for a short time can cause central nervous system effects, blurred vision, nausea, fatigue, headache, decreased blood pressure and pulse rate, and unconsciousness. There are no recorded cases of accidental exposures at high levels that have caused death in humans, but this could occur. Breathing lower levels of BD may cause irritation of the eyes, nose, and throat. Skin contact with liquefied BD can cause irritation and frostbite.

(c) Long-term (chronic) exposure: BD has been found to be a potent carcinogen in rodents, inducing neoplastic lesions at multiple target sites in mice and rats. A recent study of BD-exposed workers showed that exposed workers have an increased risk of developing leukemia. The risk of leukemia increases with increased exposure to BD. OSHA has concluded that there is strong evidence that workplace exposure to BD poses an increased risk of death from cancers of the lymphohematopoietic system.

(d) Reporting signs and symptoms: You should inform your supervisor if you develop any of these signs or symptoms and suspect that they are caused by exposure to BD.

(3) Emergency First-Aid Procedures.

In the event of an emergency, follow the emergency plan and procedures designated for your work area. If you have been trained in first-aid procedures, provide the necessary first aid measures. If necessary, call for additional assistance from co-workers and emergency medical personnel.

(a) Eye and Skin Exposures: If there is a potential that liquefied BD can come in contact with eye or skin, face shields and skin protective equipment must be provided and used. If liquefied BD comes in contact with the eye, immediately flush the eyes with large amounts of water, occasionally lifting the lower and the upper lids. Flush repeatedly. Get medical attention immediately. Contact lenses should not be worn when working with this chemical. In the event of skin contact, which can cause frostbite, remove any contaminated clothing and flush the affected area repeatedly with large amounts of tepid water.

(b) Breathing: If a person breathes in large amounts of BD, move the exposed person to fresh air at once. If breathing has stopped, begin cardiopulmonary resuscitation (CPR) if you have been trained in this procedure. Keep the affected person warm and at rest. Get medical attention immediately.

(c) Rescue: Move the affected person from the hazardous exposure. If the exposed person has been overcome, call for help and begin emergency rescue procedures. Use extreme caution so that you do not become a casualty. Understand the plant's emergency rescue procedures and know the locations of rescue equipment before the need arises.

(4) Respirators and Protective Clothing.

(a) Respirators: Good industrial hygiene practices recommend that engineering and work practice controls be used to reduce environmental concentrations to the permissible exposure level. However, there are some exceptions where respirators may be used to control exposure. Respirators may be used when engineering and work practice controls are not technically feasible, when such controls are in the process of being installed, or when these controls fail and need to be supplemented or during brief, nonroutine, intermittent exposure. Respirators may also be used in situations involving nonroutine work operations which are performed infrequently and in which exposures are limited in duration, and in emergency situations. In some instances cartridge respirator use is allowed, but only with strict time constraints. For example, at exposure below 5 ppm BD, a cartridge (or canister) respirator, either full or half face, may be used, but the cartridge must be replaced at least every 4 hours, and it must be replaced every 3 hours when the exposure is between 5 and 10 ppm.

If the use of respirators is necessary, the only respirators permitted are those that have been approved by the National Institute for Occupational Safety and Health (NIOSH). In addition to respirator selection, a complete respiratory protection program must be instituted which includes regular training, maintenance, fit testing, inspection, cleaning, and evaluation of respirators. If you can smell BD while wearing a respirator, proceed immediately to fresh air, and change cartridge (or canister) before reentering an area where there is BD exposure. If you experience difficulty in breathing while wearing a respirator, tell your supervisor.

(b) Protective Clothing: Employees should be provided with and required to use impervious clothing, gloves, face shields (eight-inch minimum), and other appropriate protective clothing necessary to prevent the skin from becoming frozen by contact with liquefied BD (or a vessel containing liquid BD).

Employees should be provided with and required to use splash-proof safety goggles where liquefied BD may contact the eyes.

(5) Precautions for Safe Use, Handling, and Storage.

(a) Fire and Explosion Hazards: BD is a flammable gas and can easily form explosive mixtures in air. It has a lower explosive limit of 2%, and an upper explosive limit of 11.5%. It has an autoignition temperature of 420 deg. C (788 deg. F). Its vapor is heavier than air (vapor density, 1.9) and may travel a considerable distance to a source of ignition and flash back. Usually it contains inhibitors to prevent self-polymerization (which is accompanied by evolution of heat) and to prevent formation of explosive peroxides. At elevated temperatures, such as in fire conditions, polymerization may take place. If the polymerization takes place in a container, there is a possibility of violent rupture of the container.

(b) Hazard: Slightly toxic. Slight respiratory irritant. Direct contact of liquefied BD on skin may cause freeze burns and frostbite.

(c) Storage: Protect against physical damage to BD containers. Outside or detached storage of BD containers is pre-

ferred. Inside storage should be in a cool, dry, well-ventilated, noncombustible location, away from all possible sources of ignition. Store cylinders vertically and do not stack. Do not store with oxidizing material.

(d) Usual Shipping Containers: Liquefied BD is contained in steel pressure apparatus.

(e) Electrical Equipment: Electrical installations in Class I hazardous locations, as defined in Article 500 of the National Electrical Code, should be in accordance with Article 501 of the Code. If explosion-proof electrical equipment is necessary, it shall be suitable for use in Group B. Group D equipment may be used if such equipment is isolated in accordance with Section 501-5(a) by sealing all conduit 1/2-inch size or larger. See Venting of Deflagrations (NFPA No. 68, 1994), National Electrical Code (NFPA No. 70, 1996), Static Electricity (NFPA No. 77, 1993), Lightning Protection Systems (NFPA No. 780, 1995), and Fire Hazard Properties of Flammable Liquids, Gases and Volatile Solids (NFPA No. 325, 1994).

(f) Fire Fighting: Stop flow of gas. Use water to keep fire-exposed containers cool. Fire extinguishers and quick drenching facilities must be readily available, and you should know where they are and how to operate them.

(g) Spill and Leak: Persons not wearing protective equipment and clothing should be restricted from areas of spills or leaks until clean-up has been completed. If BD is spilled or leaked, the following steps should be taken:

(i) Eliminate all ignition sources.

(ii) Ventilate area of spill or leak.

(iii) If in liquid form, for small quantities, allow to evaporate in a safe manner.

(iv) Stop or control the leak if this can be done without risk. If source of leak is a cylinder and the leak cannot be stopped in place, remove the leaking cylinder to a safe place and repair the leak or allow the cylinder to empty.

(h) Disposal: This substance, when discarded or disposed of, is a hazardous waste according to Federal regulations (40 C.F.R. part 261). It is listed as hazardous waste number D001 due to its ignitability. The transportation, storage, treatment, and disposal of this waste material must be conducted in compliance with 40 C.F.R. parts 262, 263, 264, 268 and 270. Disposal can occur only in properly permitted facilities. Check state and local regulation of any additional requirements as these may be more restrictive than federal laws and regulation.

(i) You should not keep food, beverages, or smoking materials in areas where there is BD exposure, nor should you eat or drink in such areas.

(j) Ask your supervisor where BD is used in your work area and ask for any additional plant safety and health rules.

(6) Medical Requirements.

Your employer is required to offer you the opportunity to participate in a medical screening and surveillance program if you are exposed to BD at concentrations exceeding the action level (0.5 ppm BD as an 8-hour TWA) on 30 days or more a year, or at or above the 8-hr TWA (1 ppm) or STEL (5 ppm for 15 minutes) on 10 days or more a year. Exposure for any part of a day counts. If you have had exposure to BD in the past, but have been transferred to another job, you may still be eligible to participate in the medical screening and surveillance program.

The WISHA rule specifies the past exposures that would qualify you for participation in the program. These past exposure are work histories that suggest the following:

(a) That you have been exposed at or above the PELs on 30 days a year for 10 or more years;

(b) That you have been exposed at or above the action level on 60 days a year for 10 or more years; or

(c) That you have been exposed above 10 ppm on 30 days in any past year.

Additionally, if you are exposed to BD in an emergency situation, you are eligible for a medical examination within 48 hours. The basic medical screening program includes a health questionnaire, physical examination, and blood test. These medical evaluations must be offered to you at a reasonable time and place, and without cost or loss of pay.

(7) Observation of Monitoring.

Your employer is required to perform measurements that are representative of your exposure to BD and you or your designated representative are entitled to observe the monitoring procedure. You are entitled to observe the steps taken in the measurement procedure, and to record the results obtained. When the monitoring procedure is taking place in an area where respirators or personal protective clothing and equipment are required to be worn, you or your representative must also be provided with, and must wear, the protective clothing and equipment.

(8) Access to Information.

(a) Each year, your employer is required to inform you of the information contained in this appendix. In addition, your employer must instruct you in the proper work practices for using BD, emergency procedures, and the correct use of protective equipment.

(b) Your employer is required to determine whether you are being exposed to BD. You or your representative has the right to observe employee measurements and to record the results obtained. Your employer is required to inform you of your exposure. If your employer determines that you are being overexposed, he or she is required to inform you of the actions which are being taken to reduce your exposure to within permissible exposure limits and of the schedule to implement these actions.

(c) Your employer is required to keep records of your exposures and medical examinations. These records must be kept by the employer for at least thirty years.

(d) Your employer is required to release your exposure and medical records to you or your representative upon your request.

Appendix B. Substance Technical Guidelines for 1,3-Butadiene (Non-Mandatory)

(1) Physical and Chemical Data.

(a) Substance identification:

(i) Synonyms: 1,3-Butadiene (BD); butadiene; biethylene; bivinyl; divinyl; butadiene-1,3; buta-1,3-diene; erythrene; NCI-C50620; CAS-106-99-0.

(ii) Formula: (CH(2)=CH-CH=CH(2)).

(iii) Molecular weight: 54.1.

(b) Physical data:

(i) Boiling point (760 mm Hg): -4.7 deg. C (23.5 deg. F).

(ii) Specific gravity (water = 1):0.62 at 20 deg. C (68 deg. F).

(iii) Vapor density (air = 1 at boiling point of BD): 1.87.

(iv) Vapor pressure at 20 deg. C (68 deg. F): 910 mm Hg.

(v) Solubility in water, g/100 g water at 20 deg. C (68 deg. F): 0.05.

(vi) Appearance and odor: Colorless, flammable gas with a mildly aromatic odor. Liquefied BD is a colorless liquid with a mildly aromatic odor.

(2) Fire, Explosion, and Reactivity Hazard Data.

(a) Fire:

(i) Flash point: -76 deg. C (-105 deg. F) for take out; liquefied BD; Not applicable to BD gas.

(ii) Stability: A stabilizer is added to the monomer to inhibit formation of polymer during storage. Forms explosive peroxides in air in absence of inhibitor.

(iii) Flammable limits in air, percent by volume: Lower: 2.0; Upper: 11.5.

(iv) Extinguishing media: Carbon dioxide for small fires, polymer or alcohol foams for large fires.

(v) Special fire fighting procedures: Fight fire from protected location or maximum possible distance. Stop flow of gas before extinguishing fire. Use water spray to keep fire-exposed cylinders cool.

(vi) Unusual fire and explosion hazards: BD vapors are heavier than air and may travel to a source of ignition and flash back. Closed containers may rupture violently when heated.

(vii) For purposes of compliance with the requirements of WAC 296-24-330, BD is classified as a flammable gas. For example, 7,500 ppm, approximately one-fourth of the lower flammable limit, would be considered to pose a potential fire and explosion hazard.

(viii) For purposes of compliance with WAC 296-24-585, BD is classified as a Class B fire hazard.

(ix) For purposes of compliance with WAC 296-24-956 and 296-800-280, locations classified as hazardous due to the presence of BD shall be Class I.

(b) Reactivity:

(i) Conditions contributing to instability: Heat. Peroxides are formed when inhibitor concentration is not maintained at proper level. At elevated temperatures, such as in fire conditions, polymerization may take place.

(ii) Incompatibilities: Contact with strong oxidizing agents may cause fires and explosions. The contacting of crude BD (not BD monomer) with copper and copper alloys may cause formations of explosive copper compounds.

(iii) Hazardous decomposition products: Toxic gases (such as carbon monoxide) may be released in a fire involving BD.

(iv) Special precautions: BD will attack some forms of plastics, rubber, and coatings. BD in storage should be checked for proper inhibitor content, for self-polymerization, and for formation of peroxides when in contact with air and iron. Piping carrying BD may become plugged by formation of rubbery polymer.

(c) Warning Properties:

(i) Odor Threshold: An odor threshold of 0.45 ppm has been reported in The American Industrial Hygiene Association (AIHA) Report, Odor Thresholds for Chemicals with Established Occupational Health Standards. (Ex. 32-28C).

(ii) Eye Irritation Level: Workers exposed to vapors of BD (concentration or purity unspecified) have complained of irritation of eyes, nasal passages, throat, and lungs. Dogs and rabbits exposed experimentally to as much as 6700 ppm for 7 1/2 hours a day for 8 months have developed no histologically demonstrable abnormality of the eyes.

(iii) Evaluation of Warning Properties: Since the mean odor threshold is about half of the 1 ppm PEL, and more than 10-fold below the 5 ppm STEL, most wearers of air purifying respirators should still be able to detect breakthrough before a significant overexposure to BD occurs.

(3) Spill, Leak, and Disposal Procedures.

(a) Persons not wearing protective equipment and clothing should be restricted from areas of spills or leaks until cleanup has been completed. If BD is spilled or leaked, the following steps should be taken:

(i) Eliminate all ignition sources.

(ii) Ventilate areas of spill or leak.

(iii) If in liquid form, for small quantities, allow to evaporate in a safe manner.

(iv) Stop or control the leak if this can be done without risk. If source of leak is a cylinder and the leak cannot be stopped in place, remove the leaking cylinder to a safe place and repair the leak or allow the cylinder to empty.

(b) Disposal: This substance, when discarded or disposed of, is a hazardous waste according to Federal regulations (40 C.F.R. part 261). It is listed by the EPA as hazardous waste number D001 due to its ignitability. The transportation, storage, treatment, and disposal of this waste material must be conducted in compliance with 40 C.F.R. parts 262, 263, 264, 268 and 270. Disposal can occur only in properly permitted facilities. Check state and local regulations for any additional requirements because these may be more restrictive than federal laws and regulations.

(4) Monitoring and Measurement Procedures.

(a) Exposure above the Permissible Exposure Limit (8-hr TWA) or Short-Term Exposure Limit (STEL):

(i) 8-hr TWA exposure evaluation: Measurements taken for the purpose of determining employee exposure under this standard are best taken with consecutive samples covering the full shift. Air samples must be taken in the employee's breathing zone (air that would most nearly represent that inhaled by the employee).

(ii) STEL exposure evaluation: Measurements must represent 15 minute exposures associated with operations most likely to exceed the STEL in each job and on each shift.

(iii) Monitoring frequencies: Table 1 gives various exposure scenarios and their required monitoring frequencies, as required by the final standard for occupational exposure to butadiene.

Table 1. — Five Exposure Scenarios and Their Associated Monitoring Frequencies

Action Level	8-hr TWA	STEL	Required Monitoring Activity
—*	—	—	No 8-hour TWA or STEL monitoring required.

Action Level	8-hr TWA	STEL	Required Monitoring Activity
+*	—	—	No STEL monitoring required. Monitor 8-hr TWA annually.
+	—	—	No STEL monitoring required. Periodic monitoring 8-hour TWA, in accordance with (4)(c)(iii).**
+	+	+	Periodic monitoring 8-hour TWA, in accordance with (4)(c)(iii)**. Periodic monitoring STEL in accordance with (4)(c)(iii).
+	—	+	Periodic monitoring STEL, in accordance with (4)(c)(iii). Monitor 8-hour TWA annually.

Footnote (*) Exposure Scenario, Limit Exceeded: + = Yes, - = No.

Footnote (**) The employer may decrease the frequency of exposure monitoring to annually when at least 2 consecutive measurements taken at least 7 days apart show exposures to be below the 8-hour TWA, but at or above the action level.

(iv) Monitoring techniques: Appendix D describes the validated method of sampling and analysis which has been tested by OSHA for use with BD. The employer has the obligation of selecting a monitoring method which meets the accuracy and precision requirements of the standard under his or her unique field conditions. The standard requires that the method of monitoring must be accurate, to a 95 percent confidence level, to plus or minus 25 percent for concentrations of BD at or above 1 ppm, and to plus or minus 35 percent for concentrations below 1 ppm.

(5) Personal Protective Equipment.

(a) Employees should be provided with and required to use impervious clothing, gloves, face shields (eight-inch minimum), and other appropriate protective clothing necessary to prevent the skin from becoming frozen from contact with liquid BD.

(b) Any clothing which becomes wet with liquid BD should be removed immediately and not reworn until the butadiene has evaporated.

(c) Employees should be provided with and required to use splash proof safety goggles where liquid BD may contact the eyes.

(6) Housekeeping and Hygiene Facilities.

For purposes of complying with WAC 296-800-220 and 296-800-230, the following items should be emphasized:

(a) The workplace should be kept clean, orderly, and in a sanitary condition.

(b) Adequate washing facilities with hot and cold water are to be provided and maintained in a sanitary condition.

(7) Additional Precautions.

(a) Store BD in tightly closed containers in a cool, well-ventilated area and take all necessary precautions to avoid any explosion hazard.

(b) Nonsparking tools must be used to open and close metal containers. These containers must be effectively grounded.

(c) Do not incinerate BD cartridges, tanks or other containers.

(d) Employers must advise employees of all areas and operations where exposure to BD might occur.

Appendix C. Medical Screening and Surveillance for 1,3-Butadiene (Nonmandatory)

(1) Basis for Medical Screening and Surveillance Requirements.

(a) Route of Entry Inhalation.

(b) Toxicology.

Inhalation of BD has been linked to an increased risk of cancer, damage to the reproductive organs, and fetotoxicity. Butadiene can be converted via oxidation to epoxybutene and diepoxybutane, two genotoxic metabolites that may play a role in the expression of BD's toxic effects. BD has been tested for carcinogenicity in mice and rats. Both species responded to BD exposure by developing cancer at multiple primary organ sites. Early deaths in mice were caused by malignant lymphomas, primarily lymphocytic type, originating in the thymus.

Mice exposed to BD have developed ovarian or testicular atrophy. Sperm head morphology tests also revealed abnormal sperm in mice exposed to BD; lethal mutations were found in a dominant lethal test. In light of these results in animals, the possibility that BD may adversely affect the reproductive systems of male and female workers must be considered.

Additionally, anemia has been observed in animals exposed to butadiene. In some cases, this anemia appeared to be a primary response to exposure; in other cases, it may have been secondary to a neoplastic response.

(c) Epidemiology.

Epidemiologic evidence demonstrates that BD exposure poses an increased risk of leukemia. Mild alterations of hematologic parameters have also been observed in synthetic rubber workers exposed to BD.

(2) Potential Adverse Health Effects.

(a) Acute.

Skin contact with liquid BD causes characteristic burns or frostbite. BD in gaseous form can irritate the eyes, nasal passages, throat, and lungs. Blurred vision, coughing, and drowsiness may also occur. Effects are mild at 2,000 ppm and pronounced at 8,000 ppm for exposures occurring over the full workshift.

At very high concentrations in air, BD is an anesthetic, causing narcosis, respiratory paralysis, unconsciousness, and death. Such concentrations are unlikely, however, except in an extreme emergency because BD poses an explosion hazard at these levels.

(b) Chronic.

The principal adverse health effects of concern are BD-induced lymphoma, leukemia and potential reproductive toxicity. Anemia and other changes in the peripheral blood cells may be indicators of excessive exposure to BD.

(c) Reproductive.

Workers may be concerned about the possibility that their BD exposure may be affecting their ability to procreate

a healthy child. For workers with high exposures to BD, especially those who have experienced difficulties in conceiving, miscarriages, or stillbirths, appropriate medical and laboratory evaluation of fertility may be necessary to determine if BD is having any adverse effect on the reproductive system or on the health of the fetus.

(3) Medical Screening Components At-A-Glance.

(a) Health Questionnaire.

The most important goal of the health questionnaire is to elicit information from the worker regarding potential signs or symptoms generally related to leukemia or other blood abnormalities. Therefore, physicians or other licensed health care professionals should be aware of the presenting symptoms and signs of lymphohematopoietic disorders and cancers, as well as the procedures necessary to confirm or exclude such diagnoses. Additionally, the health questionnaire will assist with the identification of workers at greatest risk of developing leukemia or adverse reproductive effects from their exposures to BD.

Workers with a history of reproductive difficulties or a personal or family history of immune deficiency syndromes, blood dyscrasias, lymphoma, or leukemia, and those who are or have been exposed to medicinal drugs or chemicals known to affect the hematopoietic or lymphatic systems may be at higher risk from their exposure to BD. After the initial administration, the health questionnaire must be updated annually.

(b) Complete Blood Count (CBC).

The medical screening and surveillance program requires an annual CBC, with differential and platelet count, to be provided for each employee with BD exposure. This test is to be performed on a blood sample obtained by phlebotomy of the venous system or, if technically feasible, from a fingerstick sample of capillary blood. The sample is to be analyzed by an accredited laboratory.

Abnormalities in a CBC may be due to a number of different etiologies. The concern for workers exposed to BD includes, but is not limited to, timely identification of lymphohematopoietic cancers, such as leukemia and non-Hodgkin's lymphoma. Abnormalities of portions of the CBC are identified by comparing an individual's results to those of an established range of normal values for males and females. A substantial change in any individual employee's CBC may also be viewed as "abnormal" for that individual even if all measurements fall within the population-based range of normal values. It is suggested that a flowsheet for laboratory values be included in each employee's medical record so that comparisons and trends in annual CBCs can be easily made.

A determination of the clinical significance of an abnormal CBC shall be the responsibility of the examining physician, other licensed health care professional, or medical specialist to whom the employee is referred. Ideally, an abnormal CBC should be compared to previous CBC measurements for the same employee, when available. Clinical common sense may dictate that a CBC value that is very slightly outside the normal range does not warrant medical concern. A CBC abnormality may also be the result of a temporary physical stressor, such as a transient viral illness, blood donation, or menorrhagia, or laboratory error. In these cases, the CBC should be repeated in a timely fashion, i.e., within 6 weeks, to verify that return to the normal range has occurred. A clinically significant abnormal CBC should result in removal of the employee from further exposure to BD. Transfer of the employee to other work duties in a BD-free environment would be the preferred recommendation.

(c) Physical Examination.

The medical screening and surveillance program requires an initial physical examination for workers exposed to BD; this examination is repeated once every three years. The initial physical examination should assess each worker's baseline general health and rule out clinical signs of medical conditions that may be caused by or aggravated by occupational BD exposure. The physical examination should be directed at identification of signs of lymphohematopoietic disorders, including lymph node enlargement, splenomegaly, and hepatomegaly.

Repeated physical examinations should update objective clinical findings that could be indicative of interim development of a lymphohematopoietic disorder, such as lymphoma, leukemia, or other blood abnormality. Physical examinations may also be provided on an as needed basis in order to follow up on a positive answer on the health questionnaire, or in response to an abnormal CBC. Physical examination of workers who will no longer be working in jobs with BD exposure are intended to rule out lymphohematopoietic disorders.

The need for physical examinations for workers concerned about adverse reproductive effects from their exposure to BD should be identified by the physician or other licensed health care professional and provided accordingly. For these workers, such consultations and examinations may relate to developmental toxicity and reproductive capacity.

Physical examination of workers acutely exposed to significant levels of BD should be especially directed at the respiratory system, eyes, sinuses, skin, nervous system, and any region associated with particular complaints. If the worker has received a severe acute exposure, hospitalization may be required to assure proper medical management. Since this type of exposure may place workers at greater risk of blood abnormalities, a CBC must be obtained within 48 hours and repeated at one, two, and three months.

Appendix D: Sampling and Analytical Method for 1,3-Butadiene (Nonmandatory)

OSHA Method No.: 56.

Matrix: Air.

Target concentration: 1 ppm (2.21 mg/m(3)).

Procedure: Air samples are collected by drawing known volumes of air through sampling tubes containing charcoal adsorbent which has been coated with 4-tert-butylcatechol. The samples are desorbed with carbon disulfide and then analyzed by gas chromatography using a flame ionization detector.

Recommended sampling rate and air volume: 0.05 L/min and 3 L.

Detection limit of the overall procedure: 90 ppb (200 ug/m(3)) (based on 3 L air volume).

Reliable quantitation limit: 155 ppb (343 ug/m(3)) (based on 3 L air volume).

Standard error of estimate at the target concentration: 6.5%.

Special requirements: The sampling tubes must be coated with 4-tert-butylcatechol. Collected samples should be stored in a freezer.

Status of method: A sampling and analytical method has been subjected to the established evaluation procedures of the Organic Methods Evaluation Branch, OSHA Analytical Laboratory, Salt Lake City, Utah 84165.

(1) Background.

This work was undertaken to develop a sampling and analytical procedure for BD at 1 ppm. The current method recommended by OSHA for collecting BD uses activated coconut shell charcoal as the sampling medium (Ref. 5.2). This method was found to be inadequate for use at low BD levels because of sample instability.

The stability of samples has been significantly improved through the use of a specially cleaned charcoal which is coated with 4-tert-butylcatechol (TBC). TBC is a polymerization inhibitor for BD (Ref. 5.3).

(a) Toxic effects.

Symptoms of human exposure to BD include irritation of the eyes, nose and throat. It can also cause coughing, drowsiness and fatigue. Dermatitis and frostbite can result from skin exposure to liquid BD. (Ref. 5.1)

NIOSH recommends that BD be handled in the workplace as a potential occupational carcinogen. This recommendation is based on two inhalation studies that resulted in cancers at multiple sites in rats and in mice. BD has also demonstrated mutagenic activity in the presence of a liver microsomal activating system. It has also been reported to have adverse reproductive effects. (Ref. 5.1)

(b) Potential workplace exposure.

About 90% of the annual production of BD is used to manufacture styrene-butadiene rubber and Polybutadiene rubber. Other uses include: Polychloroprene rubber, acrylonitrile butadiene-styrene resins, nylon intermediates, styrene-butadiene latexes, butadiene polymers, thermoplastic elastomers, nitrile resins, methyl methacrylate-butadiene styrene resins and chemical intermediates. (Ref. 5.1)

(c) Physical properties (Ref. 5.1).

CAS No.: 106-99-0

Molecular weight: 54.1

Appearance: Colorless gas

Boiling point: -4.41 deg. C (760 mm Hg)

Freezing point: -108.9 deg. C

Vapor pressure: 2 atm (a) 15.3 deg. C; 5 atm (a) 47 deg. C

Explosive limits: 2 to 11.5% (by volume in air)

Odor threshold: 0.45 ppm

Structural formula: H(2)C:CHCH:CH(2)

Synonyms: BD; biethylene; bivinyl; butadiene; divinyl; buta-1,3-diene; alpha-gamma-butadiene; erythrene; NCI-C50602; pyrrolylene; vinylethylene.

(d) Limit defining parameters.

The analyte air concentrations listed throughout this method are based on an air volume of 3 L and a desorption volume of 1 mL. Air concentrations listed in ppm are referenced to 25 deg. C and 760 mm Hg.

(e) Detection limit of the analytical procedure.

The detection limit of the analytical procedure was 304 pg per injection. This was the amount of BD which gave a response relative to the interferences present in a standard.

(f) Detection limit of the overall procedure.

The detection limit of the overall procedure was 0.60 ug per sample (90 ppb or 200 ug/m(3)). This amount was determined graphically. It was the amount of analyte which, when spiked on the sampling device, would allow recovery approximately equal to the detection limit of the analytical procedure.

(g) Reliable quantitation limit.

The reliable quantitation limit was 1.03 ug per sample (155 ppb or 343 ug/m(3)). This was the smallest amount of analyte which could be quantitated within the limits of a recovery of at least 75% and a precision (+/- 1.96 SD) of +/- 25% or better.

(h) Sensitivity.(1)

Footnote (1) The reliable quantitation limit and detection limits reported in the method are based upon optimization of the instrument for the smallest possible amount of analyte. When the target concentration of an analyte is exceptionally higher than these limits, they may not be attainable at the routine operation parameters.

The sensitivity of the analytical procedure over a concentration range representing 0.6 to 2 times the target concentration, based on the recommended air volume, was 387 area units per ug/mL. This value was determined from the slope of the calibration curve. The sensitivity may vary with the particular instrument used in the analysis.

(i) Recovery.

The recovery of BD from samples used in storage tests remained above 77% when the samples were stored at ambient temperature and above 94% when the samples were stored at refrigerated temperature. These values were determined from regression lines which were calculated from the storage data. The recovery of the analyte from the collection device must be at least 75% following storage.

(j) Precision (analytical method only).

The pooled coefficient of variation obtained from replicate determinations of analytical standards over the range of 0.6 to 2 times the target concentration was 0.011.

(k) Precision (overall procedure).

The precision at the 95% confidence level for the refrigerated temperature storage test was +/- 12.7%. This value includes an additional +/- 5% for sampling error. The overall procedure must provide results at the target concentrations that are +/- 25% at the 95% confidence level.

(l) Reproducibility.

Samples collected from a controlled test atmosphere and a draft copy of this procedure were given to a chemist unassociated with this evaluation. The average recovery was 97.2% and the standard deviation was 6.2%.

(2) Sampling procedure.

(a) Apparatus. Samples are collected by use of a personal sampling pump that can be calibrated to within +/- 5% of the recommended 0.05 L/min sampling rate with the sampling tube in line.

(b) Samples are collected with laboratory prepared sampling tubes. The sampling tube is constructed of silane-treated glass and is about 5-cm long. The ID is 4 mm and the

OD is 6 mm. One end of the tube is tapered so that a glass wool end plug will hold the contents of the tube in place during sampling. The opening in the tapered end of the sampling tube is at least one-half the ID of the tube (2 mm). The other end of the sampling tube is open to its full 4-mm ID to facilitate packing of the tube. Both ends of the tube are fire-polished for safety. The tube is packed with 2 sections of pretreated charcoal which has been coated with TBC. The tube is packed with a 50-mg backup section, located nearest the tapered end, and with a 100-mg sampling section of charcoal. The two sections of coated adsorbent are separated and retained with small plugs of silanized glass wool. Following packing, the sampling tubes are sealed with two 7/32 inch OD plastic end caps. Instructions for the pretreatment and coating of the charcoal are presented in Section 4.1 of this method.

(c) Reagents.

None required.

(d) Technique.

(i) Properly label the sampling tube before sampling and then remove the plastic end caps.

(ii) Attach the sampling tube to the pump using a section of flexible plastic tubing such that the larger front section of the sampling tube is exposed directly to the atmosphere. Do not place any tubing ahead of the sampling tube. The sampling tube should be attached in the worker's breathing zone in a vertical manner such that it does not impede work performance.

(iii) After sampling for the appropriate time, remove the sampling tube from the pump and then seal the tube with plastic end caps. Wrap the tube lengthwise.

(iv) Include at least one blank for each sampling set. The blank should be handled in the same manner as the samples with the exception that air is not drawn through it.

(v) List any potential interferences on the sample data sheet.

(vi) The samples require no special shipping precautions under normal conditions. The samples should be refrigerated if they are to be exposed to higher than normal ambient temperatures. If the samples are to be stored before they are shipped to the laboratory, they should be kept in a freezer. The samples should be placed in a freezer upon receipt at the laboratory.

(e) Breakthrough.

(Breakthrough was defined as the relative amount of analyte found on the backup section of the tube in relation to the total amount of analyte collected on the sampling tube. Five-percent breakthrough occurred after sampling a test atmosphere containing 2.0 ppm BD for 90 min. at 0.05 L/min. At the end of this time 4.5 L of air had been sampled and 20.1 ug of the analyte was collected. The relative humidity of the sampled air was 80% at 23 deg. C.)

Breakthrough studies have shown that the recommended sampling procedure can be used at air concentrations higher than the target concentration. The sampling time, however, should be reduced to 45 min. if both the expected BD level and the relative humidity of the sampled air are high.

(f) Desorption efficiency.

The average desorption efficiency for BD from TBC coated charcoal over the range from 0.6 to 2 times the target concentration was 96.4%. The efficiency was essentially constant over the range studied.

(g) Recommended air volume and sampling rate.

(h) The recommended air volume is 3 L.

(i) The recommended sampling rate is 0.05 L/min. for 1 hour.

(j) Interferences.

There are no known interferences to the sampling method.

(k) Safety precautions.

(i) Attach the sampling equipment to the worker in such a manner that it will not interfere with work performance or safety.

(ii) Follow all safety practices that apply to the work area being sampled.

(3) Analytical procedure.

(a) Apparatus.

(i) A gas chromatograph (GC), equipped with a flame ionization detector (FID).(2)

Footnote (2) A Hewlett-Packard Model 5840A GC was used for this evaluation. Injections were performed using a Hewlett-Packard Model 7671A automatic sampler.

(ii) A GC column capable of resolving the analytes from any interference.(3)

Footnote (3) A 20-ft x 1/8-inch OD stainless steel GC column containing 20% FFAP on 80/100 mesh Chromabsorb W-AW-DMCS was used for this evaluation.

(iii) Vials, glass 2-mL with Teflon-lined caps.

(iv) Disposable Pasteur-type pipets, volumetric flasks, pipets and syringes for preparing samples and standards, making dilutions and performing injections.

(b) Reagents.

(i) Carbon disulfide.(4)

Footnote (4) Fisher Scientific Company A.C.S. Reagent Grade solvent was used in this evaluation.

The benzene contaminant that was present in the carbon disulfide was used as an internal standard (ISTD) in this evaluation.

(ii) Nitrogen, hydrogen and air, GC grade.

(iii) BD of known high purity.(5)

Footnote (5) Matheson Gas Products, CP Grade 1,3-butadiene was used in this study.

(c) Standard preparation.

(i) Prepare standards by diluting known volumes of BD gas with carbon disulfide. This can be accomplished by injecting the appropriate volume of BD into the headspace above the 1-mL of carbon disulfide contained in sealed 2-mL vial. Shake the vial after the needle is removed from the septum.(6)

Footnote (6) A standard containing 7.71 ug/mL (at ambient temperature and pressure) was prepared by diluting 4 uL of the gas with 1-mL of carbon disulfide.

(ii) The mass of BD gas used to prepare standards can be determined by use of the following equations:

MV = (760/BP)(273+t)/(273)(22.41)

Where:

MV = ambient molar volume

BP = ambient barometric pressure

T = ambient temperature
ug/uL = 54.09/MV
ug/standard = (ug/uL)(uL) BD used to prepare the standard

(d) Sample preparation.
(i) Transfer the 100-mg section of the sampling tube to a 2-mL vial. Place the 50-mg section in a separate vial. If the glass wool plugs contain a significant amount of charcoal, place them with the appropriate sampling tube section.
(ii) Add 1-mL of carbon disulfide to each vial.
(iii) Seal the vials with Teflon-lined caps and then allow them to desorb for one hour. Shake the vials by hand vigorously several times during the desorption period.
(iv) If it is not possible to analyze the samples within 4 hours, separate the carbon disulfide from the charcoal, using a disposable Pasteur-type pipet, following the one hour. This separation will improve the stability of desorbed samples.
(v) Save the used sampling tubes to be cleaned and repacked with fresh adsorbent.
(e) Analysis.
(i) GC Conditions.

Column temperature: 95 deg. C
Injector temperature: 180 deg. C
Detector temperature: 275 deg. C
Carrier gas flow rate: 30 mL/min.
Injection volume: 0.80 uL
GC column: 20-ft x 1/8-in OD stainless steel GC column containing 20%
FFAP on 80/100 Chromabsorb W-AW-DMCS.

(ii) Chromatogram. See Section 4.2.
(iii) Use a suitable method, such as electronic or peak heights, to measure detector response.
(iv) Prepare a calibration curve using several standard solutions of different concentrations. Prepare the calibration curve daily. Program the integrator to report the results in ug/mL.
(v) Bracket sample concentrations with standards.
(f) Interferences (analytical).
(i) Any compound with the same general retention time as the analyte and which also gives a detector response is a potential interference. Possible interferences should be reported by the industrial hygienist to the laboratory with submitted samples.
(ii) GC parameters (temperature, column, etc.) may be changed to circumvent interferences.
(iii) A useful means of structure designation is GC/MS. It is recommended that this procedure be used to confirm samples whenever possible.
(g) Calculations.
(i) Results are obtained by use of calibration curves. Calibration curves are prepared by plotting detector response against concentration for each standard. The best line through the data points is determined by curve fitting.
(ii) The concentration, in ug/mL, for a particular sample is determined by comparing its detector response to the calibration curve. If any analyte is found on the backup section, this amount is added to the amount found on the front section. Blank corrections should be performed before adding the results together.
(iii) The BD air concentration can be expressed using the following equation:

mg/m(3) = (A)(B)/(C)(D)
Where:
A = ug/mL from Section 3.7.2
B = volume
C = L of air sampled
D = efficiency

(iv) The following equation can be used to convert results in mg/m(3) to ppm:

ppm = (mg/m(3))(24.46)/54.09
Where:
mg/m(3) = result from Section 3.7.3.
24.46 = molar volume of an ideal gas at 760 mm Hg and 25 deg. C.

(h) Safety precautions (analytical).
(i) Avoid skin contact and inhalation of all chemicals.
(ii) Restrict the use of all chemicals to a fume hood whenever possible.
(iii) Wear safety glasses and a lab coat in all laboratory areas.
(4) Additional Information.
(a) A procedure to prepare specially cleaned charcoal coated with TBC.
(i) Apparatus.
(A) Magnetic stirrer and stir bar.
(B) Tube furnace capable of maintaining a temperature of 700 deg. C and equipped with a quartz tube that can hold 30 g of charcoal.(8)

Footnote (8) A Lindberg Type 55035 Tube furnace was used in this evaluation.

(C) A means to purge nitrogen gas through the charcoal inside the quartz tube.
(D) Water bath capable of maintaining a temperature of 60 deg. C.
(E) Miscellaneous laboratory equipment: One-liter vacuum flask, 1-L Erlenmeyer flask, 350-M1 Buchner funnel with a coarse fitted disc, 4-oz brown bottle, rubber stopper, Teflon tape etc.
(ii) Reagents.
(A) Phosphoric acid, 10% by weight, in water.(9)

Footnote (9) Baker Analyzed Reagent grade was diluted with water for use in this evaluation.

(B) 4-tert-Butylcatechol (TBC).(10)

Footnote (10) The Aldrich Chemical Company 99% grade was used in this evaluation.

(C) Specially cleaned coconut shell charcoal, 20/40 mesh.(11)

Footnote (11) Specially cleaned charcoal was obtained from Supelco, Inc. for use in this evaluation. The cleaning process used by Supelco is proprietary.

(D) Nitrogen gas, GC grade.
(iii) Procedure.
Weigh 30g of charcoal into a 500-mL Erlenmeyer flask. Add about 250 mL of 10% phosphoric acid to the flask and then swirl the mixture. Stir the mixture for 1 hour using a

magnetic stirrer. Filter the mixture using a fitted Buchner funnel. Wash the charcoal several times with 250-mL portions of deionized water to remove all traces of the acid. Transfer the washed charcoal to the tube furnace quartz tube. Place the quartz tube in the furnace and then connect the nitrogen gas purge to the tube. Fire the charcoal to 700 deg. C. Maintain that temperature for at least 1 hour. After the charcoal has cooled to room temperature, transfer it to a tared beaker. Determine the weight of the charcoal and then add an amount of TBC which is 10% of the charcoal, by weight.

CAUTION-TBC is toxic and should only be handled in a fume hood while wearing gloves.

Carefully mix the contents of the beaker and then transfer the mixture to a 4-oz bottle. Stopper the bottle with a clean rubber stopper which has been wrapped with Teflon tape. Clamp the bottle in a water bath so that the water level is above the charcoal level. Gently heat the bath to 60 deg. C and then maintain that temperature for 1 hour. Cool the charcoal to room temperature and then transfer the coated charcoal to a suitable container.

The coated charcoal is now ready to be packed into sampling tubes. The sampling tubes should be stored in a sealed container to prevent contamination. Sampling tubes should be stored in the dark at room temperature. The sampling tubes should be segregated by coated adsorbent lot number.

(b) Chromatograms.

The chromatograms were obtained using the recommended analytical method. The chart speed was set at 1 cm/min. for the first three min. and then at 0.2 cm/min. for the time remaining in the analysis.

The peak which elutes just before BD is a reaction product between an impurity on the charcoal and TBC. This peak is always present, but it is easily resolved from the analyte. The peak which elutes immediately before benzene is an oxidation product of TBC.

(5) References.

(a) "Current Intelligence Bulletin 41, 1,3-Butadiene," U.S. Dept. of Health and Human Services, Public Health Service, Center for Disease Control, NIOSH.

(b) "NIOSH Manual of Analytical Methods," 2nd ed.; U.S. Dept. of Health Education and Welfare, National Institute for Occupational Safety and Health: Cincinnati, OH. 1977, Vol. 2, Method No. S91 DHEW (NIOSH) Publ. (U.S.), No. 77-157-B.

(c) Hawley, G.C., Ed. "The Condensed Chemical Dictionary," 8th ed.; Van Nostrand Rienhold Company: New York, 1971; 139.5.4. Chem. Eng. News (June 10, 1985), (63), 22-66.

Appendix E: Reserved.

APPENDIX F, MEDICAL QUESTIONNAIRES, (Non-mandatory)

1,3-Butadiene (BD) Initial Health Questionnaire

DIRECTIONS:

You have been asked to answer the questions on this form because you work with BD (butadiene). These questions are about your work, medical history, and health concerns. Please do your best to answer all of the questions. If you need help, please tell the doctor or health care professional who reviews this form.

This form is a confidential medical record. Only information directly related to your health and safety on the job may be given to your employer. Personal health information will not be given to anyone without your consent.

Date: _____

Name: _____ SSN___/___/___

Last First MI

Job Title: _____

Company's Name: _____

Supervisor's Name: _____

Supervisor's Phone No.: ( ) ___-_____

Work History

1. Please list all jobs you have had in the past, starting with the job you have now and moving back in time to your first job. (For more space, write on the back of this page.)

Main Job Duty
Year
Company Name
City, State

Chemicals
1.
2.
3.
4.
5.
6.
7.
8.

2. Please describe what you do during a typical work day. Be sure to tell about your work with BD.

_____

_____

_____

3. Please check any of these chemicals that you work with now or have worked with in the past:

benzene _____
glues _____
toluene _____
inks, dyes _____
other solvents, grease cutters _____
insecticides (like DDT, lindane, etc.) _____
paints, varnishes, thinners, strippers _____
dusts _____
carbon tetrachloride ("carbon tet") _____
arsine _____

carbon disulfide _____
lead _____
cement _____
petroleum products _____
nitrites _____

4. Please check the protective clothing or equipment you use at the job you have now:

gloves _____
coveralls _____
respirator _____
dust mask _____
safety glasses, goggles _____

Please circle your answer.

5. Does your protective clothing or equipment fit you properly? yes no

6. Have you ever made changes in your protective clothing or equipment to make it fit better? yes no

7. Have you been exposed to BD when you were not wearing protective clothing or equipment? yes no

8. Where do you eat, drink and/or smoke when you are at work? (Please check all that apply.)

Cafeteria/restaurant/snack bar _____
Break room/employee lounge _____
Smoking lounge _____
At my work station _____

Please circle your answer.

9. Have you been exposed to radiation (like x-rays or nuclear material) at the job you have now or at past jobs? yes no

10. Do you have any hobbies that expose you to dusts or chemicals (including paints, glues, etc.)? yes no

11. Do you have any second or side jobs? yes no

If yes, what are your duties there? _____

_____

_____

12. Were you in the military? yes no

If yes, what did you do in the military? _____

_____

_____

_____

Family Health History

1. In the FAMILY MEMBER column, across from the disease name, write which family member, if any, had the disease.

DISEASE FAMILY MEMBER

Cancer
Lymphoma
Sickle Cell Disease or Trait
Immune Disease
Leukemia
Anemia

2. Please fill in the following information about family health

Relative
Alive?
Age at Death?
Cause of Death?
Father
Mother
Brother/Sister
Brother/Sister
Brother/Sister

Personal Health History

Birth Date __/__/__ Age __ Sex __ Height___ Weight ___

Please circle your answer.

1. Do you smoke any tobacco products? yes no

2. Have you ever had any kind of surgery or operation? yes no

If yes, what type of surgery:

_____

_____

_____

3. Have you ever been in the hospital for any other reasons? yes no

If yes, please describe the reason _____

_____

_____

_____

4. Do you have any on-going or current medical problems or conditions? yes no

If yes, please describe: _____

_____

_____

5. Do you now have or have you ever had any of the following? Please check all that apply to you.

unexplained fever _____
anemia ("low blood") _____
HIV/AIDS _____
weakness _____
sickle cell _____
miscarriage _____
skin rash _____

bloody stools _____
leukemia/lymphoma _____
neck mass/swelling _____
wheezing _____
yellowing of skin _____
bruising easily _____
lupus _____
weight loss _____
kidney problems _____
enlarged lymph nodes _____
liver disease _____
cancer _____
infertility _____
drinking problems _____
thyroid problems _____
night sweats _____
chest pain _____
still birth _____
eye redness _____
lumps you can feel _____
child with birth defect _____
autoimmune disease _____
overly tired _____
lung problems _____
rheumatoid arthritis _____
mononucleosis ("mono") _____
nagging cough _____

Please circle your answer.

6. Do you have any symptoms or health problems that you think may be related to your work with BD? yes no

If yes, please describe: _____

7. Have any of your co-workers had similar symptoms or problems? yes no don't know

If yes, please describe: _____

_____

8. Do you notice any irritation of your eyes, nose, throat, lungs, or skin when working with BD? yes no

9. Do you notice any blurred vision, coughing, drowsiness, nausea, or headache when working with BD? yes no

10. Do you take any medications (including birth control or over-the-counter)? yes no

If yes, please list: _____

_____

11. Are you allergic to any medication, food, or chemicals? yes no

If yes, please list: _____

_____

12. Do you have any health conditions not covered by this questionnaire that you think are affected by your work with BD? yes no

If yes, please explain: _____

_____

13. Did you understand all the questions? yes no

_____

Signature

1,3-Butadiene (BD) Health Update Questionnaire

DIRECTIONS:

You have been asked to answer the questions on this form because you work with BD (butadiene). These questions are about your work, medical history, and health concerns. Please do your best to answer all of the questions. If you need help, please tell the doctor or health care professional who reviews this form.

This form is a confidential medical record. Only information directly related to your health and safety on the job may be given to your employer. Personal health information will not be given to anyone without your consent.

Date: _____

Name: _____ SSN___/___/___
Last First MI

Job Title: _____

Company's Name: _____

Supervisor's Name: _____

Supervisor's Phone No.: ( ) ___-_____

1. Please describe any NEW duties that you have at your job. _____

_____

_____

_____

2. Please describe any additional job duties you have:

_____ _____
_____ _____
_____ _____
_____ _____

Please circle your answer.

3. Are you exposed to any other chemicals in your work since the last time you were evaluated for exposure to BD? yes no

If yes, please list what they are: _____

_____

4. Does your personal protective equipment and clothing fit you properly? yes no

5. Have you made changes in this equipment or clothing to make if fit better? yes no

6. Have you been exposed to BD when you were not wearing protective clothing or equipment? yes no

7. Are you exposed to any NEW chemicals at home or while working on hobbies? yes no

If yes, please list what they are: _____

_____

8. Since your last BD health evaluation, have you started working any new second or side jobs? yes no

If yes, what are your duties there? _____

_____

_____

Personal Health History

1. What is your current weight? ____ pounds

2. Have you been diagnosed with any new medical conditions or illness since your last evaluation? yes no

If yes, please tell what they are: _____

_____

3. Since your last evaluation, have you been in the hospital for any illnesses, injuries, or surgery? yes no

If yes, please describe: _____

_____

4. Do you have any of the following? Please place a check for all that apply to you.

unexplained fever _____
anemia ("low blood") _____
HIV/AIDS _____
weakness _____
sickle cell _____
miscarriage _____
skin rash _____
bloody stools _____
leukemia/lymphoma _____
neck mass/swelling _____
wheezing _____
yellowing of skin _____
bruising easily _____
lupus _____
weight loss _____
kidney problems _____
enlarged lymph nodes _____
liver disease _____
cancer _____
infertility _____
drinking problems _____
thyroid problems _____
night sweats _____
chest pain _____
still birth _____
eye redness _____
lumps you can feel _____
child with birth defect _____
autoimmune disease _____
overly tired _____
lung problems _____
rheumatoid arthritis _____
mononucleosis ("mono") _____
nagging cough _____

Please circle your answer.

5. Do you have any symptoms or health problems that you think may be related to your work with BD? yes no

If yes, please describe: _____

_____

6. Have any of your co-workers had similar symptoms or problems? yes no don't know

If yes, please describe: _____

_____

7. Do you notice any irritation of your eyes, nose, throat, lungs, or skin when working with BD? yes no

8. Do you notice any blurred vision, coughing, drowsiness, nausea, or headache when working with BD? yes no

9. Have you been taking any NEW medications (including birth control or over-the-counter)? yes no

If yes, please list:

_____ _____ _____

_____ _____ _____

_____ _____ _____

10. Have you developed any new allergies to medications, foods, or chemicals? yes no

If yes, please list:

_____ _____ _____

_____ _____ _____

_____ _____ _____

11. Do you have any health conditions not covered by this questionnaire that you think are affected by your work with BD? yes no

If yes, please describe: _____

_____

12. Do you understand all the questions? yes no

_____

Signature

AMENDATORY SECTION (Amending WSR 07-03-163, filed 1/24/07, effective 4/1/07)

WAC 296-62-07373 Communication of EtO hazards ((~~to employees~~)). (1) Hazard communication - General.

(a) Chemical manufacturers, importers, distributors and employers shall comply with all requirements of the Hazard Communication Standard (HCS), WAC 296-901-140 for EtO.

(b) In classifying the hazards of EtO at least the following hazards are to be addressed: Cancer; reproductive effects; mutagenicity; central nervous system; skin sensitization; skin, eye and respiratory tract irritation; acute toxicity effects; and flammability.

(c) Employers shall include EtO in the hazard communication program established to comply with the HCS, WAC 296-901-140. Employers shall ensure that each employee has access to labels on containers of EtO and to safety data sheets, and is trained in accordance with the requirements of HCS and WAC 296-855-20090.

(2) Signs and labels.

(a) Signs.

(i) The employer shall post and maintain legible signs demarcating regulated areas and entrances or accessways to regulated areas that bear the following legend:

DANGER
ETHYLENE OXIDE
MAY CAUSE CANCER
MAY DAMAGE FERTILITY OR THE UNBORN CHILD
RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING MAY BE
REQUIRED IN THIS AREA
AUTHORIZED PERSONNEL ONLY

(ii) Prior to June 1, 2016, employers may use the following legend in lieu of that specified in (a)(i) of this subsection:

DANGER
ETHYLENE OXIDE
CANCER HAZARD AND REPRODUCTIVE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING MAY BE REQUIRED TO BE WORN IN THIS AREA

(b) Labels.

(i) The employer shall ensure that ((~~precautionary~~)) labels are affixed to all containers of EtO whose contents are capable of causing employee exposure at or above the action level or whose contents may reasonably be foreseen to cause employee exposure above the excursion limit, and that the labels remain affixed when the containers of EtO leave the workplace. For the purpose of this subsection, reaction vessels, storage tanks, and pipes or piping systems are not considered to be containers. ((~~The labels shall comply with the requirements of chapter 296-839 WAC, Content and distribution of material safety data sheets (MSDSs) and label information, and WAC 296-800-170 of the safety and health core rules. Labels shall include the following legend:~~

~~(i)~~)) (ii) Prior to June 1, 2015, employers may include the following information on containers of EtO in lieu of the labeling requirements in subsection (1)(a) of this section:

(A)

DANGER
CONTAINS ETHYLENE OXIDE
CANCER HAZARD AND REPRODUCTIVE HAZARD; and

(((~~ii~~))) (B) A warning statement against breathing airborne concentrations of EtO.

(c) The labeling requirements under WAC 296-62-07355 through 296-62-07389 do not apply where EtO is used as a pesticide, as such term is defined in the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 136 et seq.), when it is labeled pursuant to that act and regulations issued under that act by the Environmental Protection Agency.

((~~(2) Material~~)) (d) The details of the hazard communication program developed by the employer, including an explanation of the labeling system and how employees can obtain and use the appropriate hazard information.

(3) Safety data sheets. Employers who are manufacturers or importers of EtO shall comply with the requirements regarding development of ((~~material~~)) safety data sheets as specified in WAC ((~~296-62-05413~~)) 296-901-14014 of the Hazard Communication Standard.

(((~~(3)~~))) (4) Information and training.

(a) The employer shall provide employees who are potentially exposed to EtO at or above the action level or above the excursion limit with information and training on EtO at the time of initial assignment and at least annually thereafter.

(b) Employees shall be informed of the following:

(i) The requirements of WAC 296-62-07353 through 296-62-07389 with an explanation of its contents, including Appendices A and B;

(ii) Any operations in their work area where EtO is present;

(iii) The location and availability of the written EtO final rule; and

(iv) The medical surveillance program required by WAC 296-62-07371 with an explanation of the information in Appendix C.

(c) Employee training shall include at least:

(i) Methods and observations that may be used to detect the presence or release of EtO in the work area (such as monitoring conducted by the employer, continuous monitoring devices, etc.);

(ii) The physical and health hazards of EtO;

(iii) The measures employees can take to protect themselves from hazards associated with EtO exposure, including specific procedures the employer has implemented to protect employees from exposure to EtO, such as work practices, emergency procedures, and personal protective equipment to be used; and

(iv) The details of the hazard communication program developed by the employer, including an explanation of the labeling system and how employees can obtain and use the appropriate hazard information.

AMENDATORY SECTION (Amending WSR 09-15-145, filed 7/21/09, effective 9/1/09)

WAC 296-62-07470 Methylene chloride. This occupational health standard establishes requirements for employers to control occupational exposure to methylene chloride (MC). Employees exposed to MC are at increased risk of developing cancer, adverse effects on the heart, central nervous system and liver, and skin or eye irritation. Exposure may occur through inhalation, by absorption through the skin, or through contact with the skin. MC is a solvent which is used in many different types of work activities, such as paint stripping, polyurethane foam manufacturing, and cleaning and degreasing. Under the requirements of subsection (4) of this section, each covered employer must make an initial determination of each employee's exposure to MC. If the employer determines that employees are exposed below the action level, the only other provisions of this section that apply are that a record must be made of the determination, the employees must receive information and training under subsection (12) of this section and, where appropriate, employees must be protected from contact with liquid MC under subsection (8) of this section.

The provisions of the MC standard are as follows:

(1) Scope and application. This section applies to all occupational exposures to methylene chloride (MC), Chemical Abstracts Service Registry Number 75-09-2, in general industry, construction and shipyard employment.

(2) Definitions. For the purposes of this section, the following definitions shall apply:

"Action level" means a concentration of airborne MC of 12.5 parts per million (ppm) calculated as an eight-hour time-weighted average (TWA).

"Authorized person" means any person specifically authorized by the employer and required by work duties to be present in regulated areas, or any person entering such an area as a designated representative of employees for the purpose of exercising the right to observe monitoring and measuring procedures under subsection (4) of this section, or any other person authorized by the WISH Act or regulations issued under the act.

"Director" means the director of the department of labor and industries, or designee.

"Emergency" means any occurrence, such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment, which results, or is likely to result in an uncontrolled release of MC. If an incidental release of MC can be controlled by employees such as maintenance personnel at the time of release and in accordance with the leak/spill provisions required by subsection (6) of this section, it is not considered an emergency as defined by this standard.

"Employee exposure" means exposure to airborne MC which occurs or would occur if the employee were not using respiratory protection.

"Methylene chloride (MC)" means an organic compound with chemical formula, CH2Cl2. Its Chemical Abstracts Service Registry Number is 75-09-2. Its molecular weight is 84.9 g/mole.

"Physician or other licensed health care professional" is an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all of the health care services required by subsection (10) of this section.

"Regulated area" means an area, demarcated by the employer, where an employee's exposure to airborne concentrations of MC exceeds or can reasonably be expected to exceed either the eight-hour TWA PEL or the STEL.

"Symptom" means central nervous system effects such as headaches, disorientation, dizziness, fatigue, and decreased attention span; skin effects such as chapping, erythema, cracked skin, or skin burns; and cardiac effects such as chest pain or shortness of breath.

"This section" means this methylene chloride standard.

(3) Permissible exposure limits (PELs).

(a) Eight-hour time-weighted average (TWA) PEL. The employer shall ensure that no employee is exposed to an airborne concentration of MC in excess of twenty-five parts of MC per million parts of air (25 ppm) as an eight-hour TWA.

(b) Short-term exposure limit (STEL). The employer shall ensure that no employee is exposed to an airborne concentration of MC in excess of one hundred and twenty-five parts of MC per million parts of air (125 ppm) as determined over a sampling period of fifteen minutes.

(4) Exposure monitoring.

(a) Characterization of employee exposure.

(i) Where MC is present in the workplace, the employer shall determine each employee's exposure by either:

(A) Taking a personal breathing zone air sample of each employee's exposure; or

(B) Taking personal breathing zone air samples that are representative of each employee's exposure.

(ii) Representative samples. The employer may consider personal breathing zone air samples to be representative of employee exposures when they are taken as follows:

(A) Eight-hour TWA PEL. The employer has taken one or more personal breathing zone air samples for at least one employee in each job classification in a work area during

every work shift, and the employee sampled is expected to have the highest MC exposure.

(B) Short-term exposure limits. The employer has taken one or more personal breathing zone air samples which indicate the highest likely fifteen-minute exposures during such operations for at least one employee in each job classification in the work area during every work shift, and the employee sampled is expected to have the highest MC exposure.

(C) Exception. Personal breathing zone air samples taken during one work shift may be used to represent employee exposures on other work shifts where the employer can document that the tasks performed and conditions in the workplace are similar across shifts.

(iii) Accuracy of monitoring. The employer shall ensure that the methods used to perform exposure monitoring produce results that are accurate to a confidence level of ninety-five percent, and are:

(A) Within plus or minus twenty-five percent for airborne concentrations of MC above the eight-hour TWA PEL or the STEL; or

(B) Within plus or minus thirty-five percent for airborne concentrations of MC at or above the action level but at or below the eight-hour TWA PEL.

(b) Initial determination. Each employer whose employees are exposed to MC shall perform initial exposure monitoring to determine each affected employee's exposure, except under the following conditions:

(i) Where objective data demonstrate that MC cannot be released in the workplace in airborne concentrations at or above the action level or above the STEL. The objective data shall represent the highest MC exposures likely to occur under reasonably foreseeable conditions of processing, use, or handling. The employer shall document the objective data exemption as specified in subsection (13) of this section;

(ii) Where the employer has performed exposure monitoring within 12 months prior to December 1, and that exposure monitoring meets all other requirements of this section, and was conducted under conditions substantially equivalent to existing conditions; or

(iii) Where employees are exposed to MC on fewer than thirty days per year (e.g., on a construction site), and the employer has measurements by direct reading instruments which give immediate results (such as a detector tube) and which provide sufficient information regarding employee exposures to determine what control measures are necessary to reduce exposures to acceptable levels.

(c) Periodic monitoring. Where the initial determination shows employee exposures at or above the action level or above the STEL, the employer shall establish an exposure monitoring program for periodic monitoring of employee exposure to MC in accordance with Table 1:

Table 1

Six Initial Determination Exposure Scenarios and Their Associated Monitoring Frequencies

Exposure scenario	Required monitoring activity
Below the action level and at or below the STEL.	No eight-hour TWA or STEL monitoring required.
Below the action level and above the STEL.	No eight-hour TWA monitoring required; monitor STEL exposures every three months.
At or above the action level, at or below the TWA, and at or below the STEL.	Monitor eight-hour TWA exposures every six months.
At or above the action level, at or below the TWA, and above the STEL.	Monitor eight-hour TWA exposures every six months and monitor STEL exposures every three months.
Above the TWA and at or below the STEL.	Monitor eight-hour TWA exposures every three months. In addition, without regard to the last sentence of the note to subsection (3) of this section, the following employers must monitor STEL exposures every three months until either the date by which they must achieve the eight-hour TWAs PEL under subsection (3) of this section or the date by which they in fact achieve the eight-hour TWA PEL, whichever comes first: • Employers engaged in polyurethane foam manufacturing; • Foam fabrication; • Furniture refinishing; • General aviation aircraft stripping; • Product formulation; • Use of MC-based adhesives for boat building and repair; • Recreational vehicle manufacture, van conversion, or upholstery; and use of MC in construction work for restoration and preservation of buildings, painting and paint removal, cabinet making, or floor refinishing and resurfacing.
Above the TWA and above the STEL.	Monitor both eight-hour TWA exposures and STEL exposures every three months.

(Note to subsection ((~~(3)~~)) (4)(c) of this section: The employer may decrease the frequency of exposure monitoring to every six months when at least two consecutive measurements taken at least seven days apart show exposures to

be at or below the eight-hour TWA PEL. The employer may discontinue the periodic eight-hour TWA monitoring for employees where at least two consecutive measurements taken at least seven days apart are below the action level. The employer may discontinue the periodic STEL monitoring for employees where at least two consecutive measurements taken at least seven days apart are at or below the STEL.)

(d) Additional monitoring.

(i) The employer shall perform exposure monitoring when a change in workplace conditions indicates that employee exposure may have increased. Examples of situations that may require additional monitoring include changes in production, process, control equipment, or work practices, or a leak, rupture, or other breakdown.

(ii) Where exposure monitoring is performed due to a spill, leak, rupture or equipment breakdown, the employer shall clean up the MC and perform the appropriate repairs before monitoring.

(e) Employee notification of monitoring results.

(i) The employer shall, within fifteen working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results in writing, either individually or by posting of results in an appropriate location that is accessible to affected employees.

(ii) Whenever monitoring results indicate that employee exposure is above the eight-hour TWA PEL or the STEL, the employer shall describe in the written notification the corrective action being taken to reduce employee exposure to or below the eight-hour TWA PEL or STEL and the schedule for completion of this action.

(f) Observation of monitoring.

(i) Employee observation. The employer shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to MC conducted in accordance with this section.

(ii) Observation procedures. When observation of the monitoring of employee exposure to MC requires entry into an area where the use of protective clothing or equipment is required, the employer shall provide, at no cost to the observer(s), and the observer(s) shall be required to use such clothing and equipment and shall comply with all other applicable safety and health procedures.

(5) Regulated areas.

(a) The employer shall establish a regulated area wherever an employee's exposure to airborne concentrations of MC exceeds or can reasonably be expected to exceed either the eight-hour TWA PEL or the STEL.

(b) The employer shall limit access to regulated areas to authorized persons.

(c) The employer shall supply a respirator, selected in accordance with subsection (7)(c) of this section, to each person who enters a regulated area and shall require each affected employee to use that respirator whenever MC exposures are likely to exceed the eight-hour TWA PEL or STEL.

(Note to subsection (5)(c) of this section: An employer who has implemented all feasible engineering, work practice and administrative controls (as required in subsection (6) of this section), and who has established a regulated area (as required by subsection (5)(a) of this section) where MC exposure can be reliably predicted to exceed the eight-hour TWA PEL or the STEL only on certain days (for example, because of work or process schedule) would need to have affected employees use respirators in that regulated area only on those days.)

(d) The employer shall ensure that, within a regulated area, employees do not engage in nonwork activities which may increase dermal or oral MC exposure.

(e) The employer shall ensure that while employees are wearing respirators, they do not engage in activities (such as taking medication or chewing gum or tobacco) which interfere with respirator seal or performance.

(f) The employer shall demarcate regulated areas from the rest of the workplace in any manner that adequately establishes and alerts employees to the boundaries of the area and minimizes the number of authorized employees exposed to MC within the regulated area.

(g) An employer at a multiemployer worksite who establishes a regulated area shall communicate the access restrictions and locations of these areas to all other employers with work operations at that worksite.

(6) Methods of compliance.

(a) Engineering and work practice controls. The employer shall institute and maintain the effectiveness of engineering controls and work practices to reduce employee exposure to or below the PELs except to the extent that the employer can demonstrate that such controls are not feasible.

(b) Wherever the feasible engineering controls and work practices which can be instituted are not sufficient to reduce employee exposure to or below the 8-TWA PEL or STEL, the employer shall use them to reduce employee exposure to the lowest levels achievable by these controls and shall supplement them by the use of respiratory protection that complies with the requirements of subsection (7) of this section.

(c) Prohibition of rotation. The employer shall not implement a schedule of employee rotation as a means of compliance with the PELs.

(d) Leak and spill detection.

(i) The employer shall implement procedures to detect leaks of MC in the workplace. In work areas where spills may occur, the employer shall make provisions to contain any spills and to safely dispose of any MC-contaminated waste materials.

(ii) The employer shall ensure that all incidental leaks are repaired and that incidental spills are cleaned promptly by employees who use the appropriate personal protective equipment and are trained in proper methods of cleanup.

(Note to subsection (6)(d)(ii) of this section: See Appendix A of this section for examples of procedures that satisfy this requirement. Employers covered by this standard may also be subject to the hazardous waste and emergency response provisions contained in WAC 296-62-3112.)

(7) Respiratory protection.

(a) General requirements. For employees who use respirators required by this section, the employer must provide each employee an appropriate respirator that complies with the requirements of this subsection. Respirators must be used during:

(i) Periods when an employee's exposure to MC exceeds or can reasonably be expected to exceed the eight-hour TWA

PEL or the STEL (for example, when an employee is using MC in a regulated area);

(ii) Periods necessary to install or implement feasible engineering and work-practice controls;

(iii) In a few work operations, such as some maintenance operations and repair activities, for which the employer demonstrates that engineering and work practice controls are infeasible;

(iv) Work operations for which feasible engineering and work practice controls are not sufficient to reduce exposures to or below the PELs;

(v) Emergencies.

(b) Respirator program.

(i) The employer must develop, implement and maintain a respiratory protection program as required by chapter 296-842 WAC, Respirators, which covers each employee required by this chapter to use a respirator, except for the requirements in Table 5 of WAC 296-842-13005 that address gas or vapor cartridge change schedules and end-of-service-life indicators (ESLIs).

(ii) Employers who provide employees with gas masks with organic-vapor canisters for the purpose of emergency escape must replace the canisters after any emergency use and before the gas masks are returned to service.

(c) Respirator selection. The employer must:

(i) Select and provide to employees appropriate respirators according to this section and WAC 296-842-13005, found in the respirator rule.

(ii) Make sure half-facepiece respirators are not selected or used for protection against MC. This is necessary to prevent eye irritation or damage from MC exposure.

(iii) Provide to employees, for emergency escape, one of the following respirator options:

(A) A self-contained breathing apparatus operated in the continuous-flow or pressure demand mode

OR

(B) A gas mask equipped with an organic vapor canister.

(d) Medical evaluation. Before having an employee use a supplied-air respirator in the negative-pressure mode, or a gas mask with an organic-vapor canister for emergency escape, the employer must:

(i) Have a physician or other licensed health care professional (PLHCP) evaluate the employee's ability to use such respiratory protection;

(ii) Ensure that the PLHCP provides their findings in a written opinion to the employee and the employer.

Note: See WAC 296-62-07150 through 296-62-07156 for medical evaluation requirements for employees using respirators.

(8) Protective work clothing and equipment.

(a) Where needed to prevent MC-induced skin or eye irritation, the employer shall provide clean protective clothing and equipment which is resistant to MC, at no cost to the employee, and shall ensure that each affected employee uses it. Eye and face protection shall meet the requirements of WAC 296-800-160, as applicable.

(b) The employer shall clean, launder, repair and replace all protective clothing and equipment required by this subsection as needed to maintain their effectiveness.

(c) The employer shall be responsible for the safe disposal of such clothing and equipment.

(Note to subsection (8)(c) of this section: See Appendix A for examples of disposal procedures that will satisfy this requirement.)

(9) Hygiene facilities.

(a) If it is reasonably foreseeable that employees' skin may contact solutions containing 0.1 percent or greater MC (for example, through splashes, spills or improper work practices), the employer shall provide conveniently located washing facilities capable of removing the MC, and shall ensure that affected employees use these facilities as needed.

(b) If it is reasonably foreseeable that an employee's eyes may contact solutions containing 0.1 percent or greater MC (for example through splashes, spills or improper work practices), the employer shall provide appropriate eyewash facilities within the immediate work area for emergency use, and shall ensure that affected employees use those facilities when necessary.

(10) Medical surveillance.

(a) Affected employees. The employer shall make medical surveillance available for employees who are or may be exposed to MC as follows:

(i) At or above the action level on thirty or more days per year, or above the eight-hour TWA PEL or the STEL on ten or more days per year;

(ii) Above the 8-TWA PEL or STEL for any time period where an employee has been identified by a physician or other licensed health care professional as being at risk from cardiac disease or from some other serious MC-related health condition and such employee requests inclusion in the medical surveillance program;

(iii) During an emergency.

(b) Costs. The employer shall provide all required medical surveillance at no cost to affected employees, without loss of pay and at a reasonable time and place.

(c) Medical personnel. The employer shall ensure that all medical surveillance procedures are performed by a physician or other licensed health care professional, as defined in subsection (2) of this section.

(d) Frequency of medical surveillance. The employer shall make medical surveillance available to each affected employee as follows:

(i) Initial surveillance. The employer shall provide initial medical surveillance under the schedule provided by subsection (14)(b)(iii) of this section, or before the time of initial assignment of the employee, whichever is later. The employer need not provide the initial surveillance if medical records show that an affected employee has been provided with medical surveillance that complies with this section within twelve months before December 1.

(ii) Periodic medical surveillance. The employer shall update the medical and work history for each affected employee annually. The employer shall provide periodic physical examinations, including appropriate laboratory surveillance, as follows:

(A) For employees forty-five years of age or older, within twelve months of the initial surveillance or any subsequent medical surveillance; and

(B) For employees younger than forty-five years of age, within thirty-six months of the initial surveillance or any subsequent medical surveillance.

(iii) Termination of employment or reassignment. When an employee leaves the employer's workplace, or is reassigned to an area where exposure to MC is consistently at or below the action level and STEL, medical surveillance shall be made available if six months or more have elapsed since the last medical surveillance.

(iv) Additional surveillance. The employer shall provide additional medical surveillance at frequencies other than those listed above when recommended in the written medical opinion. (For example, the physician or other licensed health care professional may determine an examination is warranted in less than thirty-six months for employees younger than forty-five years of age based upon evaluation of the results of the annual medical and work history.)

(e) Content of medical surveillance.

(i) Medical and work history. The comprehensive medical and work history shall emphasize neurological symptoms, skin conditions, history of hematologic or liver disease, signs or symptoms suggestive of heart disease (angina, coronary artery disease), risk factors for cardiac disease, MC exposures, and work practices and personal protective equipment used during such exposures.

(Note to subsection (10)(e)(i) of this section: See Appendix B of this section for an example of a medical and work history format that would satisfy this requirement.)

(ii) Physical examination. Where physical examinations are provided as required above, the physician or other licensed health care professional shall accord particular attention to the lungs, cardiovascular system (including blood pressure and pulse), liver, nervous system, and skin. The physician or other licensed health care professional shall determine the extent and nature of the physical examination based on the health status of the employee and analysis of the medical and work history.

(iii) Laboratory surveillance. The physician or other licensed health care professional shall determine the extent of any required laboratory surveillance based on the employee's observed health status and the medical and work history.

(Note to subsection (10)(e)(iii) of this section: See Appendix B of this section for information regarding medical tests. Laboratory surveillance may include before-and after-shift carboxyhemoglobin determinations, resting ECG, hematocrit, liver function tests and cholesterol levels.)

(iv) Other information or reports. The medical surveillance shall also include any other information or reports the physician or other licensed health care professional determines are necessary to assess the employee's health in relation to MC exposure.

(f) Content of emergency medical surveillance. The employer shall ensure that medical surveillance made available when an employee has been exposed to MC in emergency situations includes, at a minimum:

(i) Appropriate emergency treatment and decontamination of the exposed employee;

(ii) Comprehensive physical examination with special emphasis on the nervous system, cardiovascular system, lungs, liver and skin, including blood pressure and pulse;

(iii) Updated medical and work history, as appropriate for the medical condition of the employee; and

(iv) Laboratory surveillance, as indicated by the employee's health status.

(Note to subsection (10)(f)(iv) of this section: See Appendix B for examples of tests which may be appropriate.)

(g) Additional examinations and referrals. Where the physician or other licensed health care professional determines it is necessary, the scope of the medical examination shall be expanded and the appropriate additional medical surveillance, such as referrals for consultation or examination, shall be provided.

(h) Information provided to the physician or other licensed health care professional. The employer shall provide the following information to a physician or other licensed health care professional who is involved in the diagnosis of MC-induced health effects:

(i) A copy of this section including its applicable appendices;

(ii) A description of the affected employee's past, current and anticipated future duties as they relate to the employee's MC exposure;

(iii) The employee's former or current exposure levels or, for employees not yet occupationally exposed to MC, the employee's anticipated exposure levels and the frequency and exposure levels anticipated to be associated with emergencies;

(iv) A description of any personal protective equipment, such as respirators, used or to be used; and

(v) Information from previous employment-related medical surveillance of the affected employee which is not otherwise available to the physician or other licensed health care professional.

(i) Written medical opinions.

(i) For each physical examination required by this section, the employer shall ensure that the physician or other licensed health care professional provides to the employer and to the affected employee a written opinion regarding the results of that examination within fifteen days of completion of the evaluation of medical and laboratory findings, but not more than thirty days after the examination. The written medical opinion shall be limited to the following information:

(A) The physician's or other licensed health care professional's opinion concerning whether exposure to MC may contribute to or aggravate the employee's existing cardiac, hepatic, neurological (including stroke) or dermal disease or whether the employee has any other medical condition(s) that would place the employee's health at increased risk of material impairment from exposure to MC;

(B) Any recommended limitations upon the employee's exposure to MC, removal from MC exposure, or upon the employee's use of protective clothing or equipment and respirators;

(C) A statement that the employee has been informed by the physician or other licensed health care professional that MC is a potential occupational carcinogen, of risk factors for heart disease, and the potential for exacerbation of underlying heart disease by exposure to MC through its metabolism to carbon monoxide; and

(D) A statement that the employee has been informed by the physician or other licensed health care professional of the results of the medical examination and any medical condi-

tions resulting from MC exposure which require further explanation or treatment.

(ii) The employer shall instruct the physician or other licensed health care professional not to reveal to the employer, orally or in the written opinion, any specific records, findings, and diagnoses that have no bearing on occupational exposure to MC.

(Note to subsection (10)(h)(ii) of this section: The written medical opinion may also include information and opinions generated to comply with other OSHA health standards.)

(j) Medical presumption. For purposes of this subsection (10), the physician or other licensed health care professional shall presume, unless medical evidence indicates to the contrary, that a medical condition is unlikely to require medical removal from MC exposure if the employee is not exposed to MC above the eight-hour TWA PEL. If the physician or other licensed health care professional recommends removal for an employee exposed below the eight-hour TWA PEL, the physician or other licensed health care professional shall cite specific medical evidence, sufficient to rebut the presumption that exposure below the eight-hour TWA PEL is unlikely to require removal, to support the recommendation. If such evidence is cited by the physician or other licensed health care professional, the employer must remove the employee. If such evidence is not cited by the physician or other licensed health care professional, the employer is not required to remove the employee.

(k) Medical removal protection (MRP).

(i) Temporary medical removal and return of an employee.

(A) Except as provided in (j) of this subsection, when a medical determination recommends removal because the employee's exposure to MC may contribute to or aggravate the employee's existing cardiac, hepatic, neurological (including stroke), or skin disease, the employer must provide medical removal protection benefits to the employee and either:

(I) Transfer the employee to comparable work where methylene chloride exposure is below the action level; or

(II) Remove the employee from MC exposure.

(B) If comparable work is not available and the employer is able to demonstrate that removal and the costs of extending MRP benefits to an additional employee, considering feasibility in relation to the size of the employer's business and the other requirements of this standard, make further reliance on MRP an inappropriate remedy, the employer may retain the additional employee in the existing job until transfer or removal becomes appropriate, provided:

(I) The employer ensures that the employee receives additional medical surveillance, including a physical examination at least every sixty days until transfer or removal occurs; and

(II) The employer or PLHCP informs the employee of the risk to the employee's health from continued MC exposure.

(C) The employer shall maintain in effect any job-related protective measures or limitations, other than removal, for as long as a medical determination recommends them to be necessary.

(ii) End of MRP benefits and return of the employee to former job status.

(A) The employer may cease providing MRP benefits at the earliest of the following:

(I) Six months;

(II) Return of the employee to the employee's former job status following receipt of a medical determination concluding that the employee's exposure to MC no longer will aggravate any cardiac, hepatic, neurological (including stroke), or dermal disease;

(III) Receipt of a medical determination concluding that the employee can never return to MC exposure.

(B) For the purposes of this subsection (10), the requirement that an employer return an employee to the employee's former job status is not intended to expand upon or restrict any rights an employee has or would have had, absent temporary medical removal, to a specific job classification or position under the terms of a collective bargaining agreement.

(l) Medical removal protection benefits.

(i) For purposes of this subsection (10), the term medical removal protection benefits means that, for each removal, an employer must maintain for up to six months the earnings, seniority, and other employment rights and benefits of the employee as though the employee had not been removed from MC exposure or transferred to a comparable job.

(ii) During the period of time that an employee is removed from exposure to MC, the employer may condition the provision of medical removal protection benefits upon the employee's participation in follow-up medical surveillance made available pursuant to this section.

(iii) If a removed employee files a workers' compensation claim for a MC-related disability, the employer shall continue the MRP benefits required by this section until either the claim is resolved or the six-month period for payment of MRP benefits has passed, whichever occurs first. To the extent the employee is entitled to indemnity payments for earnings lost during the period of removal, the employer's obligation to provide medical removal protection benefits to the employee shall be reduced by the amount of such indemnity payments.

(iv) The employer's obligation to provide medical removal protection benefits to a removed employee shall be reduced to the extent that the employee receives compensation for earnings lost during the period of removal from either a publicly or an employer-funded compensation program, or receives income from employment with another employer made possible by virtue of the employee's removal.

(m) Voluntary removal or restriction of an employee. Where an employer, although not required by this section to do so, removes an employee from exposure to MC or otherwise places any limitation on an employee due to the effects of MC exposure on the employee's medical condition, the employer shall provide medical removal protection benefits to the employee equal to those required by (l) of this subsection.

(n) Multiple health care professional review mechanism.

(i) If the employer selects the initial physician or licensed health care professional (PLHCP) to conduct any medical examination or consultation provided to an employee under (k) of this subsection, the employer shall

notify the employee of the right to seek a second medical opinion each time the employer provides the employee with a copy of the written opinion of that PLHCP.

(ii) If the employee does not agree with the opinion of the employer-selected PLHCP, notifies the employer of that fact, and takes steps to make an appointment with a second PLHCP within fifteen days of receiving a copy of the written opinion of the initial PLHCP, the employer shall pay for the PLHCP chosen by the employee to perform at least the following:

(A) Review any findings, determinations or recommendations of the initial PLHCP; and

(B) Conduct such examinations, consultations, and laboratory tests as the PLHCP deems necessary to facilitate this review.

(iii) If the findings, determinations or recommendations of the second PLHCP differ from those of the initial PLHCP, then the employer and the employee shall instruct the two health care professionals to resolve the disagreement.

(iv) If the two health care professionals are unable to resolve their disagreement within fifteen days, then those two health care professionals shall jointly designate a PLHCP who is a specialist in the field at issue. The employer shall pay for the specialist to perform at least the following:

(A) Review the findings, determinations, and recommendations of the first two PLHCPs; and

(B) Conduct such examinations, consultations, laboratory tests and discussions with the prior PLHCPs as the specialist deems necessary to resolve the disagreements of the prior health care professionals.

(v) The written opinion of the specialist shall be the definitive medical determination. The employer shall act consistent with the definitive medical determination, unless the employer and employee agree that the written opinion of one of the other two PLHCPs shall be the definitive medical determination.

(vi) The employer and the employee or authorized employee representative may agree upon the use of any expeditious alternate health care professional determination mechanism in lieu of the multiple health care professional review mechanism provided by this section so long as the alternate mechanism otherwise satisfies the requirements contained in this section.

(11) Hazard communication((~~. The employer shall communicate the following hazards associated with MC on labels and in material safety data sheets in accordance with the requirements of the chemical hazard communication standard, WAC 296-800-170: Cancer, cardiac effects (including elevation of carboxyhemoglobin), central nervous system effects, liver effects, and skin and eye irritation.~~)) - General.

(a) Chemical manufacturers, importers, distributors, and employers shall comply with all requirements of the Hazard Communication Standard (HCS), WAC 296-901-140 for MC.

(b) In classifying the hazards of MC at least the following hazards are to be addressed: Cancer, cardiac effects (including elevation of carboxyhemoglobin), central nervous system effects, liver effects, and skin and eye irritation.

(c) Employers shall include MC in the hazard communication program established to comply with the HCS, WAC 296-901-140. Employers shall ensure that each employee has access to labels on containers of MC and to safety data sheets, and is trained in accordance with the requirements of HCS and subsection (12) of this section.

(12) Employee information and training.

(a) The employer shall provide information and training for each affected employee prior to or at the time of initial assignment to a job involving potential exposure to MC.

(b) The employer shall ensure that information and training is presented in a manner that is understandable to the employees.

(c) In addition to the information required under the ((~~chemical~~)) Hazard Communication Standard at WAC ((~~296-800-170~~)) 296-901-140:

(i) The employer shall inform each affected employee of the requirements of this section and information available in its appendices, as well as how to access or obtain a copy of it in the workplace;

(ii) Wherever an employee's exposure to airborne concentrations of MC exceeds or can reasonably be expected to exceed the action level, the employer shall inform each affected employee of the quantity, location, manner of use, release, and storage of MC and the specific operations in the workplace that could result in exposure to MC, particularly noting where exposures may be above the eight-hour TWA PEL or STEL;

(d) The employer shall train each affected employee as required under the ((~~chemical~~)) Hazard Communication Standard at WAC ((~~296-800-170~~)) 296-901-140, as appropriate.

(e) The employer shall retrain each affected employee as necessary to ensure that each employee exposed above the action level or the STEL maintains the requisite understanding of the principles of safe use and handling of MC in the workplace.

(f) Whenever there are workplace changes, such as modifications of tasks or procedures or the institution of new tasks or procedures, which increase employee exposure, and where those exposures exceed or can reasonably be expected to exceed the action level, the employer shall update the training as necessary to ensure that each affected employee has the requisite proficiency.

(g) An employer whose employees are exposed to MC at a multiemployer worksite shall notify the other employers with work operations at that site in accordance with the requirements of the ((~~chemical~~)) Hazard Communication Standard, WAC ((~~296-800-170~~)) 296-901-140, as appropriate.

(h) The employer shall provide to the director, upon request, all available materials relating to employee information and training.

(13) Recordkeeping.

(a) Objective data.

(i) Where an employer seeks to demonstrate that initial monitoring is unnecessary through reasonable reliance on objective data showing that any materials in the workplace containing MC will not release MC at levels which exceed the action level or the STEL under foreseeable conditions of exposure, the employer shall establish and maintain an accu-

rate record of the objective data relied upon in support of the exemption.

(ii) This record shall include at least the following information:

(A) The MC-containing material in question;

(B) The source of the objective data;

(C) The testing protocol, results of testing, and/or analysis of the material for the release of MC;

(D) A description of the operation exempted under subsection (4)(b)(i) of this section and how the data support the exemption; and

(E) Other data relevant to the operations, materials, processing, or employee exposures covered by the exemption.

(iii) The employer shall maintain this record for the duration of the employer's reliance upon such objective data.

(b) Exposure measurements.

(i) The employer shall establish and keep an accurate record of all measurements taken to monitor employee exposure to MC as prescribed in subsection (4) of this section.

(ii) Where the employer has twenty or more employees, this record shall include at least the following information:

(A) The date of measurement for each sample taken;

(B) The operation involving exposure to MC which is being monitored;

(C) Sampling and analytical methods used and evidence of their accuracy;

(D) Number, duration, and results of samples taken;

(E) Type of personal protective equipment, such as respiratory protective devices, worn, if any; and

(F) Name, Social Security number, job classification and exposure of all of the employees represented by monitoring, indicating which employees were actually monitored.

(iii) Where the employer has fewer than twenty employees, the record shall include at least the following information:

(A) The date of measurement for each sample taken;

(B) Number, duration, and results of samples taken; and

(C) Name, Social Security number, job classification and exposure of all of the employees represented by monitoring, indicating which employees were actually monitored.

(iv) The employer shall maintain this record for at least thirty (30) years, in accordance with chapter 296-802 WAC.

(c) Medical surveillance.

(i) The employer shall establish and maintain an accurate record for each employee subject to medical surveillance under subsection (10) of this section.

(ii) The record shall include at least the following information:

(A) The name, Social Security number and description of the duties of the employee;

(B) Written medical opinions; and

(C) Any employee medical conditions related to exposure to MC.

(iii) The employer shall ensure that this record is maintained for the duration of employment plus thirty years, in accordance with chapter 296-802 WAC.

(d) Availability.

(i) The employer, upon written request, shall make all records required to be maintained by this section available to the director for examination and copying in accordance with chapter 296-802 WAC.

(Note to subsection (13)(d)(i) of this section: All records required to be maintained by this section may be kept in the most administratively convenient form (for example, electronic or computer records would satisfy this requirement).)

(ii) The employer, upon request, shall make any employee exposure and objective data records required by this section available for examination and copying by affected employees, former employees, and designated representatives in accordance with chapter 296-802 WAC.

(iii) The employer, upon request, shall make employee medical records required to be kept by this section available for examination and copying by the subject employee and by anyone having the specific written consent of the subject employee in accordance with chapter 296-802 WAC.

(e) Transfer of records. The employer shall comply with the requirements concerning transfer of records set forth in WAC 296-62-05215.

(14) Dates.

(a) Engineering controls required under subsection (6)(a) of this section shall be implemented according to the following schedule:

(i) For employers with fewer than twenty employees, no later than April 10, 2000.

(ii) For employers with fewer than one hundred fifty employees engaged in foam fabrication; for employers with fewer than fifty employees engaged in furniture refinishing, general aviation aircraft stripping, and product formulation; for employers with fewer than fifty employees using MC-based adhesives for boat building and repair, recreational vehicle manufacture, van conversion, and upholstering; for employers with fewer than fifty employees using MC in construction work for restoration and preservation of buildings, painting and paint removal, cabinet making and/or floor refinishing and resurfacing, no later than April 10, 2000.

(iii) For employers engaged in polyurethane foam manufacturing with twenty or more employees, no later than October 10, 1999.

(b) Use of respiratory protection whenever an employee's exposure to MC exceeds or can reasonably be expected to exceed the eight-hour TWA PEL, in accordance with subsection (3)(a), (5)(c), (6)(a) and (7)(a) of this section, shall be implemented according to the following schedule:

(i) For employers with fewer than one hundred fifty employees engaged in foam fabrication; for employers with fewer than fifty employees engaged in furniture refinishing, general aviation aircraft stripping, and product formulation; for employers with fewer than fifty employees using MC-based adhesives for boat building and repair, recreational vehicle manufacture, van conversion, and upholstering; for employers with fewer than fifty employees using MC in construction work for restoration and preservation of buildings, painting and paint removal, cabinet making and/or floor refinishing and resurfacing, no later than April 10, 2000.

(ii) For employers engaged in polyurethane foam manufacturing with twenty or more employees, no later than October 10, 1999.

(c) Notification of corrective action under subsection (4)(e)(ii) of this section, no later than ninety days before the compliance date applicable to such corrective action.

(d) Transitional dates. The exposure limits for MC specified in WAC 296-62-07515 Table 1, shall remain in effect until the start up dates for the exposure limits specified in subsection (14) of this section, or if the exposure limits in this section are stayed or vacated.

(e) Unless otherwise specified in this subsection (((~~(14)~~))), all other requirements of this section shall be complied with immediately.

(15) Appendices. The information contained in the appendices does not, by itself, create any additional obligations not otherwise imposed or detract from any existing obligation.

AMENDATORY SECTION (Amending WSR 01-11-038, filed 5/9/01, effective 9/1/01)

WAC 296-62-07473 Appendix A. Substance Safety Data Sheet and Technical Guidelines for Methylene Chloride

I. Substance Identification

A. Substance: Methylene chloride (CH2Cl2).

B. Synonyms: MC, Dichloromethane (DCM); Methylene dichloride; Methylene bichloride; Methane dichloride; CAS: 75-09-2; NCI-C50102.

C. Physical data:

1. Molecular weight: 84.9.

2. Boiling point (760 mm Hg): 39.8 deg. C (104 deg. F).

3. Specific gravity (water = 1): 1.3.

4. Vapor density (air = 1 at boiling point): 2.9.

5. Vapor pressure at 20 deg. C (68 deg. F): 350 mm Hg.

6. Solubility in water, g/100 g water at 20 deg. C (68 deg. F) = 1.32.

7. Appearance and odor: colorless liquid with a chloroform-like odor.

D. Uses: MC is used as a solvent, especially where high volatility is required. It is a good solvent for oils, fats, waxes, resins, bitumen, rubber and cellulose acetate and is a useful paint stripper and degreaser. It is used in paint removers, in propellant mixtures for aerosol containers, as a solvent for plastics, as a degreasing agent, as an extracting agent in the pharmaceutical industry and as a blowing agent in polyurethane foams. Its solvent property is sometimes increased by mixing with methanol, petroleum naphtha or tetrachloroethylene.

E. Appearance and odor: MC is a clear colorless liquid with a chloroform-like odor. It is slightly soluble in water and completely miscible with most organic solvents.

F. Permissible exposure: Exposure may not exceed 25 parts MC per million parts of air (25 ppm) as an eight-hour time-weighted average (eight-hour TWA PEL) or 125 parts of MC per million parts of air (125 ppm) averaged over a fifteen-minute period (STEL).

II. Health Hazard Data

A. MC can affect the body if it is inhaled or if the liquid comes in contact with the eyes or skin. It can also affect the body if it is swallowed.

B. Effects of overexposure:

1. Short-term Exposure: MC is an anesthetic. Inhaling the vapor may cause mental confusion, light-headedness, nausea, vomiting, and headache. Continued exposure may cause increased light-headedness, staggering, unconsciousness, and even death. High vapor concentrations may also cause irritation of the eyes and respiratory tract. Exposure to MC may make the symptoms of angina (chest pains) worse. Skin exposure to liquid MC may cause irritation. If liquid MC remains on the skin, it may cause skin burns. Splashes of the liquid into the eyes may cause irritation.

2. Long-term (chronic) exposure: The best evidence that MC causes cancer is from laboratory studies in which rats, mice and hamsters inhaled MC six hours per day, five days per week for two years. MC exposure produced lung and liver tumors in mice and mammary tumors in rats. No carcinogenic effects of MC were found in hamsters. There are also some human epidemiological studies which show an association between occupational exposure to MC and increases in biliary (bile duct) cancer and a type of brain cancer. Other epidemiological studies have not observed a relationship between MC exposure and cancer. WISHA interprets these results to mean that there is suggestive (but not absolute) evidence that MC is a human carcinogen.

C. Reporting signs and symptoms: You should inform your employer if you develop any signs or symptoms and suspect that they are caused by exposure to MC.

D. Warning Properties:

1. Odor Threshold: Different authors have reported varying odor thresholds for MC. Kirk-Othmer and Sax both reported 25 to 50 ppm; Summer and May both reported 150 ppm; Spector reports 320 ppm. Patty, however, states that since one can become adapted to the odor, MC should not be considered to have adequate warning properties.

2. Eye Irritation Level: Kirk-Othmer reports that "MC vapor is seriously damaging to the eyes." Sax agrees with Kirk-Othmer's statement. The ACGIH Documentation of TLVs states that irritation of the eyes has been observed in workers exposed to concentrations up to 5000 ppm.

3. Evaluation of Warning Properties: Since a wide range of MC odor thresholds are reported (25-320 ppm), and human adaptation to the odor occurs, MC is considered to be a material with poor warning properties.

III. Emergency First-Aid Procedures

In the event of emergency, institute first-aid procedures and send for first-aid or medical assistance.

A. Eye and Skin Exposures: If there is a potential for liquid MC to come in contact with eye or skin, face shields and skin protective equipment must be provided and used. If liquid MC comes in contact with the eye, get medical attention. Contact lenses should not be worn when working with this chemical.

B. Breathing: If a person breathes in large amounts of MC, move the exposed person to fresh air at once. If breathing has stopped, perform cardiopulmonary resuscitation. Keep the affected person warm and at rest. Get medical attention as soon as possible.

C. Rescue: Move the affected person from the hazardous exposure immediately. If the exposed person has been overcome, notify someone else and put into effect the established

emergency rescue procedures. Understand the facility's emergency rescue procedures and know the locations of rescue equipment before the need arises. Do not become a casualty yourself.

IV. Respirators, Protective Clothing, and Eye Protection

A. Respirators: Good industrial hygiene practices recommend that engineering controls be used to reduce environmental concentrations to the permissible exposure level. However, there are some exceptions where respirators may be used to control exposure. Respirators may be used when engineering and work practice controls are not feasible, when such controls are in the process of being installed, or when these controls fail and need to be supplemented. Respirators may also be used for operations which require entry into tanks or closed vessels, and in emergency situations. If the use of respirators is necessary, the only respirators permitted are those that have been approved by the National Institute for Occupational Safety and Health (NIOSH). Supplied-air respirators are required because air-purifying respirators do not provide adequate respiratory protection against MC. In addition to respirator selection, a complete written respiratory protection program should be instituted which includes regular training, maintenance, inspection, cleaning, and evaluation. If you can smell MC while wearing a respirator, proceed immediately to fresh air. If you experience difficulty in breathing while wearing a respirator, tell your employer.

B. Protective Clothing: Employees must be provided with and required to use impervious clothing, gloves, face shields (eight-inch minimum), and other appropriate protective clothing necessary to prevent repeated or prolonged skin contact with liquid MC or contact with vessels containing liquid MC. Any clothing which becomes wet with liquid MC should be removed immediately and not reworn until the employer has ensured that the protective clothing is fit for reuse. Contaminated protective clothing should be placed in a regulated area designated by the employer for removal of MC before the clothing is laundered or disposed of. Clothing and equipment should remain in the regulated area until all of the MC contamination has evaporated; clothing and equipment should then be laundered or disposed of as appropriate.

C. Eye Protection: Employees should be provided with and required to use splash-proof safety goggles where liquid MC may contact the eyes.

V. Housekeeping and Hygiene Facilities

For purposes of complying with WAC 296-24-120, 296-800-220 and 296-800-230, the following items should be emphasized:

A. The workplace should be kept clean, orderly, and in a sanitary condition. The employer should institute a leak and spill detection program for operations involving liquid MC in order to detect sources of fugitive MC emissions.

B. Emergency drench showers and eyewash facilities are recommended. These should be maintained in a sanitary condition. Suitable cleansing agents should also be provided to assure the effective removal of MC from the skin.

C. Because of the hazardous nature of MC, contaminated protective clothing should be placed in a regulated area designated by the employer for removal of MC before the clothing is laundered or disposed of.

VI. Precautions for Safe Use, Handling, and Storage

A. Fire and Explosion Hazards: MC has no flash point in a conventional closed tester, but it forms flammable vapor-air mixtures at approximately 100 deg. C (212 deg. F), or higher. It has a lower explosion limit of 12%, and an upper explosion limit of 19% in air. It has an autoignition temperature of 556.1 deg. C (1033 deg. F), and a boiling point of 39.8 deg. C (104 deg. F). It is heavier than water with a specific gravity of 1.3. It is slightly soluble in water.

B. Reactivity Hazards: Conditions contributing to the instability of MC are heat and moisture. Contact with strong oxidizers, caustics, and chemically active metals such as aluminum or magnesium powder, sodium and potassium may cause fires and explosions. Special precautions: Liquid MC will attack some forms of plastics, rubber, and coatings.

C. Toxicity: Liquid MC is painful and irritating if splashed in the eyes or if confined on the skin by gloves, clothing, or shoes. Vapors in high concentrations may cause narcosis and death. Prolonged exposure to vapors may cause cancer or exacerbate cardiac disease.

D. Storage: Protect against physical damage. Because of its corrosive properties, and its high vapor pressure, MC should be stored in plain, galvanized or lead lined, mild steel containers in a cool, dry, well ventilated area away from direct sunlight, heat source and acute fire hazards.

E. Piping Material: All piping and valves at the loading or unloading station should be of material that is resistant to MC and should be carefully inspected prior to connection to the transport vehicle and periodically during the operation.

F. Usual Shipping Containers: Glass bottles, 5- and 55-gallon steel drums, tank cars, and tank trucks.

Note: This section addresses MC exposure in marine terminal and longshore employment only where leaking or broken packages allow MC exposure that is not addressed through compliance with WAC 296-56.

G. Electrical Equipment: Electrical installations in Class I hazardous locations as defined in Article 500 of the National Electrical Code, should be installed according to Article 501 of the code; and electrical equipment should be suitable for use in atmospheres containing MC vapors. See Flammable and Combustible Liquids Code (NFPA No. 325M), Chemical Safety Data Sheet SD-86 (Manufacturing Chemists' Association, Inc.).

H. Firefighting: When involved in fire, MC emits highly toxic and irritating fumes such as phosgene, hydrogen chloride and carbon monoxide. Wear breathing apparatus and use water spray to keep fire-exposed containers cool. Water spray may be used to flush spills away from exposures. Extinguishing media are dry chemical, carbon dioxide, foam. For purposes of compliance with WAC 296-24-956, locations classified as hazardous due to the presence of MC shall be Class I.

I. Spills and Leaks: Persons not wearing protective equipment and clothing should be restricted from areas of spills or leaks until cleanup has been completed. If MC has spilled or leaked, the following steps should be taken:

1. Remove all ignition sources.

2. Ventilate area of spill or leak.

3. Collect for reclamation or absorb in vermiculite, dry sand, earth, or a similar material.

J. Methods of Waste Disposal: Small spills should be absorbed onto sand and taken to a safe area for atmospheric evaporation. Incineration is the preferred method for disposal of large quantities by mixing with a combustible solvent and spraying into an incinerator equipped with acid scrubbers to remove hydrogen chloride gases formed. Complete combustion will convert carbon monoxide to carbon dioxide. Care should be taken for the presence of phosgene.

K. You should not keep food, beverage, or smoking materials, or eat or smoke in regulated areas where MC concentrations are above the permissible exposure limits.

L. Portable heating units should not be used in confined areas where MC is used.

M. Ask your supervisor where MC is used in your work area and for any additional plant safety and health rules.

VII. Medical Requirements

Your employer is required to offer you the opportunity to participate in a medical surveillance program if you are exposed to MC at concentrations at or above the action level (12.5 ppm eight-hour TWA) for more than thirty days a year or at concentrations exceeding the PELs (25 ppm eight-hour TWA or 125 ppm fifteen-minute STEL) for more than ten days a year. If you are exposed to MC at concentrations over either of the PELs, your employer will also be required to have a physician or other licensed health care professional ensure that you are able to wear the respirator that you are assigned. Your employer must provide all medical examinations relating to your MC exposure at a reasonable time and place and at no cost to you.

VIII. Monitoring and Measurement Procedures

A. Exposure above the Permissible Exposure Limit:

1. Eight-hour exposure evaluation: Measurements taken for the purpose of determining employee exposure under this section are best taken with consecutive samples covering the full shift. Air samples must be taken in the employee's breathing zone.

2. Monitoring techniques: The sampling and analysis under this section may be performed by collection of the MC vapor on two charcoal adsorption tubes in series or other composition adsorption tubes, with subsequent chemical analysis. Sampling and analysis may also be performed by instruments such as real-time continuous monitoring systems, portable direct reading instruments, or passive dosimeters as long as measurements taken using these methods accurately evaluate the concentration of MC in employees' breathing zones. OSHA method 80 is an example of a validated method of sampling and analysis of MC. Copies of this method are available from OSHA or can be downloaded from the internet at http://www.osha.gov. The employer has the obligation of selecting a monitoring method which meets the accuracy and precision requirements of the standard under his or her unique field conditions. The standard requires that the method of monitoring must be accurate, to a ninety-five percent confidence level, to plus or minus twenty-five percent for concentrations of MC at or above 25 ppm, and to plus or minus thirty-five percent for concentrations at or below 25 ppm. In addition to OSHA method 80, there are numerous other methods available for monitoring for MC in the workplace.

B. Since many of the duties relating to employee exposure are dependent on the results of measurement procedures, employers must assure that the evaluation of employee exposure is performed by a technically qualified person.

IX. Observation of Monitoring

Your employer is required to perform measurements that are representative of your exposure to MC and you or your designated representative are entitled to observe the monitoring procedure. You are entitled to observe the steps taken in the measurement procedure, and to record the results obtained. When the monitoring procedure is taking place in an area where respirators or personal protective clothing and equipment are required to be worn, you or your representative must also be provided with, and must wear, protective clothing and equipment.

Access To Information

A. Your employer is required to inform you of the information contained in this Appendix. In addition, your employer must instruct you in the proper work practices for using MC, emergency procedures, and the correct use of protective equipment.

B. Your employer is required to determine whether you are being exposed to MC. You or your representative has the right to observe employee measurements and to record the results obtained. Your employer is required to inform you of your exposure. If your employer determines that you are being over exposed, he or she is required to inform you of the actions which are being taken to reduce your exposure to within permissible exposure limits.

C. Your employer is required to keep records of your exposures and medical examinations. These records must be kept by the employer for at least thirty years.

D. Your employer is required to release your exposure and medical records to you or your representative upon your request.

E. Your employer is required to provide labels and ((~~material~~)) safety data sheets (((~~(MSDS)~~))) (SDS) for all materials, mixtures or solutions composed of greater than 0.1 percent MC. ((~~An example of a label that would satisfy these requirements would be:~~)) These materials, mixtures or solutions would be classified and labeled in accordance with WAC 296-901-140.

((~~Danger Contains Methylene Chloride~~

~~Potential Cancer Hazard~~

~~May worsen heart disease because methylene chloride is converted to carbon monoxide in the body.~~

~~May cause dizziness, headache, irritation of the throat and lungs, loss of consciousness and death at high concentrations (for example, if used in a poorly ventilated room).~~

~~Avoid Skin Contact. Contact with liquid causes skin and eye irritation.~~))

X. Common Operations and Controls

The following list includes some common operations in which exposure to MC may occur and control methods which may be effective in each case:

Operations	Controls
Use as solvent in paint and varnish removers cold cleaning and ultrasonic cleaning, and as a solvent in furniture stripping.	General dilution ventilation; local; manufacture of aerosols; cold cleaning exhaust ventilation; personal protective equipment; substitution.
Use as solvent in vapor degreasing.	Process enclosure; local exhaust ventilation; chilling coils; substitution.
Use as a secondary refrigerant in air scientific testing.	General dilution ventilation; local conditioning and exhaust ventilation; personal protective equipment.

AMENDATORY SECTION (Amending WSR 06-08-087, filed 4/4/06, effective 9/1/06)

WAC 296-62-07540 Formaldehyde.

Note: The requirements in this chapter apply only to agriculture. The general industry requirements relating to formaldehyde have been moved to chapter 296-856 WAC, Formaldehyde.

(1) Scope and application. This standard applies to all occupational exposures to formaldehyde, i.e., from formaldehyde gas, its solutions, and materials that release formaldehyde.

(2) Definitions. For purposes of this standard, the following definitions shall apply:

(a) "Action level" means a concentration of 0.5 part formaldehyde per million parts of air (0.5 ppm) calculated as an 8-hour time-weighted average (TWA) concentration.

(b) "Approved" means approved by the director of the department of labor and industries or his/her authorized representative: Provided, however, That should a provision of this chapter state that approval by an agency or organization other than the department of labor and industries is required, such as Underwriters' Laboratories or the Mine Safety and Health Administration and the National Institute for Occupational Safety and Health, the provision of WAC 296-800-370 shall apply.

(c) "Authorized person" means any person required by work duties to be present in regulated work areas, or authorized to do so by the employer, by this section of the standard, or by the WISHA Act.

(d) "Director" means the director of the department of labor and industries, or his/her designated representative.

(e) "Emergency" is any occurrence, such as but not limited to equipment failure, rupture of containers, or failure of control equipment that results in an uncontrolled release of a significant amount of formaldehyde.

(f) "Employee exposure" means the exposure to airborne formaldehyde which would occur without corrections for protection provided by any respirator that is in use.

(g) "Formaldehyde" means the chemical substance, HCHO, Chemical Abstracts Service Registry No. 50-00-0.

(3) Permissible exposure limit (PEL).

(a) TWA: The employer shall assure that no employee is exposed to an airborne concentration of formaldehyde which exceeds 0.75 part formaldehyde per million parts of air as an 8-hour TWA.

(b) Short term exposure limit (STEL): The employer shall assure that no employee is exposed to an airborne concentration of formaldehyde which exceeds two parts formaldehyde per million parts of air (2 ppm) as a fifteen-minute STEL.

(4) Exposure monitoring.

(a) General.

(i) Each employer who has a workplace covered by this standard shall monitor employees to determine their exposure to formaldehyde.

(ii) Exception. Where the employer documents, using objective data, that the presence of formaldehyde or formaldehyde-releasing products in the workplace cannot result in airborne concentrations of formaldehyde that would cause any employee to be exposed at or above the action level or the STEL under foreseeable conditions of use, the employer will not be required to measure employee exposure to formaldehyde.

(iii) When an employee's exposure is determined from representative sampling, the measurements used shall be representative of the employee's full shift or short-term exposure to formaldehyde, as appropriate.

(iv) Representative samples for each job classification in each work area shall be taken for each shift unless the employer can document with objective data that exposure

levels for a given job classification are equivalent for different workshifts.

(b) Initial monitoring. The employer shall identify all employees who may be exposed at or above the action level or at or above the STEL and accurately determine the exposure of each employee so identified.

(i) Unless the employer chooses to measure the exposure of each employee potentially exposed to formaldehyde, the employer shall develop a representative sampling strategy and measure sufficient exposures within each job classification for each workshift to correctly characterize and not underestimate the exposure of any employee within each exposure group.

(ii) The initial monitoring process shall be repeated each time there is a change in production, equipment, process, personnel, or control measures which may result in new or additional exposure to formaldehyde.

(iii) If the employer receives reports or signs or symptoms of respiratory or dermal conditions associated with formaldehyde exposure, the employer shall promptly monitor the affected employee's exposure.

(c) Periodic monitoring.

(i) The employer shall periodically measure and accurately determine exposure to formaldehyde for employees shown by the initial monitoring to be exposed at or above the action level or at or above the STEL.

(ii) If the last monitoring results reveal employee exposure at or above the action level, the employer shall repeat monitoring of the employees at least every six months.

(iii) If the last monitoring results reveal employee exposure at or above the STEL, the employer shall repeat monitoring of the employees at least once a year under worst conditions.

(d) Termination of monitoring. The employer may discontinue periodic monitoring for employees if results from two consecutive sampling periods taken at least seven days apart show that employee exposure is below the action level and the STEL. The results must be statistically representative and consistent with the employer's knowledge of the job and work operation.

(e) Accuracy of monitoring. Monitoring shall be accurate, at the ninety-five percent confidence level, to within plus or minus twenty-five percent for airborne concentrations of formaldehyde at the TWA and the STEL and to within plus or minus thirty-five percent for airborne concentrations of formaldehyde at the action level.

(f) Employee notification of monitoring results. Within fifteen days of receiving the results of exposure monitoring conducted under this standard, the employer shall notify the affected employees of these results. Notification shall be in writing, either by distributing copies of the results to the employees or by posting the results. If the employee exposure is over either PEL, the employer shall develop and implement a written plan to reduce employee exposure to or below both PELs, and give written notice to employees. The written notice shall contain a description of the corrective action being taken by the employer to decrease exposure.

(g) Observation of monitoring.

(i) The employer shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to formaldehyde required by this standard.

(ii) When observation of the monitoring of employee exposure to formaldehyde requires entry into an area where the use of protective clothing or equipment is required, the employer shall provide the clothing and equipment to the observer, require the observer to use such clothing and equipment, and assure that the observer complies with all other applicable safety and health procedures.

(5) Regulated areas.

(a) The employer shall establish regulated areas where the concentration of airborne formaldehyde exceeds either the TWA or the STEL and post all entrances and accessways with signs bearing the following information:

DANGER
FORMALDEHYDE
IRRITANT AND POTENTIAL CANCER HAZARD
AUTHORIZED PERSONNEL ONLY

(b) The employer shall limit access to regulated areas to authorized persons who have been trained to recognize the hazards of formaldehyde.

(c) An employer at a multiemployer worksite who establishes a regulated area shall communicate the access restrictions and locations of these areas to other employers with work operations at that worksite.

(6) Methods of compliance.

(a) Engineering controls and work practices. The employer shall institute engineering and work practice controls to reduce and maintain employee exposures to formaldehyde at or below the TWA and the STEL.

(b) Exception. Whenever the employer has established that feasible engineering and work practice controls cannot reduce employee exposure to or below either of the PELs, the employer shall apply these controls to reduce employee exposures to the extent feasible and shall supplement them with respirators which satisfy this standard.

(7) Respiratory protection.

(a) General. For employees who use respirators required by this section, the employer must provide respirators that comply with the requirements of this subsection. Respirators must be used during:

(i) Periods necessary to install or implement feasible engineering and work-practice controls;

(ii) Work operations, such as maintenance and repair activities or vessel cleaning, for which the employer establishes that engineering and work-practice controls are not feasible;

(iii) Work operations for which feasible engineering and work-practice controls are not yet sufficient to reduce exposure to or below the PELs;

(iv) Emergencies.

(b) Respirator program.

(i) The employer must implement a respiratory protection program as required by chapter 296-842 WAC, except WAC 296-842-13005 and 296-842-14005.

(ii) If air-purifying chemical-cartridge respirators are used, the employer must:

(A) Replace the cartridge after three hours of use or at the end of the workshift, whichever occurs first, unless the

cartridge contains a NIOSH-certified end-of-service-life indicator (ESLI) to show when breakthrough occurs.

(B) Unless the canister contains a NIOSH-certified ESLI to show when breakthrough occurs, replace canisters used in atmospheres up to 7.5 ppm (10 x PEL) every four hours and industrial-sized canisters used in atmospheres up to 75 ppm (100 x PEL) every two hours, or at the end of the workshift, whichever occurs first.

(c) Respirator selection.

(i) The employer must select appropriate respirators from Table 1 of this section.

TABLE 1

MINIMUM REQUIREMENTS FOR RESPIRATORY PROTECTION AGAINST FORMALDEHYDE

Condition of use or formaldehyde concentration (ppm)	Minimum respirator required[1]
Up to 7.5 ppm (10 x PEL)	Full facepiece with cartridges or canisters specifically approved for protection against formaldehyde[2].
Up to 75 ppm (100 x PEL) . . .	Full-face mask with chin style or chest or back mounted type industrial size canister specifically approved for protection against formaldehyde. Type C supplied-air respirator pressure demand or continuous flow type, with full facepiece, hood, or helmet.
Above 75 ppm or unknown (emergencies) (100 x PEL)	Self-contained breathing apparatus (SCBA) with positive-pressure full facepiece. Combination supplied-air, full facepiece positive-pressure respirator with auxiliary self-contained air supply.
Firefighting	SCBA with positive-pressure in full facepiece.
Escape	SCBA in demand or pressure demand mode. Full-face mask with chin style or front or back mounted type industrial size canister specifically approved for protection against formaldehyde.

[1] Respirators specified for use at higher concentrations may be used at lower concentrations.

[2] A half-mask respirator with cartridges specifically approved for protection against formaldehyde can be substituted for the full facepiece respirator providing that effective gas-proof goggles are provided and used in combination with the half-mask respirator.

(ii) The employer must provide a powered air-purifying respirator adequate to protect against formaldehyde exposure to any employee who has difficulty using a negative-pressure respirator.

(8) Protective equipment and clothing. Employers shall comply with the provisions of WAC 296-800-160. When protective equipment or clothing is provided under these provisions, the employer shall provide these protective devices at no cost to the employee and assure that the employee wears them.

(a) Selection. The employer shall select protective clothing and equipment based upon the form of formaldehyde to be encountered, the conditions of use, and the hazard to be prevented.

(i) All contact of the eyes and skin with liquids containing one percent or more formaldehyde shall be prevented by the use of chemical protective clothing made of material impervious to formaldehyde and the use of other personal protective equipment, such as goggles and face shields, as appropriate to the operation.

(ii) Contact with irritating or sensitizing materials shall be prevented to the extent necessary to eliminate the hazard.

(iii) Where a face shield is worn, chemical safety goggles are also required if there is a danger of formaldehyde reaching the area of the eye.

(iv) Full body protection shall be worn for entry into areas where concentrations exceed 100 ppm and for emergency reentry into areas of unknown concentration.

(b) Maintenance of protective equipment and clothing.

(i) The employer shall assure that protective equipment and clothing that has become contaminated with formaldehyde is cleaned or laundered before its reuse.

(ii) When ventilating formaldehyde-contaminated clothing and equipment, the employer shall establish a storage area so that employee exposure is minimized. Containers for contaminated clothing and equipment and storage areas shall have labels and signs containing the following information:

DANGER
FORMALDEHYDE-CONTAMINATED (CLOTHING) EQUIPMENT
AVOID INHALATION AND SKIN CONTACT

(iii) The employer shall assure that only persons trained to recognize the hazards of formaldehyde remove the contaminated material from the storage area for purposes of cleaning, laundering, or disposal.

(iv) The employer shall assure that no employee takes home equipment or clothing that is contaminated with formaldehyde.

(v) The employer shall repair or replace all required protective clothing and equipment for each affected employee as necessary to assure its effectiveness.

(vi) The employer shall inform any person who launders, cleans, or repairs such clothing or equipment of formaldehyde's potentially harmful effects and of procedures to safely handle the clothing and equipment.

(9) Hygiene protection.

(a) The employer shall provide change rooms, as described in WAC 296-24-120 for employees who are required to change from work clothing into protective clothing to prevent skin contact with formaldehyde.

(b) If employees' skin may become splashed with solutions containing one percent or greater formaldehyde, for example because of equipment failure or improper work practices, the employer shall provide conveniently located quick drench showers and assure that affected employees use these facilities immediately.

(c) If there is any possibility that an employee's eyes may be splashed with solutions containing 0.1 percent or greater formaldehyde, the employer shall provide acceptable eyewash facilities within the immediate work area for emergency use.

(10) Housekeeping. For operations involving formaldehyde liquids or gas, the employer shall conduct a program to detect leaks and spills, including regular visual inspections.

(a) Preventative maintenance of equipment, including surveys for leaks, shall be undertaken at regular intervals.

(b) In work areas where spillage may occur, the employer shall make provisions to contain the spill, to decontaminate the work area, and to dispose of the waste.

(c) The employer shall assure that all leaks are repaired and spills are cleaned promptly by employees wearing suitable protective equipment and trained in proper methods for cleanup and decontamination.

(d) Formaldehyde-contaminated waste and debris resulting from leaks or spills shall be placed for disposal in sealed containers bearing a label warning of formaldehyde's presence and of the hazards associated with formaldehyde.

(11) Emergencies. For each workplace where there is the possibility of an emergency involving formaldehyde, the employer shall assure appropriate procedures are adopted to minimize injury and loss of life. Appropriate procedures shall be implemented in the event of an emergency.

(12) Medical surveillance.

(a) Employees covered.

(i) The employer shall institute medical surveillance programs for all employees exposed to formaldehyde at concentrations at or exceeding the action level or exceeding the STEL.

(ii) The employer shall make medical surveillance available for employees who develop signs and symptoms of overexposure to formaldehyde and for all employees exposed to formaldehyde in emergencies. When determining whether an employee may be experiencing signs and symptoms of possible overexposure to formaldehyde, the employer may rely on the evidence that signs and symptoms associated with formaldehyde exposure will occur only in exceptional circumstances when airborne exposure is less than 0.1 ppm and when formaldehyde is present in materials in concentrations less than 0.1 percent.

(b) Examination by a physician. All medical procedures, including administration of medical disease questionnaires, shall be performed by or under the supervision of a licensed physician and shall be provided without cost to the employee, without loss of pay, and at a reasonable time and place.

(c) Medical disease questionnaire. The employer shall make the following medical surveillance available to employees prior to assignment to a job where formaldehyde exposure is at or above the action level or above the STEL and annually thereafter. The employer shall also make the following medical surveillance available promptly upon determining that an employee is experiencing signs and symptoms indicative of possible overexposure to formaldehyde.

(i) Administration of a medical disease questionnaire, such as in Appendix D, which is designed to elicit information on work history, smoking history, any evidence of eye, nose, or throat irritation; chronic airway problems or hyperreactive airway disease; allergic skin conditions or dermatitis; and upper or lower respiratory problems.

(ii) A determination by the physician, based on evaluation of the medical disease questionnaire, of whether a medical examination is necessary for employees not required to wear respirators to reduce exposure to formaldehyde.

(d) Medical examinations. Medical examinations shall be given to any employee who the physician feels, based on information in the medical disease questionnaire, may be at increased risk from exposure to formaldehyde and at the time of initial assignment and at least annually thereafter to all employees required to wear a respirator to reduce exposure to formaldehyde. The medical examination shall include:

(i) A physical examination with emphasis on evidence of irritation or sensitization of the skin and respiratory system, shortness of breath, or irritation of the eyes.

(ii) Laboratory examinations for respirator wearers consisting of baseline and annual pulmonary function tests. As a minimum, these tests shall consist of forced vital capacity (FVC), forced expiratory volume in one second (FEV1), and forced expiratory flow (FEF).

(iii) Any other test which the examining physician deems necessary to complete the written opinion.

(iv) Counseling of employees having medical conditions that would be directly or indirectly aggravated by exposure to formaldehyde on the increased risk of impairment of their health.

(e) Examinations for employees exposed in an emergency. The employer shall make medical examinations available as soon as possible to all employees who have been exposed to formaldehyde in an emergency.

(i) The examination shall include a medical and work history with emphasis on any evidence of upper or lower respiratory problems, allergic conditions, skin reaction or hypersensitivity, and any evidence of eye, nose, or throat irritation.

(ii) Other examinations shall consist of those elements considered appropriate by the examining physician.

(f) Information provided to the physician. The employer shall provide the following information to the examining physician:

(i) A copy of this standard and Appendices A, C, D, and E;

(ii) A description of the affected employee's job duties as they relate to the employee's exposure to formaldehyde;

(iii) The representative exposure level for the employee's job assignment;

(iv) Information concerning any personal protective equipment and respiratory protection used or to be used by the employee; and

(v) Information from previous medical examinations of the affected employee within the control of the employer.

(vi) In the event of a nonroutine examination because of an emergency, the employer shall provide to the physician as soon as possible: A description of how the emergency occurred and the exposure the victim may have received.

(g) Physician's written opinion.

(i) For each examination required under this standard, the employer shall obtain a written opinion from the examining physician. This written opinion shall contain the results of the medical examination except that it shall not reveal specific findings or diagnoses unrelated to occupational exposure to formaldehyde. The written opinion shall include:

(A) The physician's opinion as to whether the employee has any medical condition that would place the employee at an increased risk of material impairment of health from exposure to formaldehyde;

(B) Any recommended limitations on the employee's exposure or changes in the use of personal protective equipment, including respirators;

(C) A statement that the employee has been informed by the physician of any medical conditions which would be aggravated by exposure to formaldehyde, whether these conditions may have resulted from past formaldehyde exposure or from exposure in an emergency, and whether there is a need for further examination or treatment.

(ii) The employer shall provide for retention of the results of the medical examination and tests conducted by the physician.

(iii) The employer shall provide a copy of the physician's written opinion to the affected employee within fifteen days of its receipt.

(h) Medical removal.

(i) The provisions of this subdivision apply when an employee reports significant irritation of the mucosa of the eyes or of the upper airways, respiratory sensitization, dermal irritation, or dermal sensitization attributed to workplace formaldehyde exposure. Medical removal provisions do not apply in case of dermal irritation or dermal sensitization when the product suspected of causing the dermal condition contains less than 0.05% formaldehyde.

(ii) An employee's report of signs or symptoms of possible overexposure to formaldehyde shall be evaluated by a physician selected by the employer pursuant to (c) of this subsection. If the physician determines that a medical examination is not necessary under (c)(ii) of this subsection, there shall be a two-week evaluation and remediation period to permit the employer to ascertain whether the signs or symptoms subside untreated or with the use of creams, gloves, first-aid treatment, or personal protective equipment. Industrial hygiene measures that limit the employee's exposure to formaldehyde may also be implemented during this period. The employee shall be referred immediately to a physician prior to expiration of the two-week period if the signs or symptoms worsen. Earnings, seniority, and benefits may not be altered during the two-week period by virtue of the report.

(iii) If the signs or symptoms have not subsided or been remedied by the end of the two-week period, or earlier if signs or symptoms warrant, the employee shall be examined by a physician selected by the employer. The physician shall presume, absent contrary evidence, that observed dermal irritation or dermal sensitization are not attributable to formaldehyde when products to which the affected employee is exposed contain less than 0.1% formaldehyde.

(iv) Medical examinations shall be conducted in compliance with the requirements of (e)(i) and (ii) of this subsection. Additional guidelines for conducting medical exams are contained in WAC 296-62-07546, Appendix C.

(v) If the physician finds that significant irritation of the mucosa of the eyes or the upper airways, respiratory sensitization, dermal irritation, or dermal sensitization result from workplace formaldehyde exposure and recommends restrictions or removal. The employer shall promptly comply with the restrictions or recommendations of removal. In the event of a recommendation of removal, the employer shall remove the affected employee from the current formaldehyde exposure and if possible, transfer the employee to work having no or significantly less exposure to formaldehyde.

(vi) When an employee is removed pursuant to item (v) of this subdivision, the employer shall transfer the employee to comparable work for which the employee is qualified or can be trained in a short period (up to six months), where the formaldehyde exposures are as low as possible, but not higher than the action level. The employer shall maintain the employee's current earnings, seniority, and other benefits. If there is no such work available, the employer shall maintain the employee's current earnings, seniority, and other benefits until such work becomes available, until the employee is determined to be unable to return to workplace formaldehyde exposure, until the employee is determined to be able to return to the original job status, or for six months, whichever comes first.

(vii) The employer shall arrange for a follow-up medical examination to take place within six months after the employee is removed pursuant to this subsection. This examination shall determine if the employee can return to the original job status, or if the removal is to be permanent. The physician shall make a decision within six months of the date the employee was removed as to whether the employee can be returned to the original job status, or if the removal is to be permanent.

(viii) An employer's obligation to provide earnings, seniority, and other benefits to a removed employee may be reduced to the extent that the employee receives compensation for earnings lost during the period of removal either from a publicly or employer-funded compensation program or from employment with another employer made possible by virtue of the employee's removal.

(ix) In making determinations of the formaldehyde content of materials under this subsection the employer may rely on objective data.

(i) Multiple physician review.

(i) After the employer selects the initial physician who conducts any medical examination or consultation to determine whether medical removal or restriction is appropriate, the employee may designate a second physician to review

any findings, determinations, or recommendations of the initial physician and to conduct such examinations, consultations, and laboratory tests as the second physician deems necessary and appropriate to evaluate the effects of formaldehyde exposure and to facilitate this review.

(ii) The employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial physician conducts a medical examination or consultation for the purpose of medical removal or restriction.

(iii) The employer may condition its participation in, and payment for, the multiple physician review mechanism upon the employee doing the following within fifteen days after receipt of the notification of the right to seek a second medical opinion, or receipt of the initial physician's written opinion, whichever is later:

(A) The employee informs the employer of the intention to seek a second medical opinion; and

(B) The employee initiates steps to make an appointment with a second physician.

(iv) If the findings, determinations, or recommendations of the second physician differ from those of the initial physician, then the employer and the employee shall assure that efforts are made for the two physicians to resolve the disagreement. If the two physicians are unable to quickly resolve their disagreement, then the employer and the employee through their respective physicians shall designate a third physician who shall be a specialist in the field at issue:

(A) To review the findings, determinations, or recommendations of the prior physicians; and

(B) To conduct such examinations, consultations, laboratory tests, and discussions with prior physicians as the third physician deems necessary to resolve the disagreement of the prior physicians.

(v) In the alternative, the employer and the employee or authorized employee representative may jointly designate such third physician.

(vi) The employer shall act consistent with the findings, determinations, and recommendations of the third physician, unless the employer and the employee reach an agreement which is otherwise consistent with the recommendations of at least one of the three physicians.

(13) Hazard communication.

(a) General. Notwithstanding any exemption granted in WAC ((~~296-800-170~~)) 296-901-140 for wood products, each employer who has a workplace covered by this standard shall comply with the requirements of WAC ((~~296-800-170~~)) 296-901-140. The definitions of the ((~~chemical~~)) hazard communication standard shall apply under this standard.

(i) The following shall be subject to the hazard communication requirements of this section: Formaldehyde gas, all mixtures or solutions composed of greater than 0.1 percent formaldehyde, and materials capable of releasing formaldehyde into the air under reasonably foreseeable concentrations reaching or exceeding 0.1 ppm.

(ii) As a minimum, specific health hazards that the employer shall address are: Cancer, irritation and sensitization of the skin and respiratory system, eye and throat irritation, and acute toxicity.

(b) Manufacturers and importers who produce or import formaldehyde or formaldehyde-containing products shall provide downstream employers using or handling these products with an objective determination through the required labels and ((~~MSDSs~~)) SDSs as required by ((~~chapter 296-839~~)) WAC 296-901-140.

(c) Labels.

(i) The employer shall assure that hazard warning labels complying with the requirements of WAC ((~~296-800-170~~)) 296-901-140 are affixed to all containers of materials listed in (a)(i) of this subsection, except to the extent that (a)(i) of this subsection is inconsistent with this item.

(ii) Information on labels. As a minimum, for all materials listed in (a)(i) of this subsection, capable of releasing formaldehyde at levels of 0.1 ppm to 0.5 ppm, labels shall identify that the product contains formaldehyde: List the name and address of the responsible party; and state that physical and health hazard information is readily available from the employer and from ((~~material~~)) safety data sheets.

(iii) For materials listed in (a)(i) of this subsection, capable of releasing formaldehyde at levels above 0.5 ppm, labels shall appropriately address all the hazards as defined in WAC ((~~296-800-170~~)) 296-901-140, and Appendices A and B, including respiratory sensitization, and shall contain the words "Potential Cancer Hazard."

(iv) In making the determinations of anticipated levels of formaldehyde release, the employer may rely on objective data indicating the extent of potential formaldehyde release under reasonably foreseeable conditions of use.

(v) Substitute warning labels. The employer may use warning labels required by other statutes, regulations, or ordinances which impart the same information as the warning statements required by this subitem.

(d) ((~~Material~~)) Safety data sheets.

(i) Any employer who uses formaldehyde-containing materials listed in (a)(i) of this subsection shall comply with the requirements of WAC ((~~296-800-170~~)) 296-901-140 with regard to the development and updating of ((~~material~~)) safety data sheets.

(ii) Manufacturers, importers, and distributors of formaldehyde containing materials listed in (a)(i) of this subsection shall assure that ((~~material~~)) safety data sheets and updated information are provided to all employers purchasing such materials at the time of the initial shipment and at the time of the first shipment after a ((~~material~~)) safety data sheet is updated.

(e) Written hazard communication program. The employer shall develop, implement, and maintain at the workplace, a written hazard communication program for formaldehyde exposures in the workplace, which at a minimum describes how the requirements specified in this section for labels and other forms of warning and ((~~material~~)) safety data sheets, and subsection (14) of this section for employee information and training, will be met. Employees in multiemployer workplaces shall comply with the requirements of WAC ((~~296-800-170~~)) 296-901-140.

(14) Employee information and training.

(a) Participation. The employer shall assure that all employees who are assigned to workplaces where there is a health hazard from formaldehyde participate in a training

program, except that where the employer can show, using objective data, that employees are not exposed to formaldehyde at or above 0.1 ppm, the employer is not required to provide training.

(b) Frequency. Employers shall provide such information and training to employees at the time of their initial assignment and whenever a new exposure to formaldehyde is introduced into their work area. The training shall be repeated at least annually.

(c) Training program. The training program shall be conducted in a manner which the employee is able to understand and shall include:

(i) A discussion of the contents of this regulation and the contents of the ((~~material~~)) safety data sheet;

(ii) The purpose for and a description of the medical surveillance program required by this standard, including:

(A) A description of the potential health hazards associated with exposure to formaldehyde and a description of the signs and symptoms of exposure to formaldehyde.

(B) Instructions to immediately report to the employer the development of any adverse signs or symptoms that the employee suspects is attributable to formaldehyde exposure.

(iii) Description of operations in the work area where formaldehyde is present and an explanation of the safe work practices appropriate for limiting exposure to formaldehyde in each job;

(iv) The purpose for, proper use of, and limitations of personal protective clothing;

(v) Instructions for the handling of spills, emergencies, and clean-up procedures;

(vi) An explanation of the importance of engineering and work practice controls for employee protection and any necessary instruction in the use of these controls;

(vii) A review of emergency procedures including the specific duties or assignments of each employee in the event of an emergency; and

(viii) The purpose, proper use, limitations, and other training requirements for respiratory protection as required by chapter 296-842 WAC.

(d) Access to training materials.

(i) The employer shall inform all affected employees of the location of written training materials and shall make these materials readily available, without cost, to the affected employees.

(ii) The employer shall provide, upon request, all training materials relating to the employee training program to the director of labor and industries, or his/her designated representative.

(15) Recordkeeping.

(a) Exposure measurements. The employer shall establish and maintain an accurate record of all measurements taken to monitor employee exposure to formaldehyde. This record shall include:

(i) The date of measurement;

(ii) The operation being monitored;

(iii) The methods of sampling and analysis and evidence of their accuracy and precision;

(iv) The number, durations, time, and results of samples taken;

(v) The types of protective devices worn; and

(vi) The names, job classifications, Social Security numbers, and exposure estimates of the employees whose exposures are represented by the actual monitoring results.

(b) Exposure determinations. Where the employer has determined that no monitoring is required under this standard, the employer shall maintain a record of the objective data relied upon to support the determination that no employee is exposed to formaldehyde at or above the action level.

(c) Medical surveillance. The employer shall establish and maintain an accurate record for each employee subject to medical surveillance under this standard. This record shall include:

(i) The name and Social Security number of the employee;

(ii) The physician's written opinion;

(iii) A list of any employee health complaints that may be related to exposure to formaldehyde; and

(iv) A copy of the medical examination results, including medical disease questionnaires and results of any medical tests required by the standard or mandated by the examining physician.

(d) Record retention. The employer shall retain records required by this standard for at least the following periods:

(i) Exposure records and determinations shall be kept for at least thirty years; and

(ii) Medical records shall be kept for the duration of employment plus thirty years.

(e) Availability of records.

(i) Upon request, the employer shall make all records maintained as a requirement of this standard available for examination and copying to the director of labor and industries, or his/her designated representative.

(ii) The employer shall make employee exposure records, including estimates made from representative monitoring and available upon request for examination and copying, to the subject employee, or former employee, and employee representatives in accordance with chapter 296-802 WAC.

(iii) Employee medical records required by this standard shall be provided upon request for examination and copying, to the subject employee, or former employee, or to anyone having the specific written consent of the subject employee or former employee in accordance with chapter 296-802 WAC.

AMENDATORY SECTION (Amending WSR 09-15-145, filed 7/21/09, effective 9/1/09)

WAC 296-62-07425 Communication of cadmium hazards ((~~to employees~~)). (1) General. ((~~In communications concerning cadmium hazards,~~)) Chemical manufacturers, importers, distributors and employers shall comply with all requirements of WAC 296-901-140, Hazard communication.

(2) In classifying the hazards of cadmium at least the following hazards are to be addressed: Cancer; lung effects; kidney effects; and acute toxicity effects.

(3) Employers shall include cadmium in the hazard communication program established to comply with ((~~the requirements of WISHA's Chemical Hazard Communication Stan-~~

~~dard, WAC 296-800-170, including but not limited to the requirements concerning warning signs and labels, material~~)) WAC 296-901-140, Hazard communication. Employers shall ensure that each employee has access to labels on containers of cadmium and to safety data sheets ((~~(MSDS)~~)) (SDSs), and ((~~employee information and training. In addition, employers shall comply with the following requirements:~~

~~(2)~~)) is trained in accordance with the requirements of WAC 296-901-140, Hazard communication and subsection (m)(4) of this section.

(4) Warning signs.

(a) Warning signs shall be provided and displayed in regulated areas. In addition, warning signs shall be posted at all approaches to regulated areas so that an employee may read the signs and take necessary protective steps before entering the area.

(b) ((~~Warning signs required by (a) of this subsection shall bear the following information~~)) Prior to June 1, 2016, employers may use the following legend in lieu of that specified in (d) of this subsection:

DANGER CADMIUM CANCER HAZARD CAN CAUSE LUNG AND KIDNEY DISEASE AUTHORIZED PERSONNEL ONLY RESPIRATORS REQUIRED IN THIS AREA

(c) The employer shall ((~~assure~~)) ensure that signs required by this subsection are illuminated, cleaned, and maintained as necessary so that the legend is readily visible.

(((~~3~~))) (d) Warning signs required by (a) of this subsection shall bear the following legend:

DANGER CADMIUM MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS AND KIDNEYS
WEAR RESPIRATORY PROTECTION IN THIS AREA
AUTHORIZED PERSONNEL ONLY

(5) Warning labels.

(a) Shipping and storage containers containing cadmium, cadmium compounds, or cadmium contaminated clothing, equipment, waste, scrap, or debris shall bear appropriate warning labels, as specified in (((~~b~~))) subsection (1) of this ((~~subsection~~)) section.

(b) ((~~The warning labels shall~~)) Prior to June 1, 2015, employers may include ((~~at least~~)) the following information on warning labels in lieu of the labeling requirements specified in subsection (1) of this section and (c) of this subsection:

DANGER CONTAINS CADMIUM CANCER HAZARD AVOID CREATING DUST CAN CAUSE LUNG AND KIDNEY DISEASE

(c) The warning labels for containers of contaminated protective clothing, equipment, waste, scrap, or debris shall include at least the following information:

DANGER CONTAINS CADMIUM MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS AND KIDNEYS
AVOID CREATING DUST

(d) Where feasible, installed cadmium products shall have a visible label or other indication that cadmium is present.

(((~~4~~))) (6) Employee information and training.

(a) The employer shall train each employee who is potentially exposed to cadmium in accordance with the requirements of this chapter. The employer shall institute a training program, ensure employee participation in the program, and maintain a record of the contents of such program.

(b) Training shall be provided prior to or at the time of initial assignment to a job involving potential exposure to cadmium and at least annually thereafter.

(c) The employer shall make the training program understandable to the employee and shall assure that each employee is informed of the following:

(i) The health hazards associated with cadmium exposure, with special attention to the information incorporated in WAC 296-62-07441, Appendix A;

(ii) The quantity, location, manner of use, release, and storage of cadmium in the workplace and the specific nature of operations that could result in exposure to cadmium, especially exposures above the PEL;

(iii) The engineering controls and work practices associated with the employee's job assignment;

(iv) The measures employees can take to protect themselves from exposure to cadmium, including modification of such habits as smoking and personal hygiene, and specific procedures the employer has implemented to protect employees from exposure to cadmium such as appropriate work practices, emergency procedures, and the provision of personal protective equipment;

(v) The purpose, proper selection, fitting, proper use, and limitations of protective clothing;

(vi) The purpose and a description of the medical surveillance program required by WAC 296-62-07423;

(vii) The contents of this section and its appendices;

(viii) The employee's rights of access to records under WAC ((~~296-800-170~~)) 296-901-140 and chapter 296-802 WAC; and

(ix) The purpose, proper use, limitations, and other training requirements for respiratory protection as required in chapter 296-62 WAC, Part E.

(d) Additional access to information and training program and materials.

(i) The employer shall make a copy of this section and its appendices readily available without cost to all affected employees and shall provide a copy if requested.

(ii) The employer shall provide to the director, upon request, all materials relating to the employee information and the training program.

AMENDATORY SECTION (Amending WSR 12-24-071, filed 12/4/12, effective 1/4/13)

WAC 296-62-07521 Lead. (1) Scope and application.

(a) This section applies to all occupational exposure to lead, except as provided in subdivision (1)(b).

(b) This section does not apply to the construction industry or to agricultural operations covered by chapter 296-307 WAC.

(2) Definitions as applicable to this part.

(a) "Action level" - Employee exposure, without regard to the use of respirators, to an airborne concentration of lead of thirty micrograms per cubic meter of air (30 $\mu g/m^3$) averaged over an eight-hour period.

(b) "Director" - The director of the department of labor and industries.

(c) "Lead" - Metallic lead, all inorganic lead compounds, and organic lead soaps. Excluded from this definition are all other organic lead compounds.

(3) General requirements.

(a) Employers will assess the hazards of lead in the work place and provide information to the employees about the hazards of the lead exposures to which they may be exposed.

(b) Information provided shall include:

(i) Exposure monitoring (including employee notification);

(ii) Written compliance programs;

(iii) Respiratory protection programs;

(iv) Personnel protective equipment and housekeeping;

(v) Medical surveillance and examinations;

(vi) Training requirements;

(vii) Recordkeeping requirements.

(4) Permissible exposure limit (PEL).

(a) The employer shall assure that no employee is exposed to lead at concentrations greater than fifty micrograms per cubic meter of air (50 $\mu g/m^3$) averaged over an eight-hour period.

(b) If an employee is exposed to lead for more than eight hours in any work day, the permissible exposure limit, as a time weighted average (TWA) for that day, shall be reduced according to the following formula:

Maximum permissible limit (in $\mu g/m^3$) = 400 ÷ hours worked in the day.

(c) When respirators are used to supplement engineering and work practice controls to comply with the PEL and all the requirements of subsection (7) have been met, employee exposure, for the purpose of determining whether the employer has complied with the PEL, may be considered to be at the level provided by the protection factor of the respirator for those periods the respirator is worn. Those periods may be averaged with exposure levels during periods when respirators are not worn to determine the employee's daily TWA exposure.

(5) Exposure monitoring.

(a) General.

(i) For the purposes of subsection (5), employee exposure is that exposure which would occur if the employee were not using a respirator.

(ii) With the exception of monitoring under subdivision (5)(c), the employer shall collect full shift (for at least seven continuous hours) personal samples including at least one sample for each shift for each job classification in each work area.

(iii) Full shift personal samples shall be representative of the monitored employee's regular, daily exposure to lead.

(b) Initial determination. Each employer who has a workplace or work operation covered by this standard shall determine if any employee may be exposed to lead at or above the action level.

(c) Basis of initial determination.

(i) The employer shall monitor employee exposures and shall base initial determinations on the employee exposure monitoring results and any of the following, relevant considerations:

(A) Any information, observations, or calculations which would indicate employee exposure to lead;

(B) Any previous measurements of airborne lead; and

(C) Any employee complaints of symptoms which may be attributable to exposure to lead.

(ii) Monitoring for the initial determination may be limited to a representative sample of the exposed employees who the employer reasonably believes are exposed to the greatest airborne concentrations of lead in the workplace.

(iii) Measurements of airborne lead made in the preceding twelve months may be used to satisfy the requirement to monitor under item (5)(c)(i) if the sampling and analytical methods used meet the accuracy and confidence levels of subdivision (5)(i) of this section.

(d) Positive initial determination and initial monitoring.

(i) Where a determination conducted under subdivision (5)(b) and (5)(c) of this section shows the possibility of any employee exposure at or above the action level, the employer shall conduct monitoring which is representative of the exposure for each employee in the workplace who is exposed to lead.

(ii) Measurements of airborne lead made in the preceding twelve months may be used to satisfy this requirement if the sampling and analytical methods used meet the accuracy and confidence levels of subdivision (5)(i) of this section.

(e) Negative initial determination. Where a determination, conducted under subdivisions (5)(b) and (5)(c) of this section is made that no employee is exposed to airborne concentrations of lead at or above the action level, the employer shall make a written record of such determination. The record shall include at least the information specified in subdivision (5)(c) of this section and shall also include the date of determination, location within the worksite, and the name and Social Security number of each employee monitored.

(f) Frequency.

(i) If the initial monitoring reveals employee exposure to be below the action level the measurements need not be repeated except as otherwise provided in subdivision (5)(g) of this section.

(ii) If the initial determination or subsequent monitoring reveals employee exposure to be at or above the action level but below the permissible exposure limit the employer shall repeat monitoring in accordance with this subsection at least every six months. The employer shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least seven days apart, are below the action level at which time the employer may discontinue monitoring for that employee except as otherwise provided in subdivision (5)(g) of this section.

(iii) If the initial monitoring reveals that employee exposure is above the permissible exposure limit the employer shall repeat monitoring quarterly. The employer shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least seven days apart, are below the PEL but at or above the action level at which time the employer shall repeat monitoring for that employee at the frequency specified in item (5)(f)(ii), except as otherwise provided in subdivision (5)(g) of this section.

(g) Additional monitoring. Whenever there has been a production, process, control or personnel change which may

result in new or additional exposure to lead, or whenever the employer has any other reason to suspect a change which may result in new or additional exposures to lead, additional monitoring in accordance with this subsection shall be conducted.

(h) Employee notification.

(i) Within five working days after the receipt of monitoring results, the employer shall notify each employee in writing of the results which represent that employee's exposure.

(ii) Whenever the results indicate that the representative employee exposure, without regard to respirators, exceeds the permissible exposure limit, the employer shall include in the written notice a statement that the permissible exposure limit was exceeded and a description of the corrective action taken or to be taken to reduce exposure to or below the permissible exposure limit.

(i) Accuracy of measurement. The employer shall use a method of monitoring and analysis which has an accuracy (to a confidence level of ninety-five percent) of not less than plus or minus twenty percent for airborne concentrations of lead equal to or greater than 30 μg/m^3.

(6) Methods of compliance.

(a) Engineering and work practice controls.

(i) Where any employee is exposed to lead above the permissible exposure limit for more than thirty days per year, the employer shall implement engineering and work practice controls (including administrative controls) to reduce and maintain employee exposure to lead in accordance with the implementation schedule in Table I below, except to the extent that the employer can demonstrate that such controls are not feasible. Wherever the engineering and work practice controls which can be instituted are not sufficient to reduce employee exposure to or below the permissible exposure limit, the employer shall nonetheless use them to reduce exposures to the lowest feasible level and shall supplement them by the use of respiratory protection which complies with the requirements of subsection (7) of this section.

(ii) Where any employee is exposed to lead above the permissible exposure limit, but for thirty days or less per year, the employer shall implement engineering controls to reduce exposures to 200 μg/m^3, but thereafter may implement any combination of engineering, work practice (including administrative controls), and respiratory controls to reduce and maintain employee exposure to lead to or below 50 μg/m^3.

TABLE 1

Industry	Compliance dates:[1] (50 μg/m^3)
Lead chemicals, secondary copper smelting.	July 19, 1996
Nonferrous foundries	July 19, 1996.[2]
Brass and bronze ingot manufacture.	6 years.[3]

[1] Calculated by counting from the date the stay on implementation of subsection (6)(a) was lifted by the U.S. Court of Appeals for the District of Columbia, the number of years specified in the 1978 lead standard and subsequent amendments for compliance with the PEL of 50 μg/m^3 for exposure to airborne concentrations of lead levels for the particular industry.

[2] Large nonferrous foundries (20 or more employees) are required to achieve the PEL of 50 μg/m^3 by means of engineering and work practice controls. Small nonferrous foundries (fewer than 20 employees) are required to achieve an 8-hour TWA of 75 μg/m^3 by such controls.

[3] Expressed as the number of years from the date on which the Court lifts the stay on the implementation of subsection (6)(a) for this industry for employers to achieve a lead in air concentration of 75 μg/m^3. Compliance with subsection (6) in this industry is determined by a compliance directive that incorporates elements from the settlement agreement between OSHA and representatives of the industry.

(b) Respiratory protection. Where engineering and work practice controls do not reduce employee exposure to or below the 50 μg/m^3 permissible exposure limit, the employer shall supplement these controls with respirators in accordance with subsection (7).

(c) Compliance program.

(i) Each employer shall establish and implement a written compliance program to reduce exposures to or below the permissible exposure limit, and interim levels if applicable, solely by means of engineering and work practice controls in accordance with the implementation schedule in subdivision (6)(a).

(ii) Written plans for these compliance programs shall include at least the following:

(A) A description of each operation in which lead is emitted; e.g., machinery used, material processed, controls in place, crew size, employee job responsibilities, operating procedures and maintenance practices;

(B) A description of the specific means that will be employed to achieve compliance, including engineering plans and studies used to determine methods selected for controlling exposure to lead;

(C) A report of the technology considered in meeting the permissible exposure limit;

(D) Air monitoring data which documents the source of lead emissions;

(E) A detailed schedule for implementation of the program, including documentation such as copies of purchase orders for equipment, construction contracts, etc.;

(F) A work practice program which includes items required under subsections (8), (9) and (10) of this regulation;

(G) An administrative control schedule required by subdivision (6)(f), if applicable; and

(H) Other relevant information.

(iii) Written programs shall be submitted upon request to the director, and shall be available at the worksite for examination and copying by the director, any affected employee or authorized employee representatives.

(iv) Written programs shall be revised and updated at least every six months to reflect the current status of the program.

(d) Mechanical ventilation.

(i) When ventilation is used to control exposure, measurements which demonstrate the effectiveness of the system in controlling exposure, such as capture velocity, duct velocity, or static pressure shall be made at least every three months. Measurements of the system's effectiveness in controlling exposure shall be made within five days of any change in production, process, or control which might result in a change in employee exposure to lead.

(ii) Recirculation of air. If air from exhaust ventilation is recirculated into the workplace, the employer shall assure that (A) the system has a high efficiency filter with reliable back-up filter; and (B) controls to monitor the concentration of lead in the return air and to bypass the recirculation system automatically if it fails are installed, operating, and maintained.

(e) Administrative controls. If administrative controls are used as a means of reducing employees TWA exposure to lead, the employer shall establish and implement a job rotation schedule which includes:

(i) Name or identification number of each affected employee;

(ii) Duration and exposure levels at each job or work station where each affected employee is located; and

(iii) Any other information which may be useful in assessing the reliability of administrative controls to reduce exposure to lead.

(7) Respiratory protection.

(a) General. For employees who use respirators required by this section, the employer must provide each employee an appropriate respirator that complies with the requirements of this subsection. Respirators must be used during:

(i) Period necessary to install or implement engineering or work-practice controls;

(ii) Work operations for which engineering and work-practice controls are not sufficient to reduce exposures to or below the permissible exposure limit;

(iii) Periods when an employee requests a respirator.

(b) Respirator program.

(i) The employer must develop, implement and maintain a respiratory protection program as required by chapter 296-842 WAC, Respirators, which covers each employee required by this chapter to use a respirator.

(ii) If an employee has breathing difficulty during fit testing or respirator use, the employer must provide the employee with a medical examination as required by subsection (11)(c)(ii)(C) of this section to determine whether or not the employee can use a respirator while performing the required duty.

(c) Respirator selection. The employer must:

(i) Select and provide to employees appropriate respirators according to this section and WAC 296-842-13005, found in the respirator rule.

(ii) Provide employees with a powered air-purifying respirator (PAPR) instead of a negative-pressure respirator selected when an employee chooses to use a PAPR and it provides adequate protection to the employee.

(iii) Provide employees with full-facepiece respirators instead of half-facepiece respirators for protection against lead aerosols that cause eye or skin irritation at the use concentration.

(iv) Provide HEPA filters or N-, R-, or P-100 filters for powered air-purifying respirators (PAPRs) and negative-pressure air-purifying respirators.

(8) Protective work clothing and equipment.

(a) Provision and use. If an employee is exposed to lead above the PEL, without regard to the use of respirators or where the possibility of skin or eye irritation exists, the employer shall provide at no cost to the employee and assure that the employee uses appropriate protective work clothing and equipment such as, but not limited to:

(i) Coveralls or similar full-body work clothing;

(ii) Gloves, hats, and shoes or disposable shoe coverlets; and

(iii) Face shields, vented goggles, or other appropriate protective equipment which complies with WAC 296-800-160.

(b) Cleaning and replacement.

(i) The employer shall provide the protective clothing required in subdivision (8)(a) of this section in a clean and dry condition at least weekly, and daily to employees whose exposure levels without regard to a respirator are over 200 $\mu g/m^3$ of lead as an eight-hour TWA.

(ii) The employer shall provide for the cleaning, laundering, or disposal of protective clothing and equipment required by subdivision (8)(a) of this section.

(iii) The employer shall repair or replace required protective clothing and equipment as needed to maintain their effectiveness.

(iv) The employer shall assure that all protective clothing is removed at the completion of a work shift only in change rooms provided for that purpose as prescribed in subdivision (10)(b) of this section.

(v) The employer shall assure that contaminated protective clothing which is to be cleaned, laundered, or disposed of, is placed in a closed container in the change-room which prevents dispersion of lead outside the container.

(vi) The employer shall inform in writing any person who cleans or launders protective clothing or equipment of the potentially harmful effects of exposure to lead.

(vii) The employer shall ((~~assure~~)) ensure that the containers of contaminated protective clothing and equipment required by subdivision (8)(b)(v) are labeled as follows:

DANGER: CLOTHING AND EQUIPMENT CONTAMINATED WITH LEAD. MAY DAMAGE FERTILITY OR THE UNBORN CHILD. CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM. DO NOT EAT, DRINK OR SMOKE WHEN HANDLING. DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF LEAD CONTAMINATED WASH WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, OR FEDERAL REGULATIONS.

(viii) Prior to June 1, 2015, employers may include the following information on bags or containers of contaminated protective clothing and equipment in lieu of the labeling requirements in (b)(vii) of this subsection:

CAUTION: CLOTHING CONTAMINATED WITH LEAD.
DO NOT REMOVE DUST BY BLOWING OR SHAKING.
DISPOSE OF LEAD CONTAMINATED WASH WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, OR FEDERAL REGULATIONS.

(((~~viii~~))) (ix) The employer shall prohibit the removal of lead from protective clothing or equipment by blowing, shaking, or any other means which disperses lead into the air.

(9) Housekeeping.

(a) Surfaces. All surfaces shall be maintained as free as practicable of accumulations of lead.

(b) Cleaning floors.

(i) Floors and other surfaces where lead accumulates may not be cleaned by the use of compressed air.

(ii) Shoveling, dry or wet sweeping, and brushing may be used only where vacuuming or other equally effective methods have been tried and found not to be effective.

(c) Vacuuming. Where vacuuming methods are selected, the vacuums shall be used and emptied in a manner which minimizes the reentry of lead into the workplace.

(10) Hygiene facilities and practices.

(a) The employer shall assure that in areas where employees are exposed to lead above the PEL, without regard to the use of respirators, food or beverage is not present or consumed, tobacco products are not present or used, and cosmetics are not applied, except in change rooms, lunchrooms, and showers required under subdivision (10)(b) through (10)(d) of this section.

(b) Change rooms.

(i) The employer shall provide clean change rooms for employees who work in areas where their airborne exposure to lead is above the PEL, without regard to the use of respirators.

(ii) The employer shall assure that change rooms are equipped with separate storage facilities for protective work clothing and equipment and for street clothes which prevent cross-contamination.

(c) Showers.

(i) The employer shall assure that employees who work in areas where their airborne exposure to lead is above the PEL, without regard to the use of respirators, shower at the end of the work shift.

(ii) The employer shall provide shower facilities in accordance with WAC 296-800-230.

(iii) The employer shall assure that employees who are required to shower pursuant to item (10)(c)(i) do not leave the workplace wearing any clothing or equipment worn during the work shift.

(d) Lunchrooms.

(i) The employer shall provide lunchroom facilities for employees who work in areas where their airborne exposure to lead is above the PEL, without regard to the use of respirators.

(ii) The employer shall assure that lunchroom facilities have a temperature controlled, positive pressure, filtered air supply, and are readily accessible to employees.

(iii) The employer shall assure that employees who work in areas where their airborne exposure to lead is above the PEL without regard to the use of a respirator wash their hands and face prior to eating, drinking, smoking or applying cosmetics.

(iv) The employer shall assure that employees do not enter lunchroom facilities with protective work clothing or equipment unless surface lead dust has been removed by vacuuming, downdraft booth, or other cleaning method.

(e) Lavatories. The employer shall provide an adequate number of lavatory facilities which comply with WAC 296-800-230.

(11) Medical surveillance.

(a) General.

(i) The employer shall institute a medical surveillance program for all employees who are or may be exposed at or above the action level for more than thirty days per year.

(ii) The employer shall assure that all medical examinations and procedures are performed by or under the supervision of a licensed physician.

(iii) The employer shall provide the required medical surveillance including multiple physician review under item (11)(c)(iii) without cost to employees and at a reasonable time and place.

(b) Biological monitoring.

(i) Blood lead and ZPP level sampling and analysis. The employer shall make available biological monitoring in the form of blood sampling and analysis for lead and zinc protoporphyrin levels to each employee covered under item (11)(a)(i) of this section on the following schedule:

(A) At least every six months to each employee covered under item (11)(a)(i) of this section;

(B) At least every two months for each employee whose last blood sampling and analysis indicated a blood lead level at or above 40 µg/100 g of whole blood. This frequency shall continue until two consecutive blood samples and analyses indicate a blood lead level below 40 µg/100 g of whole blood; and

(C) At least monthly during the removal period of each employee removed from exposure to lead due to an elevated blood lead level.

(ii) Follow-up blood sampling tests. Whenever the results of a blood lead level test indicate that an employee's blood lead level is at or above the numerical criterion for medical removal under item (12)(a)(i)(A), the employer shall provide a second (follow-up) blood sampling test within two weeks after the employer receives the results of the first blood sampling test.

(iii) Accuracy of blood lead level sampling and analysis. Blood lead level sampling and analysis provided pursuant to this section shall have an accuracy (to a confidence level of ninety-five percent) within plus or minus fifteen percent or 6 µg/100 ml, whichever is greater, and shall be conducted by a laboratory licensed by the Center for Disease Control (CDC), United States Department of Health, Education and Welfare or which has received a satisfactory grade in blood lead proficiency testing from CDC in the prior twelve months.

(iv) Employee notification. Within five working days after the receipt of biological monitoring results, the employer shall notify in writing each employee whose blood lead level is at or above 40 µg/100g: (A) of that employee's blood lead level and (B) that the standard requires temporary medical removal with medical removal protection benefits when an employee's blood lead level exceeds the numerical criterion for medical removal under item (12)(a)(i) of this section.

(c) Medical examinations and consultations.

(i) Frequency. The employer shall make available medical examinations and consultations to each employee covered under item (11)(a)(i) of this section on the following schedule:

(A) At least annually for each employee for whom a blood sampling test conducted at any time during the preceding twelve months indicated a blood lead level at or above 40 µg/100 g;

(B) Prior to assignment for each employee being assigned for the first time to an area in which airborne concentrations of lead are at or above the action level;

(C) As soon as possible, upon notification by an employee either that the employee has developed signs or symptoms commonly associated with lead intoxication, that the employee desires medical advice concerning the effects of current or past exposure to lead on the employee's ability to procreate a healthy child, or that the employee has demonstrated difficulty in breathing during a respirator fitting test or during use; and

(D) As medically appropriate for each employee either removed from exposure to lead due to a risk of sustaining material impairment to health, or otherwise limited pursuant to a final medical determination.

(ii) Content. Medical examinations made available pursuant to subitems (11)(c)(i)(A) through (B) of this section shall include the following elements:

(A) A detailed work history and a medical history, with particular attention to past lead exposure (occupational and nonoccupational), personal habits (smoking, hygiene), and past gastrointestinal, hematologic, renal, cardiovascular, reproductive and neurological problems;

(B) A thorough physical examination, with particular attention to teeth, gums, hematologic, gastrointestinal, renal, cardiovascular, and neurological systems. Pulmonary status should be evaluated if respiratory protection will be used;

(C) A blood pressure measurement;

(D) A blood sample and analysis which determines:

(I) Blood lead level;

(II) Hemoglobin and hematocrit determinations, red cell indices, and examination of peripheral smear morphology;

(III) Zinc protoporphyrin;

(IV) Blood urea nitrogen; and

(V) Serum creatinine;

(E) A routine urinalysis with microscopic examination; and

(F) Any laboratory or other test which the examining physician deems necessary by sound medical practice.

The content of medical examinations made available pursuant to subitems (11)(c)(i)(C) through (D) of this section shall be determined by an examining physician and, if requested by an employee, shall include pregnancy testing or laboratory evaluation of male fertility.

(iii) Multiple physician review mechanism.

(A) If the employer selects the initial physician who conducts any medical examination or consultation provided to an employee under this section, the employee may designate a second physician:

(I) To review any findings, determinations or recommendations of the initial physician; and

(II) To conduct such examinations, consultations, and laboratory tests as the second physician deems necessary to facilitate this review.

(B) The employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial physician conducts a medical examination or consultation pursuant to this section. The employer may condition its participation in, and payment for, the multiple physician review mechanism upon the employee doing the following within fifteen days after receipt of the foregoing notification, or receipt of the initial physician's written opinion, whichever is later:

(I) The employee informing the employer that he or she intends to seek a second medical opinion, and

(II) The employee initiating steps to make an appointment with a second physician.

(C) If the findings, determinations or recommendations of the second physician differ from those of the initial physician, then the employer and the employee shall assure that efforts are made for the two physicians to resolve any disagreement.

(D) If the two physicians have been unable to quickly resolve their disagreement, then the employer and the employee through their respective physicians shall designate a third physician:

(I) To review any findings, determinations or recommendations of the prior physicians; and

(II) To conduct such examinations, consultations, laboratory tests and discussions with the prior physicians as the third physician deems necessary to resolve the disagreement of the prior physicians.

(E) The employer shall act consistent with the findings, determinations and recommendations of the third physician, unless the employer and the employee reach an agreement which is otherwise consistent with the recommendations of at least one of the three physicians.

(iv) Information provided to examining and consulting physicians.

(A) The employer shall provide an initial physician conducting a medical examination or consultation under this section with the following information:

(I) A copy of this regulation for lead including all appendices;

(II) A description of the affected employee's duties as they relate to the employee's exposure;

(III) The employee's exposure level or anticipated exposure level to lead and to any other toxic substance (if applicable);

(IV) A description of any personal protective equipment used or to be used;

(V) Prior blood lead determinations; and

(VI) All prior written medical opinions concerning the employee in the employer's possession or control.

(B) The employer shall provide the foregoing information to a second or third physician conducting a medical examination or consultation under this section upon request either by the second or third physician, or by the employee.

(v) Written medical opinions.

(A) The employer shall obtain and furnish the employee with a copy of a written medical opinion from each examining or consulting physician which contains the following information:

(I) The physician's opinion as to whether the employee has any detected medical condition which would place the employee at increased risk of material impairment of the employee's health from exposure to lead;

(II) Any recommended special protective measures to be provided to the employee, or limitations to be placed upon the employee's exposure to lead;

(III) Any recommended limitation upon the employee's use of respirators, including a determination of whether the employee can wear a powered air purifying respirator if a physician determines that the employee cannot wear a negative pressure respirator; and

(IV) The results of the blood lead determinations.

(B) The employer shall instruct each examining and consulting physician to:

(I) Not reveal either in the written opinion, or in any other means of communication with the employer, findings, including laboratory results, or diagnoses unrelated to an employee's occupational exposure to lead; and

(II) Advise the employee of any medical condition, occupational or nonoccupational, which dictates further medical examination or treatment.

(vi) Alternate physician determination mechanisms. The employer and an employee or authorized employee representative may agree upon the use of any expeditious alternate physician determination mechanism in lieu of the multiple physician review mechanism provided by this subsection so long as the alternate mechanism otherwise satisfies the requirements contained in this subsection.

(d) Chelation.

(i) The employer shall assure that any person whom he retains, employs, supervises or controls does not engage in prophylactic chelation of any employee at any time.

(ii) If therapeutic or diagnostic chelation is to be performed by any person in item (11)(d)(i), the employer shall assure that it be done under the supervision of a licensed physician in a clinical setting with thorough and appropriate medical monitoring and that the employee is notified in writing prior to its occurrence.

(12) Medical removal protection.

(a) Temporary medical removal and return of an employee.

(i) Temporary removal due to elevated blood lead levels.

(A) The employer shall remove an employee from work having an exposure to lead at or above the action level on each occasion that a periodic and a follow-up blood sampling test conducted pursuant to this section indicate that the employee's blood lead level is at or above 60 µg/100g of whole blood; and

(B) The employer shall remove an employee from work having an exposure to lead at or above the action level on each occasion that the average of the last three blood sampling tests conducted pursuant to this section (or the average of all blood sampling tests conducted over the previous six months, whichever is longer) indicates that the employee's blood lead level is at or above 50 µg/100g of whole blood; provided, however, that an employee need not be removed if the last blood sampling test indicates a blood lead level below 40 µg/100g of whole blood.

(ii) Temporary removal due to a final medical determination.

(A) The employer shall remove an employee from work having an exposure to lead at or above the action level on each occasion that a final medical determination results in a medical finding, determination, or opinion that the employee has a detected medical condition which places the employee at increased risk of material impairment to health from exposure to lead.

(B) For the purposes of this section, the phrase "final medical determination" shall mean the outcome of the multiple physician review mechanism or alternate medical determination mechanism used pursuant to the medical surveillance provisions of this section.

(C) Where a final medical determination results in any recommended special protective measures for an employee, or limitations on an employee's exposure to lead, the employer shall implement and act consistent with the recommendation.

(iii) Return of the employee to former job status.

(A) The employer shall return an employee to his or her former job status:

(I) For an employee removed due to a blood lead level at or above 60 µg/100g, or due to an average blood lead level at or above 50 µg/100g, when two consecutive blood sampling tests indicate that the employee's blood lead level is below 40 µg/100g of whole blood;

(II) For an employee removed due to a final medical determination, when a subsequent final medical determination results in a medical finding, determination, or opinion that the employee no longer has a detected medical condition which places the employee at increased risk of material impairment to health from exposure to lead.

(B) For the purposes of this section, the requirement that an employer return an employee to his or her former job status is not intended to expand upon or restrict any rights an employee has or would have had, absent temporary medical removal, to a specific job classification or position under the terms of a collective bargaining agreement.

(iv) Removal of other employee special protective measure or limitations. The employer shall remove any limitations placed on an employee or end any special protective measures provided to an employee pursuant to a final medical determination when a subsequent final medical determination indicates that the limitations or special protective measures are no longer necessary.

(v) Employer options pending a final medical determination. Where the multiple physician review mechanism, or alternate medical determination mechanism used pursuant to the medical surveillance provisions of this section, has not yet resulted in a final medical determination with respect to an employee, the employer shall act as follows:

(A) Removal. The employer may remove the employee from exposure to lead, provide special protective measures to the employee, or place limitations upon the employee, consistent with the medical findings, determinations, or recommendations of any of the physicians who have reviewed the employee's health status.

(B) Return. The employer may return the employee to his or her former job status, end any special protective measures provided to the employee, and remove any limitations placed upon the employee, consistent with the medical findings, determinations, or recommendations of any of the physicians who have reviewed the employee's health status, with two exceptions. If:

(I) The initial removal, special protection, or limitation of the employee resulted from a final medical determination

which differed from the findings, determinations, or recommendations of the initial physician; or

(II) The employee has been on removal status for the preceding eighteen months due to an elevated blood lead level, then the employer shall await a final medical determination.

(b) Medical removal protection benefits.

(i) Provision of medical removal protection benefits. The employer shall provide to an employee up to eighteen months of medical removal protection benefits on each occasion that an employee is removed from exposure to lead or otherwise limited pursuant to this section.

(ii) Definition of medical removal protection benefits. For the purposes of this section, the requirement that an employer provide medical removal protection benefits means that the employer shall maintain the earnings, seniority and other employment rights and benefits of an employee as though the employee had not been removed from normal exposure to lead or otherwise limited.

(iii) Follow-up medical surveillance during the period of employee removal or limitation. During the period of time that an employee is removed from normal exposure to lead or otherwise limited, the employer may condition the provision of medical removal protection benefits upon the employee's participation in follow-up medical surveillance made available pursuant to this section.

(iv) Workers' compensation claims. If a removed employee files a claim for workers' compensation payments for a lead-related disability, then the employer shall continue to provide medical removal protection benefits pending disposition of the claim. To the extent that an award is made to the employee for earnings lost during the period of removal, the employer's medical removal protection obligation shall be reduced by such amount. The employer shall receive no credit for workers' compensation payments received by the employee for treatment related expenses.

(v) Other credits. The employer's obligation to provide medical removal protection benefits to a removed employee shall be reduced to the extent that the employee receives compensation for earnings lost during the period of removal either from a publicly or employer-funded compensation program, or receives income from employment with another employer made possible by virtue of the employee's removal.

(vi) Employees whose blood lead levels do not adequately decline within eighteen months of removal. The employer shall take the following measures with respect to any employee removed from exposure to lead due to an elevated blood lead level whose blood lead level has not declined within the past eighteen months of removal so that the employee has been returned to his or her former job status:

(A) The employer shall make available to the employee a medical examination pursuant to this section to obtain a final medical determination with respect to the employee;

(B) The employer shall assure that the final medical determination obtained indicates whether or not the employee may be returned to his or her former job status, and if not, what steps should be taken to protect the employee's health;

(C) Where the final medical determination has not yet been obtained, or once obtained indicates that the employee may not yet be returned to his or her former job status, the employer shall continue to provide medical removal protection benefits to the employee until either the employee is returned to former job status, or a final medical determination is made that the employee is incapable of ever safely returning to his or her former job status;

(D) Where the employer acts pursuant to a final medical determination which permits the return of the employee to his or her former job status despite what would otherwise be an unacceptable blood lead level, later questions concerning removing the employee again shall be decided by a final medical determination. The employer need not automatically remove such an employee pursuant to the blood lead level removal criteria provided by this section.

(vii) Voluntary removal or restriction of an employee. Where an employer, although not required by this section to do so, removes an employee from exposure to lead or otherwise places limitations on an employee due to the effects of lead exposure on the employee's medical condition, the employer shall provide medical removal protection benefits to the employee equal to that required by item (12)(b)(i) of this section.

(13) Employee information and training.

(a) Training program.

(i) Each employer who has a workplace in which there is a potential exposure to airborne lead at any level shall inform employees of the content of Appendices A and B of this regulation.

(ii) The employer shall train each employee who is subject to exposure to lead at or above the action level or for whom the possibility of skin or eye irritation exists, in accordance with the requirements of this section. The employer shall institute a training program for and assure the participation of all employees.

(iii) The employer shall provide initial training by one hundred eighty days from the effective date for those employees covered by item (13)(a)(ii) on the standard's effective date and prior to the time of initial job assignment for those employees subsequently covered by this subsection.

(iv) The training program shall be repeated at least annually for each employee.

(v) The employer shall assure that each employee is informed of the following:

(A) The content of this standard and its appendices;

(B) The specific nature of the operations which could result in exposure to lead above the action level;

(C) The purpose, proper use, limitations, and other training requirements for respiratory protection as required by chapter 296-62 WAC, Part E;

(D) The purpose and a description of the medical surveillance program, and the medical removal protection program including information concerning the adverse health effects associated with excessive exposure to lead (with particular attention to the adverse reproductive effects on both males and females);

(E) The engineering controls and work practices associated with the employee's job assignment;

(F) The contents of any compliance plan in effect; and

(G) Instructions to employees that chelating agents should not routinely be used to remove lead from their bodies and should not be used at all except under the direction of a licensed physician.

(b) Access to information and training materials.

(i) The employer shall make readily available to all affected employees a copy of this standard and its appendices.

(ii) The employer shall provide, upon request, all materials relating to the employee information and training program to the director.

(iii) In addition to the information required by item (13)(a)(v), the employer shall include as part of the training program, and shall distribute to employees, any materials pertaining to the Occupational Safety and Health Act, the regulations issued pursuant to the act, and this lead standard, which are made available to the employer by the director.

(14) ((~~Signs.~~

~~(a) General.~~

~~(i) The employer may use signs required by other statutes, regulations or ordinances in addition to, or in combination with, signs required by this subsection.~~

~~(ii) The employer shall assure that no statement appears on or near any sign required by this subsection which contradicts or detracts from the meaning of the required sign.~~)) Communication of hazards.

(a) Hazard communication - General.

(i) Chemical manufacturers, importers, distributors and employers shall comply with all requirements of the Hazard Communication Standard (HCS), WAC 296-901-140 for lead.

(ii) In classifying the hazards of lead at least the following hazards are to be addressed: Reproductive/developmental toxicity; central nervous system effects; kidney effects; blood effects; and acute toxicity effects.

(iii) Employers shall include lead in the hazard communication program established to comply with the HCS, WAC 296-901-140. Employers shall ensure that each employee has access to labels on containers of lead and to safety data sheets, and is trained in accordance with the requirements of HCS and subsection (13) of this section.

(b) Signs.

(i) The employer shall post the following warning signs in each work area where the PEL is exceeded:

((~~WARNING~~
~~LEAD WORK AREA~~
~~POISON~~
~~NO SMOKING OR EATING~~))
DANGER
LEAD
MAY DAMAGE FERTILITY OR THE UNBORN CHILD
CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM
DO NOT EAT, DRINK OR SMOKE IN THIS AREA

(ii) The employer shall ensure that no statement appears on or near any sign required by this section which contradicts or detracts from the meaning of the required sign.

(iii) The employer shall ((~~assure~~)) ensure that signs required by this subsection are illuminated and cleaned as necessary so that the legend is readily visible.

(iv) The employer may use signs required by other statutes, regulations or ordinances in addition to, or in combination with, signs required by this subsection.

(v) Prior to June 1, 2016, employers may use the following legend in lieu of that specified in (b)(i) of this subsection:

WARNING
LEAD WORK AREA
POISON
NO SMOKING OR EATING

(15) Recordkeeping.

(a) Exposure monitoring.

(i) The employer shall establish and maintain an accurate record of all monitoring required in subsection (5) of this section.

(ii) This record shall include:

(A) The date(s), number, duration, location and results of each of the samples taken, including a description of the sampling procedure used to determine representative employee exposure where applicable;

(B) A description of the sampling and analytical methods used and evidence of their accuracy;

(C) The type of respiratory protective devices worn, if any;

(D) Name, Social Security number, and job classification of the employee monitored and of all other employees whose exposure the measurement is intended to represent; and

(E) The environmental variables that could affect the measurement of employee exposure.

(iii) The employer shall maintain these monitoring records for at least forty years or for the duration of employment plus twenty years, whichever is longer.

(b) Medical surveillance.

(i) The employer shall establish and maintain an accurate record for each employee subject to medical surveillance as required by subsection (11) of this section.

(ii) This record shall include:

(A) The name, Social Security number, and description of the duties of the employee;

(B) A copy of the physician's written opinions;

(C) Results of any airborne exposure monitoring done for that employee and the representative exposure levels supplied to the physician; and

(D) Any employee medical complaints related to exposure to lead.

(iii) The employer shall keep, or assure that the examining physician keeps, the following medical records:

(A) A copy of the medical examination results including medical and work history required under subsection (11) of this section;

(B) A description of the laboratory procedures and a copy of any standards or guidelines used to interpret the test results or references to that information; and

(C) A copy of the results of biological monitoring.

(iv) The employer shall maintain or assure that the physician maintains those medical records for at least forty years, or for the duration of employment plus twenty years, whichever is longer.

(c) Medical removals.

(i) The employer shall establish and maintain an accurate record for each employee removed from current exposure to lead pursuant to subsection (12) of this section.

(ii) Each record shall include:

(A) The name and Social Security number of the employee;

(B) The date on each occasion that the employee was removed from current exposure to lead as well as the corresponding date on which the employee was returned to his or her former job status;

(C) A brief explanation of how each removal was or is being accomplished; and

(D) A statement with respect to each removal indicating whether or not the reason for the removal was an elevated blood lead level.

(iii) The employer shall maintain each medical removal record for at least the duration of an employee's employment.

(d) Availability.

(i) The employer shall make available upon request all records required to be maintained by subsection (15) of this section to the director for examination and copying.

(ii) Environmental monitoring, medical removal, and medical records required by this subsection shall be provided upon request to employees, designated representatives, and the assistant director in accordance with chapter 296-802 WAC. Medical removal records shall be provided in the same manner as environmental monitoring records.

(iii) Upon request, the employer shall make an employee's medical records required to be maintained by this section available to the affected employee or former employee or to a physician or other individual designated by such affected employee or former employees for examination and copying.

(e) Transfer of records.

The employer shall comply with any additional requirements involving transfer of records set forth in WAC 296-802-60005.

(16) Observation of monitoring.

(a) Employee observation. The employer shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to lead conducted pursuant to subsection (5) of this section.

(b) Observation procedures.

(i) Whenever observation of the monitoring of employee exposure to lead requires entry into an area where the use of respirators, protective clothing or equipment is required, the employer shall provide the observer with and assure the use of such respirators, clothing and such equipment, and shall require the observer to comply with all other applicable safety and health procedures.

(ii) Without interfering with the monitoring, observers shall be entitled to:

(A) Receive an explanation of the measurement procedures;

(B) Observe all steps related to the monitoring of lead performed at the place of exposure; and

(C) Record the results obtained or receive copies of the results when returned by the laboratory.

(17) Appendices. The information contained in the appendices to this section is not intended by itself, to create any additional obligations not otherwise imposed by this standard nor detract from any existing obligation.

(a) Appendix A. Substance Data Sheet for Occupational Exposure to Lead.

(i) Substance identification.

(A) Substance. Pure lead (Pb) is a heavy metal at room temperature and pressure and is a basic chemical element. It can combine with various other substances to form numerous lead compounds.

(B) Compounds covered by the standard. The word "lead" when used in this standard means elemental lead, all inorganic lead compounds (except those which are not biologically available due to either solubility or specific chemical interaction), and a class of organic lead compounds called lead soaps. This standard does not apply to other organic lead compounds.

(C) Uses. Exposure to lead occurs in at least one hundred twenty different occupations, including primary and secondary lead smelting, lead storage battery manufacturing, lead pigment manufacturing and use, solder manufacturing and use, shipbuilding and ship repairing, auto manufacturing, and printing.

(D) Permissible exposure. The Permissible Exposure Limit (PEL) set by the standard is 50 micrograms of lead per cubic meter of air (50 $\mu g/m^3$), averaged over an eight-hour work day.

(E) Action level. The standard establishes an action level of 30 micrograms per cubic meter of air (30 $\mu g/m^3$) time weighted average, based on an eight-hour work day. The action level initiates several requirements of the standard, such as exposure monitoring, medical surveillance, and training and education.

(ii) Health hazard data.

(A) Ways in which lead enters your body.

(I) When absorbed into your body in certain doses lead is a toxic substance. The object of the lead standard is to prevent absorption of harmful quantities of lead. The standard is intended to protect you not only from the immediate toxic effects of lead, but also from the serious toxic effects that may not become apparent until years of exposure have passed.

(II) Lead can be absorbed into your body by inhalation (breathing) and ingestion (eating). Lead (except for certain organic lead compounds not covered by the standard, such as tetraethyl lead) is not absorbed through your skin. When lead is scattered in the air as a dust, fume or mist, it can be inhaled and absorbed through your lungs and upper respiratory tract. Inhalation of airborne lead is generally the most important source of occupational lead absorption. You can also absorb lead through your digestive system if lead gets into your mouth and is swallowed. If you handle food, cigarettes, chewing tobacco, or make-up which have lead on them or handle them with hands contaminated with lead, this will contribute to ingestion.

(III) A significant portion of the lead that you inhale or ingest gets into your blood stream. Once in your blood stream lead is circulated throughout your body and stored in various organs and body tissues. Some of this lead is quickly filtered out of your body and excreted, but some remains in your blood and other tissue. As exposure to lead continues, the

amount stored in your body will increase if you are absorbing more lead than your body is excreting. Even though you may not be aware of any immediate symptoms of disease, this lead stored in your tissues can be slowly causing irreversible damage, first to individual cells, then to your organs and whole body systems.

(B) Effects of overexposure to lead.

(I) Short-term (acute) overexposure. Lead is a potent, systemic poison that serves no known useful function once absorbed by your body. Taken in large enough doses, lead can kill you in a matter of days. A condition affecting the brain called acute encephalopathy may arise which develops quickly to seizures, coma, and death from cardiorespiratory arrest. A short-term dose of lead can lead to acute encephalopathy. Short-term occupational exposures of this magnitude are highly unusual, but not impossible. Similar forms of encephalopathy may, however arise from extended, chronic exposure to lower doses of lead. There is no sharp dividing line between rapidly developing acute effects of lead, and chronic effects which take longer to acquire. Lead adversely affects numerous body systems, and causes forms of health impairment and disease which arise after periods of exposure as short as days or as long as several years.

(II) Long-term (chronic) overexposure.

a) Chronic overexposure to lead may result in severe damage to your blood-forming, nervous, urinary and reproductive systems. Some common symptoms of chronic overexposure include loss of appetite, metallic taste in the mouth, anxiety, constipation, nausea, pallor, excessive tiredness, weakness, insomnia, headache, nervous irritability, muscle and joint pain or soreness, fine tremors, numbness, dizziness, hyperactivity and colic. In lead colic there may be severe abdominal pain.

b) Damage to the central nervous system in general and the brain (encephalopathy) in particular is one of the most severe forms of lead poisoning. The most severe, often fatal, form of encephalopathy may be preceded by vomiting, a feeling of dullness progressing to drowsiness and stupor, poor memory, restlessness, irritability, tremor, and convulsions. It may arise suddenly with the onset of seizures, followed by coma, and death. There is a tendency for muscular weakness to develop at the same time. This weakness may progress to paralysis often observed as a characteristic "wrist drop" or "foot drop" and is a manifestation of a disease to the nervous system called peripheral neuropathy.

c) Chronic overexposure to lead also results in kidney disease with few, if any, symptoms appearing until extensive and most likely permanent kidney damage has occurred. Routine laboratory tests reveal the presence of this kidney disease only after about two-thirds of kidney function is lost. When overt symptoms of urinary dysfunction arise, it is often too late to correct or prevent worsening conditions, and progression of kidney dialysis or death is possible.

d) Chronic overexposure to lead impairs the reproductive systems of both men and women. Overexposure to lead may result in decreased sex drive, impotence and sterility in men. Lead can alter the structure of sperm cells raising the risk of birth defects. There is evidence of miscarriage and stillbirth in women whose husbands were exposed to lead or who were exposed to lead themselves. Lead exposure also may result in decreased fertility, and abnormal menstrual cycles in women. The course of pregnancy may be adversely affected by exposure to lead since lead crosses the placental barrier and poses risks to developing fetuses. Children born of parents either one of whom were exposed to excess lead levels are more likely to have birth defects, mental retardation, behavioral disorders or die during the first year of childhood.

e) Overexposure to lead also disrupts the blood-forming system resulting in decreased hemoglobin (the substance in the blood that carries oxygen to the cells) and ultimately anemia. Anemia is characterized by weakness, pallor and fatigability as a result of decreased oxygen carrying capacity in the blood.

(III) Health protection goals of the standard.

a) Prevention of adverse health effects for most workers from exposure to lead throughout a working lifetime requires that worker blood lead (PbB) levels be maintained at or below forty micrograms per one hundred grams of whole blood (40 µg/100g). The blood lead levels of workers (both male and female workers) who intend to have children should be maintained below 30 µg/100g to minimize adverse reproductive health effects to the parents and to the developing fetus.

b) The measurement of your blood lead level is the most useful indicator of the amount of lead absorbed by your body. Blood lead levels (PbB) are most often reported in units of milligrams (mg) or micrograms (µg) of lead (1 mg = 1000 µg) per 100 grams (100g), 100 milliliters (100 ml) or deciliter (dl) of blood. These three units are essentially the same. Sometimes PbB's are expressed in the form of mg% or µg%. This is a shorthand notation for 100g, 100ml, or dl.

c) PbB measurements show the amount of lead circulating in your blood stream, but do not give any information about the amount of lead stored in your various tissues. PbB measurements merely show current absorption of lead, not the effect that lead is having on your body or the effects that past lead exposure may have already caused. Past research into lead-related diseases, however, has focused heavily on associations between PbBs and various diseases. As a result, your PbB is an important indicator of the likelihood that you will gradually acquire a lead-related health impairment or disease.

d) Once your blood lead level climbs above 40 µg/100g, your risk of disease increases. There is a wide variability of individual response to lead, thus it is difficult to say that a particular PbB in a given person will cause a particular effect. Studies have associated fatal encephalopathy with PbBs as low as 150 µg/100g. Other studies have shown other forms of disease in some workers with PbBs well below 80 µg/100g. Your PbB is a crucial indicator of the risks to your health, but one other factor is extremely important. This factor is the length of time you have had elevated PbBs. The longer you have an elevated PbB, the greater the risk that large quantities of lead are being gradually stored in your organs and tissues (body burden). The greater your overall body burden, the greater the chances of substantial permanent damage.

e) The best way to prevent all forms of lead-related impairments and diseases—both short-term and long-term—is to maintain your PbB below 40 µg/100g. The provisions of

the standard are designed with this end in mind. Your employer has prime responsibility to assure that the provisions of the standard are complied with both by the company and by individual workers. You as a worker, however, also have a responsibility to assist your employer in complying with the standard. You can play a key role in protecting your own health by learning about the lead hazards and their control, learning what the standard requires, following the standard where it governs your own action, and seeing that your employer complies with the provisions governing his actions.

(IV) Reporting signs and symptoms of health problems. You should immediately notify your employer if you develop signs or symptoms associated with lead poisoning or if you desire medical advice concerning the effects of current or past exposure to lead on your ability to have a healthy child. You should also notify your employer if you have difficulty breathing during a respirator fit test or while wearing a respirator. In each of these cases your employer must make available to you appropriate medical examinations or consultations. These must be provided at no cost to you and at a reasonable time and place.

(b) Appendix B. Employee Standard Summary. This appendix summarizes key provisions of the standard that you as a worker should become familiar with. The appendix discusses the entire standard.

(i) Permissible exposure limit (PEL). The standard sets a permissible exposure limit (PEL) of fifty micrograms of lead per cubic meter of air (50 μg/m^3), averaged over and eight-hour workday. This is the highest level of lead in air to which you may be permissibly exposed over an eight-hour workday. Since it is an eight-hour average it permits short exposures above the PEL so long as for each eight-hour workday your average exposure does not exceed the PEL.

(ii) Exposure monitoring.

(A) If lead is present in the work place where you work in any quantity, your employer is required to make an initial determination of whether the action level is exceeded for any employee. The initial determination must include instrument monitoring of the air for the presence of lead and must cover the exposure of a representative number of employees who are reasonably believed to have the highest exposure levels. If your employer has conducted appropriate air sampling for lead in the past year he may use these results. If there have been any employee complaints of symptoms which may be attributable to exposure to lead or if there is any other information or observations which would indicate employee exposure to lead, this must also be considered as part of the initial determination. If this initial determination shows that a reasonable possibility exists that any employee may be exposed, without regard to respirators, over the action level (30 μg/m^3) your employer must set up an air monitoring program to determine the exposure level of every employee exposed to lead at your work place.

(B) In carrying out this air monitoring program, your employer is not required to monitor the exposure of every employee, but he or she must monitor a representative number of employees and job types. Enough sampling must be done to enable each employee's exposure level to be reasonably represented by at least one full shift (at least seven hours) air sample. In addition, these air samples must be taken under conditions which represent each employee's regular, daily exposure to lead.

(C) If you are exposed to lead and air sampling is performed, your employer is required to quickly notify you in writing of air monitoring results which represent your exposure. If the results indicate your exposure exceeds the PEL (without regard to your use of respirators), then your employer must also notify you of this in writing, and provide you with a description of the corrective action that will be taken to reduce your exposure.

(D) Your exposure must be rechecked by monitoring every six months if your exposure is over the action level but below the PEL. Air monitoring must be repeated every three months if you are exposed over the PEL. Your employer may discontinue monitoring for you if two consecutive measurements, taken at least two weeks apart, are below the action level. However, whenever there is a production, process, control, or personnel change at your work place which may result in new or additional exposure to lead, or whenever there is any other reason to suspect a change which may result in new or additional exposure to lead, your employer must perform additional monitoring.

(iii) Methods of compliance. Your employer is required to assure that no employee is exposed to lead in excess of the PEL. The standard establishes a priority of methods to be used to meet the PEL.

(iv) Respiratory protection.

(A) Your employer is required to provide and assure your use of respirators when your exposure to lead is not controlled below the PEL by other means. The employer must pay the cost of the respirator. Whenever you request one, your employer is also required to provide you a respirator even if your air exposure level does not exceed the PEL. You might desire a respirator when, for example, you have received medical advice that your lead absorption should be decreased. Or, you may intend to have children in the near future, and want to reduce the level of lead in your body to minimize adverse reproductive effects. While respirators are the least satisfactory means of controlling your exposure, they are capable of providing significant protection if properly chosen, fitted, worn, cleaned, maintained, and replaced when they stop providing adequate protection.

(B) Your employer is required to select respirators from the seven types listed in Table II of the respiratory protection section of this standard (see subsection (7)(c) of this section). Any respirator chosen must be certified by the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 42 C.F.R. part 84. This respirator selection table will enable your employer to choose a type of respirator which will give you a proper amount of protection based on your airborne lead exposure. Your employer may select a type of respirator that provides greater protection than that required by the standard; that is, one recommended for a higher concentration of lead than is present in your work place. For example, a powered air purifying respirator (PAPR) is much more protective than a typical negative-pressure respirator, and may also be more comfortable to wear. A PAPR has a filter, cartridge or canister to clean the air, and a power source which continuously blows filtered air into your breathing zone. Your employer might make a PAPR avail-

able to you to ease the burden of having to wear a respirator for long periods of time. The standard provides that you can obtain a PAPR upon request.

(C) Your employer must also start a respiratory protection program. This program must include written procedures for the proper selection, use, cleaning, storage, and maintenance of respirators.

(D) Your employer must assure that your respirator facepiece fits properly. Proper fit of a respirator facepiece is critical to your protection against air borne lead. Obtaining a proper fit on each employee may require your employer to make available several different types of respirator masks. To ensure that your respirator fits properly and that facepiece leakage is minimal, your employer must give you either a qualitative or quantitative fit test as required in chapter 296-842 WAC.

(E) You must also receive from your employer proper training in the use of respirators. Your employer is required to teach you how to wear a respirator, to know why it is needed, and to understand its limitations.

(F) The standard provides that if your respirator uses filter elements, you must be given an opportunity to change the filter elements whenever an increase in breathing resistance is detected. You also must be permitted to periodically leave your work area to wash your face and respirator facepiece whenever necessary to prevent skin irritation. If you ever have difficulty breathing during a fit test or while using a respirator, your employer must make a medical examination available to you to determine whether you can safely wear a respirator. The result of this examination may be to give you a positive pressure respirator (which reduces breathing resistance) or to provide alternative means of protection.

(v) Protective work clothing and equipment. If you are exposed to lead above the PEL, or if you are exposed to lead compounds such as lead arsenate or lead azide which can cause skin and eye irritation, your employer must provide you with protective work clothing and equipment appropriate for the hazard. If work clothing is provided, it must be provided in a clean and dry condition at least weekly, and daily if your airborne exposure to lead is greater than 200 $\mu g/m^3$. Appropriate protective work clothing and equipment can include coveralls or similar full-body work clothing, gloves, hats, shoes or disposable shoe coverlets, and face shields or vented goggles. Your employer is required to provide all such equipment at no cost to you. He or she is responsible for providing repairs and replacement as necessary and also is responsible for the cleaning, laundering or disposal of protective clothing and equipment. Contaminated work clothing or equipment must be removed in change rooms and not worn home or you will extend your exposure and expose your family since lead from your clothing can accumulate in your house, car, etc. Contaminated clothing which is to be cleaned, laundered or disposed of must be placed in closed containers in the change room. At no time may lead be removed from protective clothing or equipment by any means which disperses lead into the work room air.

(vi) Housekeeping. Your employer must establish a housekeeping program sufficient to maintain all surfaces as free as practicable of accumulations of lead dust. Vacuuming is the preferred method of meeting this requirement, and the use of compressed air to clean floors and other surfaces is absolutely prohibited. Dry or wet sweeping, shoveling, or brushing may not be used except where vacuuming or other equally effective methods have been tried and do not work. Vacuums must be used and emptied in a manner which minimizes the reentry of lead into the work place.

(vii) Hygiene facilities and practices.

(A) The standard requires that change rooms, showers and filtered air lunchrooms be constructed and made available to workers exposed to lead above the PEL. When the PEL is exceeded, the employer must assure that food and beverage is not present or consumed, tobacco products are not present or used, and cosmetics are not applied, except in these facilities. Change rooms, showers and lunchrooms, must be used by workers exposed in excess of the PEL. After showering, no clothing or equipment worn during the shift may be worn home and this includes shoes and underwear. Your own clothing worn during the shift should be carried home and cleaned carefully so that it does not contaminate your home. Lunchrooms may not be entered with protective clothing or equipment unless surface dust has been removed by vacuuming, downdraft booth or other cleaning methods. Finally, workers exposed above the PEL must wash both their hands and faces prior to eating, drinking, smoking or applying cosmetics.

(B) All of the facilities and hygiene practices just discussed are essential to minimize additional sources of lead absorption from inhalation or ingestion of lead that may accumulate on you, your clothes or your possessions. Strict compliance with these provisions can virtually eliminate several sources of lead exposure which significantly contribute to excessive lead absorption.

(viii) Medical surveillance.

(A) The medical surveillance program is part of the standard's comprehensive approach to the prevention of lead-related disease. Its purpose is to supplement the main thrust of the standard which is aimed at minimizing airborne concentrations of lead and sources of ingestion. Only medical surveillance can determine if the other provisions of the standard have effectively protected you as an individual. Compliance with the standard's provision will protect most workers from the adverse effects of lead exposure, but may not be satisfactory to protect individual workers (I) who have high body burdens of lead acquired over past years, (II) who have additional uncontrolled sources of nonoccupational lead exposure, (III) who exhibit unusual variations in lead absorption rates, or (IV) who have specific nonwork related medical conditions which could be aggravated by lead exposure (e.g., renal disease, anemia). In addition, control systems may fail, or hygiene and respirator programs may be inadequate. Periodic medical surveillance of individual workers will help detect those failures. Medical surveillance will also be important to protect your reproductive ability - regardless of whether you are a man or a woman.

(B) All medical surveillance required by the standard must be performed by or under the supervision of a licensed physician. The employer must provide required medical surveillance without cost to employees and at a reasonable time and place. The standard's medical surveillance program has

two parts - Periodic biological monitoring, and medical examinations.

(C) Your employer's obligation to offer medical surveillance is triggered by the results of the air monitoring program. Medical surveillance must be made available to all employees who are exposed in excess of the action level for more than thirty days a year. The initial phase of the medical surveillance program, which included blood lead level tests and medical examinations, must be completed for all covered employees no later than one hundred eighty days from the effective date of this standard. Priority within this first round of medical surveillance must be given to employees whom the employer believes to be at greatest risk from continued exposure (for example, those with the longest prior exposure to lead, or those with the highest current exposure). Thereafter, the employer must periodically make medical surveillance - both biological monitoring and medical examinations - available to all covered employees.

(D) Biological monitoring under the standard consists of blood lead level (PbB) and zinc protoporphyrin tests at least every six months after the initial PbB test. A zinc protoporphyrin (ZPP) test is a very useful blood test which measures an effect of lead on your body. If a worker's PbB exceeds 40 µg/100g, the monitoring frequency must be increased from every six months to at least every two months and not reduced until two consecutive PbBs indicate a blood lead level below 40 µg/100g. Each time your PbB is determined to be over 40 µg/100g, your employer must notify you of this in writing within five working days of the receipt of the test results. The employer must also inform you that the standard requires temporary medical removal with economic protection when your PbB exceeds certain criteria (see Discussion of Medical Removal Protection - subsection (12)). During the first year of the standard, this removal criterion is 80 µg/100g. Anytime your PbB exceeds 80 µg/100g your employer must make available to you a prompt follow-up PbB test to ascertain your PbB. If the two tests both exceed 80 µg/100g and you are temporarily removed, then your employer must make successive PbB tests available to you on a monthly basis during the period of your removal.

(E) Medical examinations beyond the initial one must be made available on an annual basis if your blood lead levels exceeds 40 µg/100g at any time during the preceding year. The initial examination will provide information to establish a baseline to which subsequent data can be compared. An initial medical examination must also be made available (prior to assignment) for each employee being assigned for the first time to an area where the airborne concentration of lead equals or exceeds the action level. In addition, a medical examination or consultation must be made available as soon as possible if you notify your employer that you are experiencing signs or symptoms commonly associated with lead poisoning or that you have difficulty breathing while wearing a respirator or during a respirator fit test. You must also be provided a medical examination or consultation if you notify your employer that you desire medical advice concerning the effects of current or past exposure to lead on your ability to procreate a healthy child.

(F) Finally, appropriate follow-up medical examinations or consultations may also be provided for employees who have been temporarily removed from exposure under the medical removal protection provisions of the standard (see item (ix) below).

(G) The standard specifies the minimum content of preassignment and annual medical examinations. The content of other types of medical examinations and consultations is left up to the sound discretion of the examining physician. Preassignment and annual medical examinations must include (I) a detailed work history and medical history, (II) a thorough physical examination, and (III) a series of laboratory tests designed to check your blood chemistry and your kidney function. In addition, at any time upon your request, a laboratory evaluation of male fertility will be made (microscopic examination of a sperm sample), or a pregnancy test will be given.

(H) The standard does not require that you participate in any of the medical procedures, tests, etc., which your employer is required to make available to you. Medical surveillance can, however, play a very important role in protecting your health. You are strongly encouraged, therefore, to participate in a meaningful fashion. Generally, your employer will choose the physician who conducts medical surveillance under the lead standard - unless you and your employer can agree on the choice of a physician or physicians. Some companies and unions have agreed in advance, for example, to use certain independent medical laboratories or panels of physicians. Any of these arrangements are acceptable so long as required medical surveillance is made available to workers.

(I) The standard requires your employer to provide certain information to a physician to aid in his or her examination of you. This information includes (I) the standard and its appendices, (II) a description of your duties as they relate to lead exposure, (III) your exposure level, (IV) a description of personal protective equipment you wear, (V) prior blood level results, and (VI) prior written medical opinions concerning you that the employer has. After a medical examination or consultation the physician must prepare a written report which must contain (I) the physician's opinion as to whether you have any medical conditions which places you at increased risk of material impairment to health from exposure to lead, (II) any recommended special protective measures to be provided to you, (III) any blood lead level determinations, and (IV) any recommended limitation on your use of respirators. This last element must include a determination of whether you can wear a powered air purifying respirator (PAPR) if you are found unable to wear a negative pressure respirator.

(J) The medical surveillance program of the lead standard may at some point in time serve to notify certain workers that they have acquired a disease or other adverse medical condition as a result of occupational lead exposure. If this is true these workers might have legal rights to compensation from public agencies, their employers, firms that supply hazardous products to their employers, or other persons. Some states have laws, including worker compensation laws, that disallow a worker to learn of a job-related health impairment to sue, unless the worker sues within a short period of time after learning of the impairment. (This period of time may be a matter of months or years.) An attorney can be consulted

about these possibilities. It should be stressed that WISHA is in no way trying to either encourage or discourage claims or lawsuits. However, since results of the standard's medical surveillance program can significantly affect the legal remedies of a worker who has acquired a job-related disease or impairment, it is proper for WISHA to make you aware of this.

(K) The medical surveillance section of the standard also contains provisions dealing with chelation. Chelation is the use of certain drugs (administered in pill form or injected into the body) to reduce the amount of lead absorbed in body tissues. Experience accumulated by the medical and scientific communities has largely confirmed the effectiveness of this type of therapy for the treatment of very severe lead poisoning. On the other hand it has also been established that there can be a long list of extremely harmful side effects associated with the use of chelating agents. The medical community has balanced the advantages and disadvantages resulting from the use of chelating agents in various circumstances and has established when the use of these agents is acceptable. The standard includes these accepted limitations due to a history of abuse of chelation therapy by some lead companies. The most widely used chelating agents are calcium disodium EDTA, (Ca Na_2EDTA), Calcium Disodium Versenate (Versenate), and d-penicillamine (penicillamine or Cupramine).

(L) The standard prohibits "prophylactic chelation" of any employee by any person the employer retains, supervises or controls. "Prophylactic chelation" is the routine use of chelating or similarly acting drugs to prevent elevated blood levels in workers who are occupationally exposed to lead, or the use of these drugs to routinely lower blood lead levels to predesignated concentrations believed to be safe. It should be emphasized that where an employer takes a worker who has no symptoms of lead poisoning and has chelation carried out by a physician (either inside or outside of a hospital) solely to reduce the worker's blood lead level, that will generally be considered prophylactic chelation. The use of a hospital and a physician does not mean that prophylactic chelation is not being performed. Routine chelation to prevent increased or reduce current blood lead levels is unacceptable whatever the setting.

(M) The standard allows the use of "therapeutic" or "diagnostic" chelation if administered under the supervision of a licensed physician in a clinical setting with thorough and appropriate medical monitoring. Therapeutic chelation responds to severe lead poisoning where there are marked symptoms. Diagnostic chelation, involves giving a patient a dose of the drug then collecting all urine excreted for some period of time as an aid to the diagnosis of lead poisoning.

(N) In cases where the examining physician determines that chelation is appropriate, you must be notified in writing of this fact before such treatment. This will inform you of a potentially harmful treatment, and allow you to obtain a second opinion.

(ix) Medical removal protection.

(A) Excessive lead absorption subjects you to increased risk of disease. Medical removal protection (MRP) is a means of protecting you when for whatever reasons, other methods, such as engineering controls, work practices, and respirators, have failed to provide the protection you need. MRP involves the temporary removal of a worker from his or her regular job to a place of significantly lower exposure without any loss of earnings, seniority, or other employment rights of benefits. The purpose of this program is to cease further lead absorption and allow your body to naturally excrete lead which has previously been absorbed. Temporary medical removal can result from an elevated blood lead level, or a medical opinion. Up to eighteen months of protection is provided as a result of either form of removal. The vast majority of removed workers, however, will return to their former jobs long before this eighteen month period expires. The standard contains special provisions to deal with the extraordinary but possible case where a long-term worker's blood lead level does not adequately decline during eighteen months of removal.

(B) During the first year of the standard, if your blood lead level is 80 µg/100g or above you must be removed from any exposure where your air lead level without a respirator would be 100 µg/m^3 or above. If you are removed from your normal job you may not be returned until your blood lead level declines to at least 60 µg/100g. These criteria for removal and return will change according to the following schedule:

TABLE 1

Effective Date	Removal Blood Level (µg/100g)	Air Lead (µg/m^3)	Return Blood Lead (µg/100g)
9/6/81	At or above 70	50 or above	At or below 50
9/6/82	At or above 60	30 or above	At or below 40
9/6/84	At or above 50 averaged over six months	30 or above	At or below 40

(C) You may also be removed from exposure even if your blood lead levels are below these criteria if a final medical determination indicates that you temporarily need reduced lead exposure for medical reasons. If the physician who is implementing your employer's medical program makes a final written opinion recommending your removal or other special protective measures, your employer must implement the physician's recommendation. If you are removed in this manner, you may only be returned when the physician indicates it is safe for you to do so.

(D) The standard does not give specific instructions dealing with what an employer must do with a removed worker. Your job assignment upon removal is a matter for you, your employer and your union (if any) to work out consistent with existing procedures for job assignments. Each removal must be accomplished in a manner consistent with existing collective bargaining relationships. Your employer is given broad discretion to implement temporary removals so long as no attempt is made to override existing agreements. Similarly, a removed worker is provided no right to veto an employer's choice which satisfies the standard.

(E) In most cases, employers will likely transfer removed employees to other jobs with sufficiently low lead exposure. Alternatively, a worker's hours may be reduced so that the time weighted average exposure is reduced, or he or she may be temporarily laid off if no other alternative is feasible.

(F) In all of these situations, MRP benefits must be provided during the period of removal - i.e., you continue to receive the same earnings, seniority, and other rights and benefits you would have had if you had not been removed. Earnings include more that just your base wage; it includes overtime, shift differentials, incentives, and other compensation you would have earned if you had not been removed. During the period of removal you must also be provided with appropriate follow-up medical surveillance. If you were removed because your blood lead level was too high, you must be provided with a monthly blood test. If a medical opinion caused your removal, you must be provided medical tests or examinations that the physician believes to be appropriate. If you do not participate in this follow-up medical surveillance, you may lose your eligibility for MRP benefits.

(G) When you are medically eligible to return to your former job, your employer must return you to your "former job status." This means that you are entitled to the position, wages, benefits, etc., you would have had if you had not been removed. If you would still be in your old job if no removal had occurred, that is where you go back. If not, you are returned consistent with whatever job assignment discretion your employer would have had if no removal had occurred. MRP only seeks to maintain your rights, not expand them or diminish them.

(H) If you are removed under MRP and you are also eligible for worker compensation or other compensation for lost wages, your employer's MRP benefits obligation is reduced by the amount that you actually receive from these other sources. This is also true if you obtain other employment during the time you are laid off with MRP benefits.

(I) The standard also covers situations where an employer voluntarily removes a worker from exposure to lead due to the effects of lead on the employee's medical condition, even though the standard does not require removal. In these situations MRP benefits must still be provided as though the standard required removal. Finally, it is important to note that in all cases where removal is required, respirators cannot be used as a substitute. Respirators may be used before removal becomes necessary, but not as an alternative to a transfer to a low exposure job, or to a lay-off with MRP benefits.

(x) Employee information and training.

(A) Your employer is required to provide an information and training program for all employees exposed to lead above the action level or who may suffer skin or eye irritation from lead. This program must inform these employees of the specific hazards associated with their work environment, protective measures which can be taken, the danger of lead to their bodies (including their reproductive systems), and their rights under the standard. In addition, your employer must make readily available to all employees, including those exposed below the action level, a copy of the standard and its appendices and must distribute to all employees any materials provided to the employer under the Washington Industrial Safety and Health Act (WISHA).

(B) Your employer is required to complete this training for all employees by March 4, 1981. After this date, all new employees must be trained prior to initial assignment to areas where there is possibility of exposure over the action level. This training program must also be provided at least annually thereafter.

(xi) Signs. The standard requires that the following warning sign be posted in work areas where the exposure to lead exceeds the PEL:

DANGER LEAD
MAY DAMAGE FERTILITY OR THE UNBORN CHILD
CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM
DO NOT EAT, DRINK OR SMOKE IN THIS AREA

However, prior to June 1, 2016, employers may use the following legend in lieu of that specified above:

WARNING
LEAD WORK AREA
NO SMOKING OR EATING

(xii) Recordkeeping.

(A) Your employer is required to keep all records of exposure monitoring for airborne lead. These records must include the name and job classification of employees measured, details of the sampling and analytic techniques, the results of this sampling and the type of respiratory protection being worn by the person sampled. Your employer is also required to keep all records of biological monitoring and medical examination results. These must include the names of the employees, the physician's written opinion and a copy of the results of the examination. All of the above kinds of records must be kept for forty years, or for at least twenty years after your termination of employment, whichever is longer.

(B) Recordkeeping is also required if you are temporarily removed from your job under the MRP program. This record must include your name and Social Security number, the date of your removal and return, how the removal was or is being accomplished, and whether or not the reason for the removal was an elevated blood lead level. Your employer is required to keep each medical removal record only for as long as the duration of an employee's employment.

(C) The standard requires that if you request to see or copy environmental monitoring, blood lead level monitoring, or medical removal records, they must be made available to you or to a representative that you authorize. Your union also has access to these records. Medical records other than PbBs must also be provided to you upon request, to your physician or to any other person whom you may specifically designate. Your union does not have access to your personal medical records unless you authorize their access.

(xiii) Observations of monitoring. When air monitoring for lead is performed at your work place as required by this standard, your employer must allow you or someone you designate to act as an observer of the monitoring. Observers are entitled to an explanation of the measurement procedure, and to record the results obtained. Since results will not normally be available at the time of the monitoring, observers are entitled to record or receive the results of the monitoring when

returned by the laboratory. Your employer is required to provide the observer with any personal protective devices required to be worn by employees working in the areas that is being monitored. The employer must require the observer to wear all such equipment and to comply with all other applicable safety and health procedures.

(xiv) Effective date. The standard's effective date is September 6, 1980, and the employer's obligation under the standard begin to come into effect as of that date. The standard was originally adopted as WAC 296-62-07349 and later recodified to WAC 296-62-07521.

(c) Appendix C. Medical Surveillance Guidelines.

(i) Introduction.

(A) The primary purpose of the Washington Industrial Safety and Health Act of 1973 is to assure, so far as possible, safe and healthful working conditions for every working man and woman. The occupational health standard for inorganic lead* was promulgated to protect workers exposed to inorganic lead including metallic lead, all inorganic lead compounds and organic lead soaps.

*The term inorganic lead used throughout the medical surveillance appendices is meant to be synonymous with the definition of lead set forth in the standard.

(B) Under this final standard in effect as of September 6, 1980, occupational exposure to inorganic lead is to be limited to 50 µg/m^3 (micrograms per cubic meter) based on an eight-hour time-weighted average (TWA). This level of exposure eventually must be achieved through a combination of engineering, work practice and other administrative controls. Periods of time ranging from one to ten years are provided for different industries to implement these controls which are based on individual industry considerations. Until these controls are in place, respirators must be used to meet the 50 µg/m^3 exposure limit.

(C) The standard also provides for a program of biological monitoring and medical surveillance for all employees exposed to levels of inorganic lead above the action level of 30 µg/m^3 for more than thirty days per year.

(D) The purpose of this document is to outline the medical surveillance provisions of the standard for inorganic lead, and to provide further information to the physician regarding the examination and evaluation of workers exposed to inorganic lead.

(E) Item (ii) provides a detailed description of the monitoring procedure including the required frequency of blood testing for exposed workers, provisions for medical removal protection (MRP), the recommended right of the employee to a second medical opinion, and notification and recordkeeping requirements of the employer. A discussion of the requirements for respirator use and respirator monitoring and WISHA's position on prophylactic chelation therapy are also included in this section.

(F) Item (iii) discusses the toxic effects and clinical manifestations of lead poisoning and effects of lead intoxication on enzymatic pathways in heme synthesis. The adverse effects on both male and female reproductive capacity and on the fetus are also discussed.

(G) Item (iv) outlines the recommended medical evaluation of the worker exposed to inorganic lead including details of the medical history, physical examination, and recommended laboratory tests, which are based on the toxic effects of lead as discussed in item (ii).

(H) Item (v) provides detailed information concerning the laboratory tests available for the monitoring of exposed workers. Included also is a discussion of the relative value of each test and the limitations and precautions which are necessary in the interpretation of the laboratory results.

(I) Airborne levels to be achieved without reliance or respirator protection through a combination of engineering and work practice or other administrative controls are illustrated in the following table:

Industry	Permissible Lead Level/Compliance Date		
	200µg/m^3	100µg/m^3	50µg/m^3
Primary Lead Production	1973	06/29/84	06/29/91
Secondary Lead Production	1973	06/29/84	06/29/91
Lead Acid Battery Manufacturing	1973	06/29/83	06/29/91
Automobile Mfg./Solder, Grinding	1973	N/A	03/08/97
Electronics, Gray Iron Foundries, Ink Mfg., Paints and Coatings Mfg., Can Mfg., Wallpaper Mfg., and Printing.	1973	N/A	06/29/91
Lead Chemical Mfg., Nonferrous Foundries, Leaded Steel Mfg., Battery Breaking in the Collection and Processing of Scrap (when not a part of secondary lead smelter) Secondary Copper Smelter, Brass and Bronze Ingot Production.	1973	N/A	N/A[1]*
All Other Industries	1973	N/A	09/08/92

* Feasibility of achieving the PEL by engineering and work practice controls for these industries has yet to be resolved in court, therefore no date has been scheduled.

(ii) Medical surveillance and monitoring requirements for workers exposed to inorganic lead.

(A) Under the occupational health standard for inorganic lead, a program of biological monitoring and medical surveillance is to be made available to all employees exposed to lead above the action level of 30 µg/m^3 TWA for more than thirty days each year. This program consists of periodic blood sampling and medical evaluation to be performed on a schedule which is defined by previous laboratory results, worker complaints or concerns, and the clinical assessment of the examining physician.

(B) Under this program, the blood lead level of all employees who are exposed to lead above the action level of 30 µg/m^3 is to be determined at least every six months. The frequency is increased to every two months for employees whose last blood lead level was between 40 µg/100g whole blood and the level requiring employee medical removal to be discussed below. For employees who are removed from exposure to lead due to an elevated blood lead, a new blood lead level must be measured monthly. Zinc protoporphyrin

(ZPP) measurement is required on each occasion that a blood lead level measurement is made.

(C) An annual medical examination and consultation performed under the guidelines discussed in item (iv) is to be made available to each employee for whom a blood test conducted at any time during the preceding twelve months indicated a blood lead level at or above 40 µg/100g. Also, an examination is to be given to all employees prior to their assignment to an area in which airborne lead concentrations reach or exceed the action level. In addition, a medical examination must be provided as soon as possible after notification by an employee that the employee has developed signs or symptoms commonly associated with lead intoxication, that the employee desires medical advice regarding lead exposure and the ability to procreate a healthy child, or that the employee has demonstrated difficulty in breathing during a respirator fitting test or during respirator use. An examination is also to be made available to each employee removed from exposure to lead due to a risk of sustaining material impairment to health, or otherwise limited or specially protected pursuant to medical recommendations.

(D) Results of biological monitoring or the recommendations of an examining physician may necessitate removal of an employee from further lead exposure pursuant to the standard's medical removal program (MRP). The object of the MRP program is to provide temporary medical removals to workers either with substantially elevated blood lead levels or otherwise at risk of sustaining material health impairment from continued substantial exposure to lead. The following guidelines which are summarized in Table 10 were created under the standard for the temporary removal of an exposed employee and his or her subsequent return to work in an exposure area.

TABLE 10

		EFFECTIVE DATE				
		Sept. 6, 1980	Sept. 6, 1981	Sept. 6, 1982	Sept. 6, 1983	Sept. 6, 1984
A.	Blood lead level requiring employee medical removal (level must be confirmed with second follow-up blood lead level within two weeks of first report).	>80 µg/100g.	>70 µg/100g.	>60 µg/100g.	>60 µg/100g.	>60 µg/100g or average of last three blood samples or all blood samples over previous 6 months (whichever is over a longer time period) is 50 µg/100g. or greater unless last sample is 40 µg/100g or less.
B.	Frequency which employees exposed is action level of lead (30 µg/m^8 TWA) must have blood lead level checked. (ZPP is also required in each occasion that a blood test is obtained):					
	1. Last blood lead level less than 40 µg/100g	Every 6 months.	Every 6 months.	Every 6 months.	Every 6 months.	Every 6 months.
	2. Last blood lead level between 40 µg/100g and level requiring medical removal (see A above)	Every 2 months.	Every 2 months.	Every 2 months.	Every 2 months.	Every 2 months.

		EFFECTIVE DATE				
		Sept. 6, 1980	Sept. 6, 1981	Sept. 6, 1982	Sept. 6, 1983	Sept. 6, 1984
	3. Employees removed from exposure to lead because of an elevated blood lead level	Every 1 month.	Every 1 month.	Every 1 month.	Every 1 month.	Every 1 month.
C.	Permissible airborne exposure limit for workers removed from work due to an elevated blood lead level (without regard to respirator protection).	100 µg/m³ 8 hr TWA	50 µg/m³ 8 hr TWA	30 µg/m³ 8 hr TWA	30 µg/m³ 8 hr TWA	30 µg/m³ 8 hr TWA
D.	Blood lead level confirmed with a second blood analysis, at which employee may return to work. Permissible exposure without regard to respirator protection is listed by industry in Table 1.	60 µg/100g	50 µg/100g	40 µg/100g	40 µg/100g	40 µg/100g

Note: Where medical opinion indicates that an employee is at risk of material impairment from exposure to lead, the physician can remove an employee from exposure exceeding the action level (or less) or recommend special protective measures as deemed appropriate and necessary. Medical monitoring during the medical removal period can be more stringent than noted in the table above if the physician so specifies. Return to work or removal of limitations and special protections is permitted when the physician indicates that the worker is no longer at risk of material impairment.

(E) Under the standard's ultimate worker removal criteria, a worker is to be removed from any work having any eight-hour TWA exposure to lead of 30 µg/m³ or more whenever either of the following circumstances apply. (I) a blood lead level of 60 µg/100g or greater is obtained and confirmed by a second follow-up blood lead level performed within two weeks after the employer receives the results of the first blood sample test, or (II) the average of the previous three blood lead determinations or the average of all blood lead determinations conducted during the previous six months, whichever encompasses the longest time period, equals or exceeds 50 µg/100g, unless the last blood sample indicates a blood lead level at or below 40 µg/100g, in which case the employee need not be removed. Medical removal is to continue until two consecutive blood lead levels are 40 µg/100g or less.

(F) During the first two years that the ultimate removal criteria are being phased in, the return criteria have been set to assure that a worker's blood lead level has substantially declined during the period of removal. From March 1, 1979, to March 1, 1980, the blood lead level requiring employee medical removal is 80 µg/100g. Workers found to have a confirmed blood lead at this level or greater need only be removed from work having a daily eight hour TWA exposure to lead at or above 100 µg/m³. Workers so removed are to be returned to work when their blood lead levels are at or below 60 µg/100g of whole blood. From March 1, 1980, to March 1, 1981, the blood lead level requiring medical removal is 70 µg/100g. During this period workers need only be removed from jobs having a daily eight hour TWA exposure to lead at or above 50 µg/m³ and are to be returned to work when a level of 50 µg/100g is achieved. Beginning March 1, 1981, return depends on the worker's blood lead level declining to 40 µg/100g of whole blood.

(G) As part of the standard, the employer is required to notify in writing each employee whose whole blood lead level exceeds 40 µg/100g. In addition, each such employee is to be informed that the standard requires medical removal with MRP benefits, discussed below, when an employee's blood lead level exceeds the above defined limits.

(H) In addition to the above blood lead level criteria, temporary worker removal may also take place as a result of medical determinations and recommendations. Written medical opinions must be prepared after each examination pursuant to the standard. If the examining physician includes medical finding, determination or opinion that the employee has a medical condition which places the employee at increased risk of material health impairment from exposure to lead, then the employee must be removed from exposure to lead at or above the action level. Alternatively, if the examining physician recommends special protective measures for an employee (e.g., use of a powered air purifying respirator) or recommends limitations on an employee's exposure to lead, then the employer must implement these recommendations. Recommendations may be more stringent than the specific provisions of the standard. The examining physician, therefore, is given broad flexibility to tailor special protective procedures to the needs of individual employees. This flexibility extends to the evaluation and management of pregnant workers and male and female workers who are planning to conceive children. Based on the history, physical examination, and laboratory studies, the physician might recommend spe-

cial protective measures or medical removal for an employee who is pregnant or who is planning to conceive a child when, in the physician's judgment, continued exposure to lead at the current job would pose a significant risk. The return of the employee to his or her former job status, or the removal of special protections or limitations, depends upon the examining physician determining that the employee is no longer at increased risk of material impairment or that the special measures are no longer needed.

(I) During the period of any form of special protection or removal, the employer must maintain the worker's earnings, seniority, and other employment rights and benefits (as though the worker has not been removed) for a period of up to eighteen months. This economic protection will maximize meaningful worker participation in the medical surveillance program, and is appropriate as part of the employer's overall obligation to provide a safe and healthful work place. The provisions of MRP benefits during the employee's removal period may, however, be conditioned upon participation in medical surveillance.

(J) On rare occasions, an employee's blood lead level may not acceptably decline within eighteen months of removal. This situation will arise only in unusual circumstances, thus the standard relies on an individual medical examination to determine how to protect such an employee. This medical determination is to be based on both laboratory values, including lead levels, zinc protoporphyrin levels, blood counts, and other tests felt to be warranted, as well as the physician's judgment that any symptoms or findings on physical examination are a result of lead toxicity. The medical determination may be that the employee is incapable of ever safely returning to his or her former job status. The medical determination may provide additional removal time past eighteen months for some employees or specify special protective measures to be implemented.

(K) The lead standard provides for a multiple physician review in cases where the employee wishes a second opinion concerning potential lead poisoning or toxicity. If an employee wishes a second opinion, he or she can make an appointment with a physician of his or her choice. This second physician will review the findings, recommendations or determinations of the first physician and conduct any examinations, consultations or tests deemed necessary in an attempt to make a final medical determination. If the first and second physicians do not agree in their assessment they must try to resolve their differences. If they cannot reach an agreement then they must designate a third physician to resolve the dispute.

(L) The employer must provide examining and consulting physicians with the following specific information: A copy of the lead regulations and all appendices, a description of the employee's duties as related to exposure, the exposure level to lead and any other toxic substances (if applicable), a description of personal protective equipment used, blood lead levels, and all prior written medical opinions regarding the employee in the employer's possession or control. The employer must also obtain from the physician and provide the employee with a written medical opinion containing blood lead levels, the physician's opinion as to whether the employee is at risk of material impairment to health, any recommended protective measures for the employee if further exposure is permitted, as well as any recommended limitations upon an employee's use of respirators.

(M) Employers must instruct each physician not to reveal to the employer in writing or in any other way his or her findings, laboratory results, or diagnoses which are felt to be unrelated to occupational lead exposure. They must also instruct each physician to advise the employee of any occupationally or nonoccupationally related medical condition requiring further treatment or evaluation.

(N) The standard provides for the use of respirators when engineering and other primary controls have not been fully implemented. However, the use of respirator protection shall not be used in lieu of temporary medical removal due to elevated blood lead levels or findings that an employee is at risk of material health impairment. This is based on the numerous inadequacies of respirators including skin rash where the facepiece makes contact with the skin, unacceptable stress to breathing in some workers with underlying cardiopulmonary impairment, difficulty in providing adequate fit, the tendency for respirators to create additional hazards by interfering with vision, hearing, and mobility, and the difficulties of assuring the maximum effectiveness of a complicated work practice program involving respirators. Respirators do, however, serve a useful function where engineering and work practice are inadequate by providing interim or short-term protection, provided they are properly selected for the environment in which the employee will be working, properly fitted to the employee, maintained and cleaned periodically, and worn by the employee when required.

(O) In its final standard on occupational exposure to inorganic lead, WISHA has prohibited prophylactic chelation. Diagnostic and therapeutic chelation are permitted only under the supervision of a licensed physician with appropriate medical monitoring in an acceptable clinical setting. The decision to initiate chelation therapy must be made on an individual basis and take into account the severity of symptoms felt to be a result of lead toxicity along with blood lead levels, ZPP levels and other laboratory tests as appropriate. EDTA and penicillamine, which are the primary chelating agents used in the therapy of occupational lead poisoning, have significant potential side effects and their use must be justified on the basis of expected benefits to the worker.

(P) Unless frank and severe symptoms are present, therapeutic chelation is not recommended given the opportunity to remove a worker from exposure and allow the body to naturally excrete accumulated lead. As a diagnostic aid, the chelation mobilization test using CA-EDTA has limited applicability. According to some investigators, the tests can differentiate between lead-induced and other nephropathies. The test may also provide an estimation of the mobile fraction of the total body lead burden.

(Q) Employers are required to assure that accurate records are maintained on exposure monitoring, medical surveillance, and medical removal for each employee. Exposure monitoring and medical surveillance records must be kept for forty years or the duration of employment plus twenty years, whichever is longer, while medical removal records must be maintained for the duration of employment. All records required under the standard must be made available upon

request to representatives of the director of the department of labor and industries. Employers must also make environmental and biological monitoring and medical removal records available to affected employees and to former employees or their authorized employee representatives. Employees or their specifically designated representatives have access to their entire medical surveillance records.

(R) In addition, the standard requires that the employer inform all workers exposed to lead at or above the action level of the provisions of the standard and all its appendices, the purpose and description of medical surveillance and provisions for medical removal protection if temporary removal is required. An understanding of the potential health effects of lead exposure by all exposed employees along with full understanding of their rights under the lead standard is essential for an effective monitoring program.

(iii) Adverse health effects of inorganic lead.

(A) Although the toxicity of lead has been known for 2,000 years, the knowledge of the complex relationship between lead exposure and human response is still being refined. Significant research into the toxic properties of lead continues throughout the world, and it should be anticipated that our understanding of thresholds of effects and margins of safety will be improved in future years. The provisions of the lead standard are founded on two prime medical judgments; first, the prevention of adverse health effects from exposure to lead throughout a working lifetime requires that worker blood lead levels be maintained at or below 40 µg/100g, and second, the blood lead levels of workers, male or female, who intend to parent in the near future should be maintained below 30 µg/100g to minimize adverse reproduction health effects to the parent and developing fetus. The adverse effects of lead on reproduction are being actively researched and WISHA encourages the physician to remain abreast of recent developments in the area to best advise pregnant workers or workers planning to conceive children.

(B) The spectrum of health effects caused by lead exposure can be subdivided into five developmental states; normal, physiological changes of uncertain significance, pathophysiological changes, overt symptoms (morbidity), and mortality. Within this process there are no sharp distinctions, but rather a continuum of effects. Boundaries between categories overlap due to the wide variation of individual responses and exposures in the working population. WISHA's development of the lead standard focused on pathophysiological changes as well as later stages of disease.

(I) Heme synthesis inhibition.

a) The earliest demonstrated effect of lead involves its ability to inhibit at least two enzymes of the heme synthesis pathway at very low blood levels. Inhibition of delta aminolevulinic acid dehydrase (ALA-D) which catalyzes the conversion of delta-aminolevulinic acid (ALA) to protoporphyrin is observed at a blood lead level below 20µg/100g whole blood. At a blood lead level of 40 µg/100g, more than twenty percent of the population would have seventy percent inhibition of ALA-D. There is an exponential increase in ALA excretion at blood lead levels greater than 40 µg/100g.

b) Another enzyme, ferrochelatase, is also inhibited at low blood lead levels. Inhibition of ferrochelatase leads to increased free erythrocyte protoporphyrin (FEP) in the blood which can then bind to zinc to yield zinc protoporphyrin. At a blood lead level of 50 µg/100g or greater, nearly one hundred percent of the population will have an increase FEP. There is also an exponential relationship between blood lead levels greater than 40 µg/100g and the associated ZPP level, which has led to the development of the ZPP screening test for lead exposure.

c) While the significance of these effects is subject to debate, it is WISHA's position that these enzyme disturbances are early stages of a disease process which may eventually result in the clinical symptoms of lead poisoning. Whether or not the effects do progress to the later stages of clinical disease, disruption of these enzyme processes over a working lifetime is considered to be a material impairment of health.

d) One of the eventual results of lead-induced inhibition of enzymes in the heme synthesis pathway is anemia which can be asymptomatic if mild but associated with a wide array of symptoms including dizziness, fatigue, and tachycardia when more severe. Studies have indicated that lead levels as low as 50 µg/100g can be associated with a definite decreased hemoglobin, although most cases of lead-induced anemia, as well as shortened red-cell survival times, occur at lead levels exceeding 80 µg/100g. Inhibited hemoglobin synthesis is more common in chronic cases whereas shortened erythrocyte life span is more common in acute cases.

e) In lead-induced anemias, there is usually a reticulocytosis along with the presence of basophilic stippling, and ringed sideroblasts, although none of the above are pathognomonic for lead-induced anemia.

(II) Neurological effects.

a) Inorganic lead had been found to have toxic effects on both the central and peripheral nervous systems. The earliest stage of lead-induced central nervous system effects first manifest themselves in the form of behavioral disturbances and central nervous system symptoms including irritability, restlessness, insomnia and other sleep disturbances, fatigue, vertigo, headache, poor memory, tremor, depression, and apathy. With more severe exposure, symptoms can progress to drowsiness, stupor, hallucinations, delirium, convulsions and coma.

b) The most severe and acute form of lead poisoning which usually follows ingestion or inhalation of large amounts of lead is acute encephalopathy which may arise precipitously with the onset of intractable seizures, coma, cardiorespiratory arrest, and death within 48 hours.

c) While there is disagreement about what exposure levels are needed to produce the earliest symptoms, most experts agree that symptoms definitely can occur at blood lead levels of 60 µg/100g whole blood and therefore recommend a 40 µg/100g maximum. The central nervous system effects frequently are not reversible following discontinued exposure or chelation therapy and when improvement does occur, it is almost always only partial.

d) The peripheral neuropathy resulting from lead exposure characteristically involves only motor function with minimal sensory damage and has a marked predilection for the extensor muscles of the most active extremity. The peripheral neuropathy can occur with varying degrees of severity. The earliest and mildest form which can be detected

in workers with blood lead levels as low as 50 µg/100g is manifested by slowing or motor nerve conduction velocity often without clinical symptoms. With progression of the neuropathy there is development of painless extensor muscle weakness usually involving the extensor muscles of the fingers and hand in the most active upper extremity, followed in severe cases by wrist drop, much less commonly, foot drop.

e) In addition to slowing of nerve conduction, electromyographical studies in patients with blood lead levels greater than 50 µg/100g have demonstrated a decrease in the number of acting motor unit potentials, an increase in the duration of motor unit potentials, and spontaneous pathological activity including fibrillations and fasciculation. Whether these effects occur at levels of 40 µg/100g is undetermined.

f) While the peripheral neuropathies can occasionally be reversed with therapy, again such recovery is not assured particularly in the more severe neuropathies and often improvement is only partial. The lack of reversibility is felt to be due in part to segmental demyelination.

(III) Gastrointestinal. Lead may also effect the gastrointestinal system producing abdominal colic or diffuse abdominal pain, constipation, obstipation, diarrhea, anorexia, nausea and vomiting. Lead colic rarely develops at blood lead levels below 80 µg/100g.

(IV) Renal.

a) Renal toxicity represents one of the most serious health effects of lead poisoning. In the early stages of disease nuclear inclusion bodies can frequently be identified in proximal renal tubular cells. Renal functions remain normal and the changes in this stage are probably reversible. With more advanced disease there is progressive interstitial fibrosis and impaired renal function. Eventually extensive interstitial fibrosis ensues with sclerotic glomeruli and dilated and atrophied proximal tubules; all represent end stage kidney disease. Azotemia can be progressive, eventually resulting in frank uremia necessitating dialysis. There is occasionally associated hypertension and hyperuricemia with or without gout.

b) Early kidney disease is difficult to detect. The urinalysis is normal in early lead nephropathy and the blood urea nitrogen and serum creatinine increase only when two-thirds of kidney function is lost. Measurement of creatinine clearance can often detect earlier disease as can other methods of measurement of glomerular filtration rate. An abnormal Ca-EDTA mobilization test has been used to differentiate between lead-induced and other nephropathies, but this procedure is not widely accepted. A form of Fanconi syndrome with aminoaciduria, glycosuria, and hyperphosphaturia indicating severe injury to the proximal renal tubules is occasionally seen in children.

(V) Reproductive effects.

a) Exposure to lead can have serious effects on reproductive function in both males and females. In male workers exposed to lead there can be a decrease in sexual drive, impotence, decreased ability to produce healthy sperm, and sterility. Malformed sperm (teratospermia), decreased number of sperm (hypospermia), and sperm with decreased motility (asthenospermia) can occur. Teratospermia has been noted at mean blood lead levels of 53 µg/100g and hypospermia and asthenospermia at 41 µg/100g. Furthermore, there appears to be a dose-response relationship for teratospermia in lead exposed workers.

b) Women exposed to lead may experience menstrual disturbances including dysmenorrhea, menorrhagia and amenorrhea. Following exposure to lead, women have a higher frequency of sterility, premature births, spontaneous miscarriages, and stillbirths.

c) Germ cells can be affected by lead and cause genetic damage in the egg or sperm cells before conception and result in failure to implant, miscarriage, stillbirth, or birth defects.

d) Infants of mothers with lead poisoning have a higher mortality during the first year and suffer from lowered birth weights, slower growth, and nervous system disorders.

e) Lead can pass through the placental barrier and lead levels in the mother's blood are comparable to concentrations of lead in the umbilical cord at birth. Transplacental passage becomes detectable at twelve-fourteen weeks of gestation and increases until birth.

f) There is little direct data on damage to the fetus from exposure to lead but it is generally assumed that the fetus and newborn would be at least as susceptible to neurological damage as young children. Blood lead levels of 50-60 µg/100g in children can cause significant neurobehavioral impairments, and there is evidence of hyperactivity at blood levels as low as 25 µg/100g. Given the overall body of literature concerning the adverse health effects of lead in children, WISHA feels that the blood lead level in children should be maintained below 30 µg/100g with a population mean of 15 µg/100g. Blood lead levels in the fetus and newborn likewise should not exceed 30 µg/100g.

g) Because of lead's ability to pass through the placental barrier and also because of the demonstrated adverse effects of lead on reproductive function in both males and females as well as the risk of genetic damage of lead on both the ovum and sperm, WISHA recommends a 30 µg/100g maximum permissible blood lead level in both males and females who wish to bear children.

(VI) Other toxic effects.

a) Debate and research continue on the effects of lead on the human body. Hypertension has frequently been noted in occupationally exposed individuals although it is difficult to assess whether this is due to lead's adverse effects on the kidneys or if some other mechanism is involved.

b) Vascular and electrocardiographic changes have been detected but have not been well characterized. Lead is thought to impair thyroid function and interfere with the pituitary-adrenal axis, but again these effects have not been well defined.

(iv) Medical evaluation.

(A) The most important principle in evaluating a worker for any occupational disease including lead poisoning is a high index of suspicion on the part of the examining physician. As discussed in Section (ii), lead can affect numerous organ systems and produce a wide array of signs and symptoms, most of which are nonspecific and subtle in nature at least in the early stages of disease. Unless serious concern for lead toxicity is present, many of the early clues to diagnosis may easily be overlooked.

(B) The crucial initial step in the medical evaluation is recognizing that a worker's employment can result in expo-

sure to lead. The worker will frequently be able to define exposures to lead and lead-containing materials but often will not volunteer this information unless specifically asked. In other situations the worker may not know of any exposures to lead but the suspicion might be raised on the part of the physician because of the industry or occupation of the worker. Potential occupational exposure to lead and its compounds occur in at least one twenty occupations, including lead smelting, the manufacture of lead storage batteries, the manufacture of lead pigments and products containing pigments, solder manufacture, shipbuilding and ship repair, auto manufacturing, construction, and painting.

(C) Once the possibility for lead exposure is raised, the focus can then be directed toward eliciting information from the medical history, physical exam, and finally from laboratory data to evaluate the worker for potential lead toxicity.

(D) A complete and detailed work history is important in the initial evaluation. A listing of all previous employment with information on work processes, exposure to fumes or dust, known exposures to lead or other toxic substances, respiratory protection used, and previous medical surveillance should all be included in the worker's record. Where exposure to lead is suspected, information concerning on-the-job personal hygiene, smoking or eating habits in work areas, laundry procedures, and use of any protective clothing or respiratory protection equipment should be noted. A complete work history is essential in the medical evaluation of a worker with suspected lead toxicity, especially when long-term effects such as neurotoxicity and nephrotoxicity are considered.

(E) The medical history is also of fundamental importance and should include a listing of all past and current medical conditions, current medications including proprietary drug intake, previous surgeries and hospitalizations, allergies, smoking history, alcohol consumption, and also nonoccupational lead exposures such as hobbies (hunting, riflery). Also known childhood exposures should be elicited. Any previous history of hematological, neurological, gastrointestinal, renal, psychological, gynecological, genetic, or reproductive problems should be specifically noted.

(F) A careful and complete review of systems must be performed to assess both recognized complaints and subtle or slowly acquired symptoms which the worker might not appreciate as being significant. The review of symptoms should include the following:

General	- Weight loss, fatigue, decreased appetite.
Head, Eyes, Ears, Nose, Throat (HEENT)	- Headaches, visual disturbance or decreased visual acuity, hearing deficits or tinnitus, pigmentation of the oral mucosa, or metallic taste in mouth.
Cardiopulmonary	- Shortness of breath, cough, chest pains, palpitations, or orthopnea.
Gastrointestinal	- Nausea, vomiting, heartburn, abdominal pain, constipation or diarrhea.
Neurologic	- Irritability, insomnia, weakness (fatigue), dizziness, loss of memory, confusion, hallucinations, incoordination, ataxia, decreased strength in hands or feet, disturbance in gait, difficulty in climbing stairs, or seizures.
Hematologic	- Pallor, easy fatigability, abnormal blood loss, melena.
Reproductive (male or female and spouse where relevant)	- History of infertility, impotence, loss of libido, abnormal menstrual periods, history of miscarriages, stillbirths, or children with birth defects.
Musculoskeletal	- Muscle and joint pains.

(G) The physical examination should emphasize the neurological, gastrointestinal, and cardiovascular systems. The worker's weight and blood pressure should be recorded and the oral mucosa checked for pigmentation characteristic of a possible Burtonian or lead line on the gingiva. It should be noted, however, that the lead line may not be present even in severe lead poisoning if good oral hygiene is practiced.

(H) The presence of pallor on skin examination may indicate an anemia, which if severe might also be associated with a tachycardia. If an anemia is suspected, an active search for blood loss should be undertaken including potential blood loss through the gastrointestinal tract.

(I) A complete neurological examination should include an adequate mental status evaluation including a search for behavioral and psychological disturbances, memory testing, evaluation for irritability, insomnia, hallucinations, and mental clouding. Gait and coordination should be examined along with close observation for tremor. A detailed evaluation of peripheral nerve function including careful sensory and motor function testing is warranted. Strength testing particularly of extensor muscle groups of all extremities is of fundamental importance.

(J) Cranial nerve evaluation should also be included in the routine examination.

(K) The abdominal examination should include auscultation for bowel sounds and abnormal bruits and palpation for organomegaly, masses, and diffuse abdominal tenderness.

(L) Cardiovascular examination should evaluate possible early signs of congestive heart failure. Pulmonary status should be addressed particularly if respirator protection is contemplated.

(M) As part of the medical evaluation, the lead standard requires the following laboratory studies.

(I) Blood lead level.

(II) Hemoglobin and hematocrit determinations, red cell indices, and examination of the peripheral blood smear to evaluate red blood cell morphology.

(III) Blood urea nitrogen.

(IV) Serum creatinine.

(V) Routine urinalysis with microscopic examination.

(VI) A zinc protoporphyrin level.

(N) In addition to the above, the physician is authorized to order any further laboratory or other tests which he or she deems necessary in accordance with sound medical practice. The evaluation must also include pregnancy testing or laboratory evaluation of male fertility if requested by the employee.

(O) Additional tests which are probably not warranted on a routine basis but may be appropriate when blood lead and ZPP levels are equivocal include delta aminolevulinic acid and coproporphyrin concentrations in the urine, and dark-field illumination for detection of basophilic stippling in red blood cells.

(P) If an anemia is detected further studies including a careful examination of the peripheral smear, reticulocyte count, stool for occult blood, serum iron, total iron binding capacity, bilirubin, and, if appropriate vitamin B12 and folate may be of value in attempting to identify the cause of the anemia.

(Q) If a peripheral neuropathy is suspected, nerve conduction studies are warranted both for diagnosis and as a basis to monitor any therapy.

(R) If renal disease is questioned, a twenty-four-hour urine collection for creatinine clearance, protein, and electrolytes may be indicated. Elevated uric acid levels may result from lead-induced renal disease and a serum uric acid level might be performed.

(S) An electrocardiogram and chest X ray may be obtained as deemed appropriate.

(T) Sophisticated and highly specialized testing should not be done routinely and where indicated should be under the direction of a specialist.

(v) Laboratory evaluation.

(A) The blood level at present remains the single most important test to monitor lead exposure and is the test used in the medical surveillance program under the lead standard to guide employee medical removal. The ZPP has several advantages over the blood lead level. Because of its relatively recent development and the lack of extensive data concerning its interpretation, the ZPP currently remains an ancillary test.

(B) This section will discuss the blood lead level and ZPP in detail and will outline their relative advantages and disadvantages. Other blood tests currently available to evaluate lead exposure will also be reviewed.

(C) The blood lead level is a good index of current or recent lead absorption when there is no anemia present and when the worker has not taken any chelating agents. However, blood lead levels along with urinary lead levels do not necessarily indicate the total body burden of lead and are not adequate measures of past exposure. One reason for this is that lead has a high affinity for bone and up to ninety percent of the body's total lead is deposited there. A very important component of the total lead body burden is lead in soft tissue (liver, kidneys, and brain). This fraction of the lead body burden, the biologically active lead, is not entirely reflected by blood lead levels since it is a function of the dynamics of lead absorption, distribution, deposition in bone and excretion. Following discontinuation of exposure to lead, the excess body burden is only slowly mobilized from bone and other relatively stable stores and excreted. Consequently, a high blood lead level may only represent recent heavy exposure to lead without a significant total body excess and likewise a low blood lead level does not exclude an elevated total body burden of lead.

(D) Also due to its correlation with recent exposures, the blood lead level may vary considerably over short time intervals.

(E) To minimize laboratory error and erroneous results due to contamination, blood specimens must be carefully collected after thorough cleaning of the skin with appropriate methods using lead-free containers and analyzed by a reliable laboratory. Under the standard, samples must be analyzed in laboratories which are approved by the Center for Disease Control (CDC) or which have received satisfactory grades in proficiency testing by the CDC in the previous year. Analysis is to be made using atomic absorption spectrophotometry anodic stripping; voltammetry or any method which meets the accuracy requirements set forth by the standard.

(F) The determination of lead in urine is generally considered a less reliable monitoring technique than analysis of whole blood primarily due to individual variability in urinary excretion capacity as well as the technical difficulty of obtaining accurate twenty-four hour urine collections. In addition, workers with renal insufficiency, whether due to lead or some other cause, may have decreased lead clearance and consequently urine lead levels may underestimate the true lead burden. Therefore, urine lead levels should not be used as a routine test.

(G) The zinc protoporphyrin test, unlike the blood lead determination, measures an adverse metabolic effect of lead and as such is a better indicator of lead toxicity than the level of blood lead itself. The level of ZPP reflects lead absorption over the preceding three to four months, and therefore is a better indicator of lead body burden. The ZPP requires more time than the blood lead to read significantly elevated levels; the return to normal after discontinuing lead exposure is also slower. Furthermore, the ZPP test is simpler, faster, and less expensive to perform and no contamination is possible. Many investigators believe it is the most reliable means of monitoring chronic lead absorption.

(H) Zinc protoporphyrin results from the inhibition of the enzyme ferrochelatase which catalyzes the insertion of an iron molecule into the protoporphyrin molecule, which then becomes heme. If iron is not inserted into the molecule then zinc, having a greater affinity for protoporphyrin, takes place in the iron, forming ZPP.

(I) An elevation in the level of circulating ZPP may occur at blood lead levels as low as 20-30 µg/100g in some workers. Once the blood lead level has reached 40 µg/100g there is more marked rise in the ZPP value from its normal range of less than 100 µg/100ml. Increases in blood lead levels beyond 40 µg/100g are associated with exponential increases in ZPP.

(J) Whereas blood lead levels fluctuate over short time spans, ZPP levels remain relatively stable. ZPP is measured directly in red blood cells and is present for the cell's entire one hundred twenty day lifespan. Therefore, the ZPP level in blood reflects the average ZPP production over the previous three to four months and consequently the average lead exposure during that time interval.

(K) It is recommended that a hematocrit be determined whenever a confirmed ZPP of 50 µg/100ml whole blood is

obtained to rule out a significant underlying anemia. If the ZPP is in excess of 100 µg/100ml and not associated with abnormal elevations in blood lead levels, the laboratory should be checked to be sure the blood leads were determined using atomic absorption spectrophotometry, anodic stripping voltammetry or any method which meets the accuracy requirements set forth by the standard, by a CDC approved laboratory which is experienced in lead level determinations. Repeat periodic blood lead studies should be obtained in all individuals with elevated ZPP levels to be certain that an associated elevated blood lead level has not been missed due to transient fluctuations in blood leads.

(L) ZPP has characteristic fluorescence spectrum with a peak at 594nm which is detectable with a hematofluorimeter. The hematofluorimeter is accurate and portable and can provide on-site, instantaneous results for workers who can be frequently tested via a finger prick.

(M) However, careful attention must be given to calibration and quality control procedures. Limited data on blood lead -ZPP correlations and the ZPP levels which are associated with the adverse health effects discussed in item (ii) are the major limitations of the test. Also it is difficult to correlate ZPP levels with environmental exposure and there is some variation of response with age and sex. Nevertheless, the ZPP promises to be an important diagnostic test for the early detection of lead toxicity and its value will increase as more data is collected regarding its relationship to other manifestations of lead poisoning.

(N) Levels of delta-aminolevulinic acid (ALA) in the urine are also used as a measure of lead exposure. Increasing concentrations of ALA are believed to result from the inhibition of the enzyme delta-aminolevulinic acid dehydrase (ALA-D). Although the test is relatively easy to perform, inexpensive, and rapid, the disadvantages include variability in results, the necessity to collect a complete twenty-four hour urine sample which has a specific gravity greater than 1.010, and also the fact that ALA decomposes in the presence of light.

(O) The pattern of porphyrin excretion in the urine can also be helpful in identifying lead intoxication. With lead poisoning, the urine concentrations of coproporphyrins I and II, porphobilinogen and uroporphyrin I rise. The most important increase, however, is that of coproporphyrin III; levels may exceed 5,000 µg/1 in the urine in lead poisoned individuals, but its correlation with blood lead levels and ZPP are not as good as those of ALA. Increases in urinary porphyrins are not diagnostic of lead toxicity and may be seen in porphyria, some liver diseases, and in patients with high reticulocyte counts.

(vi) Summary.

(A) The WISHA standard for inorganic lead places significant emphasis on the medical surveillance of all workers exposed to levels of inorganic lead above the action level of 30 µg/m^3 TWA. The physician has a fundamental role in this surveillance program, and in the operation of the medical removal protection program.

(B) Even with adequate worker education on the adverse health effects of lead and appropriate training in work practices, personal hygiene and other control measures, the physician has a primary responsibility for evaluating potential lead toxicity in the worker. It is only through a careful and detailed medical and work history, a complete physical examination and appropriate laboratory testing that an accurate assessment can be made. Many of the adverse health effects of lead toxicity are either irreversible or only partially reversible and therefore early detection of disease is very important.

(C) This document outlines the medical monitoring program as defined by the occupational safety and health standard for inorganic lead. It reviews the adverse health effects of lead poisoning and describes the important elements of the history and physical examinations as they relate to these adverse effects.

(D) It is hoped that this review and discussion will give the physician a better understanding of the WISHA standard with the ultimate goal of protecting the health and well-being of the worker exposed to lead under his or her care.

(d) Appendix D. Recommendations to employers concerning high-risk tasks (nonmandatory).

The department advises employers that the following tasks have a high risk for lead overexposure (this list is not complete; other tasks also can result in lead over-exposure):

- Any open flame operation involving lead-containing solder in a manner producing molten solder, including the manufacture or repair of motor vehicle radiators;
- Sanding, cutting or grinding of lead-containing solder;
- Breaking, recycling or manufacture of lead-containing batteries;
- Casting objects using lead, brass, or lead-containing alloys;
- Where lead-containing coatings or paints are present:
  - abrasive blasting
  - welding
  - cutting
  - torch burning
  - manual demolition of structures
  - manual scraping
  - manual sanding
  - heat gun applications
  - power tool cleaning
  - rivet busting
  - clean-up activities where dry expendable abrasives are used
  - abrasive blasting enclosure movement and removal;
- Spray-painting with lead-containing paint;
- Using lead-containing mortar;
- Lead burning;
- Operation or cleaning of shooting facilities where lead bullets are used;
- Formulation or processing of lead-containing pigments or paints;
- Cutting, burning, or melting of lead-containing materials.

The department recommends that annual blood lead testing be offered to all employees potentially overexposed to lead, including those performing the tasks listed above,

regardless of air lead levels. Research has shown that air lead levels often do not accurately predict workers' lead overexposure. The blood lead testing will provide the most information if performed during a period of peak lead exposure.

Employers should be aware that the United States Public Health Service has set a goal of eliminating occupational exposures which result in whole blood lead levels of 25 µg/dl or greater. This goal should guide whether employees' blood lead levels indicate lead overexposure.

If blood lead levels are elevated in an employee performing a task associated with lead overexposure, employers should assess the maintenance and effectiveness of exposure controls, hygiene facilities, respiratory protection program, the employee's work practices and personal hygiene, and the employee's respirator use, if any. If a deficiency exists in any of these areas, the employer should correct the problem.

AMENDATORY SECTION (Amending WSR 01-11-038, filed 5/9/01, effective 9/1/01)

WAC 296-62-07601 Scope and application. (1) WAC 296-62-076 applies to all occupational exposures to MDA, Chemical Abstracts Service Registry No. 101-77-9, except as provided in subsections (2) through (7) of this section.

(2) Except as provided in subsection (8) of this section and WAC 296-62-07609(5), this section does not apply to the processing, use, and handling of products containing MDA where initial monitoring indicates that the product is not capable of releasing MDA in excess of the action level under the expected conditions of processing, use, and handling which will cause the greatest possible release; and where no "dermal exposure to MDA" can occur.

(3) Except as provided in subsection (8) of this section, WAC 296-62-076 does not apply to the processing, use, and handling of products containing MDA where objective data are reasonably relied upon which demonstrate the product is not capable of releasing MDA under the expected conditions of processing, use, and handling which will cause the greatest possible release; and where no "dermal exposure to MDA" can occur.

(4) WAC 296-62-076 does not apply to the storage, transportation, distribution, or sale of MDA in intact containers sealed in such a manner as to contain the MDA dusts, vapors, or liquids, except for the provisions of WAC 296-62-054, 296-62-07607 and ((~~296-800-170~~)) 296-901-140.

(5) WAC 296-62-076 does not apply to the construction industry as defined in WAC 296-155-012(6). (Exposure to MDA in the construction industry is covered by WAC 296-155-173.)

(6) Except as provided in subsection (8) of this section, WAC 296-62-076 does not apply to materials in any form which contain less than 0.1% MDA by weight or volume.

(7) Except as provided in subsection (8) of this section, WAC 296-62-076 does not apply to "finished articles containing MDA."

(8) Where products containing MDA are exempted under subsections (2) through (7) of this section, the employer shall maintain records of the initial monitoring results or objective data supporting that exemption and the basis for the employer's reliance on the data, as provided in the recordkeeping provision of WAC 296-62-07631.

AMENDATORY SECTION (Amending WSR 07-03-163, filed 1/24/07, effective 4/1/07)

WAC 296-62-07621 Communication of hazards ((~~to employees~~)). (1) Hazard communication - General.

(a) Chemical manufacturers, importers, distributors, and employers shall comply with all requirements of the Hazard Communication Standard (HCS), WAC 296-901-140 for MDA.

(b) In classifying the hazards of MDA at least the following hazards are to be addressed: Cancer; liver effects; and skin sensitization.

(c) Employers shall include MDA in the hazard communication program established to comply with the HCS, WAC 296-901-140. Employers shall ensure that each employee has access to labels on containers of MDA and to safety data sheets, and is trained in accordance with the requirements of HCS and subsection (4) of this section.

(2) Signs and labels.

(a) Signs.

(i) The employer shall post and maintain legible signs demarcating regulated areas and entrances or accessways to regulated areas that bear the following legend:

DANGER MDA MAY CAUSE CANCER
CAUSES DAMAGE TO THE LIVER ((~~TOXIN AUTHORIZED PERSONNEL ONLY RESPIRATORS~~))
RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING
MAY BE REQUIRED TO BE WORN IN THIS AREA

(ii) Prior to June 1, 2016, employers may use the following legend in lieu of that specified in (a)(i) of this subsection:

DANGER MDA MAY CAUSE CANCER LIVER TOXIN
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING
MAY BE REQUIRED TO BE WORN IN THIS AREA

(b) ((~~The~~)) Labels. Prior to June 1, 2015, employers ((~~shall ensure that labels or other appropriate forms of warning are provided for containers of MDA within the workplace. The labels shall comply with the requirements of chapter 296-839 WAC, Content and distribution of material safety data sheets (MSDSs) and label information, and WAC 296-800-170 of the safety and health core rules, and the labels shall include the following legend~~)) may include the following information workplace labels in lieu of the labeling requirements in subsection (1) of this section:

(i) For pure MDA:

DANGER CONTAINS MDA MAY CAUSE CANCER LIVER TOXIN

(ii) For mixtures containing MDA:

DANGER CONTAINS MDA CONTAINS MATERIALS
WHICH MAY CAUSE CANCER LIVER TOXIN

((~~(2) Material~~)) (3) Safety data sheets ((~~(MSDS)~~)) (SDS). In meeting the obligation to provide safety data sheets, employers shall make appropriate use of the information found in Appendices A and B to WAC 296-62-076.

(((~~(a) Employers shall obtain or develop, and shall provide access to their employees, to a material safety data sheet (MSDS) for MDA. In meeting this obligation, employers shall make appropriate use of the information found in Appendices A and B.~~

~~(b) Employers who are manufacturers or importers shall:~~

~~(i) Comply with subdivision (1)(b) of this section as appropriate; and~~

~~(ii) Comply with the requirement in WISHA hazard communication standard, WAC 296-62-054, that they deliver to downstream employers an MSDS for MDA.~~

~~(3)~~)) (4) Information and training.

(a) The employer shall provide employees with information and training on MDA, in accordance with WAC ((~~296-800-170~~)) 296-901-14016, at the time of initial assignment and at least annually thereafter.

(b) In addition to the information required under WAC ((~~296-800-170~~)) 296-901-140, the employer shall:

(i) Provide an explanation of the contents of WAC 296-62-076, including Appendices A and B, and indicate to employees where a copy of the standard is available;

(ii) Describe the medical surveillance program required under WAC 296-62-07625, and explain the information contained in Appendix C; and

(iii) Describe the medical removal provision required under WAC 296-62-07625.

(((~~(4)~~))) (5) Access to training materials.

(a) The employer shall make readily available to all affected employees, without cost, all written materials relating to the employee training program, including a copy of this regulation.

(b) The employer shall provide to the director, upon request, all information and training materials relating to the employee information and training program.

AMENDATORY SECTION (Amending WSR 01-11-038, filed 5/9/01, effective 9/1/01)

WAC 296-62-07717 Protective work clothing and equipment. (1) Provision and use. If an employee is exposed to asbestos above the permissible exposure limits, or where the possibility of eye irritation exists, or for which a required negative exposure assessment is not produced and for any employee performing Class I operations, the employer shall provide at no cost to the employee and require that the employee uses appropriate protective work clothing and equipment such as, but not limited to:

(a) Coveralls or similar full-body work clothing;

(b) Gloves, head coverings, and foot coverings; and

(c) Face shields, vented goggles, or other appropriate protective equipment which complies with WAC 296-800-160.

(2) Removal and storage.

(a) The employer shall ensure that employees remove work clothing contaminated with asbestos only in change rooms provided in accordance with WAC 296-62-07719(1).

(b) The employer shall ensure that no employee takes contaminated work clothing out of the change room, except those employees authorized to do so for the purpose of laundering, maintenance, or disposal.

(c) Contaminated clothing. Contaminated clothing shall be transported in sealed impermeable bags, or other closed, impermeable containers, and be labeled in accordance with WAC 296-62-07721.

(d) The employer shall ensure that containers of contaminated protective devices or work clothing which are to be taken out of change rooms or the workplace for cleaning, maintenance, or disposal, ((~~shall~~)) bear labels in accordance with WAC 296-62-07721(((~~(6)~~))) (5).

(3) Cleaning and replacement.

(a) The employer shall clean, launder, repair, or replace protective clothing and equipment required by this paragraph to maintain their effectiveness. The employer shall provide clean protective clothing and equipment at least weekly to each affected employee.

(b) The employer shall prohibit the removal of asbestos from protective clothing and equipment by blowing or shaking.

(c) Laundering of contaminated clothing shall be done so as to prevent the release of airborne fibers of asbestos in excess of the permissible exposure limits prescribed in WAC 296-62-07705.

(d) Any employer who gives contaminated clothing to another person for laundering shall inform such person of the requirement in (c) of this subsection to effectively prevent the release of airborne fibers of asbestos in excess of the permissible exposure limits.

(e) The employer shall inform any person who launders or cleans protective clothing or equipment contaminated with asbestos of the potentially harmful effects of exposure to asbestos.

(f) The employer shall ensure that contaminated clothing ((~~shall be~~)) is transported in sealed impermeable bags, or other closed, impermeable containers, and labeled in accordance with WAC 296-62-07721.

(4) Inspection of protective clothing for construction and shipyard work.

(a) The competent person shall examine worksuits worn by employees at least once per workshift for rips or tears that may occur during performance of work.

(b) When rips or tears are detected while an employee is working, rips and tears shall be immediately mended, or the worksuit shall be immediately replaced.

AMENDATORY SECTION (Amending WSR 01-11-038, filed 5/9/01, effective 9/1/01)

WAC 296-62-07721 Communication of hazards ((~~to employees~~)). (1)(a) Communication of hazards to employees((~~. General industry requirements.~~

~~(a)~~)) - Introduction. This section applies to the communication of information concerning asbestos hazards in general industry to facilitate compliance with this standard. Asbestos exposure in general industry occurs in a wide variety of industrial and commercial settings. Employees who manufacture asbestos-containing products may be exposed to asbestos fibers. Employees who repair and replace automotive brakes and clutches may be exposed to asbestos fibers. In addition, employees engaged in housekeeping activities in industrial facilities with asbestos product manufacturing

operations, and in public and commercial buildings with installed asbestos-containing materials may be exposed to asbestos fibers. It should be noted that employees who perform housekeeping activities during and after construction activities are covered by asbestos construction work requirements in WAC 296-62-077. Housekeeping employees, regardless of industry designation, should know whether building components they maintain may expose them to asbestos. The same hazard communication provisions will protect employees who perform housekeeping operations in all three asbestos standards; general industry, construction, and shipyard employment. Building owners are often the only and/or best source of information concerning the presence of previously installed asbestos-containing building materials. Therefore they, along with employers of potentially exposed employees, are assigned specific information conveying and retention duties under this section.

(i) Chemical manufacturers, importers, distributors and employers shall comply with all requirements of the Hazard Communication Standard (HCS), WAC 296-901-140 for asbestos.

(ii) In classifying the hazards of asbestos at least the following hazards are to be addressed: Cancer and lung effects.

(iii) Employers shall include asbestos in the hazard communication program established to comply with the HCS WAC 296-901-140. Employers shall ensure that each employee has access to labels on containers of asbestos and to safety data sheets, and is trained in accordance with the requirements of HCS and WAC 296-62-07722.

(b) Installed asbestos-containing material. Employers and building owners are required to treat installed TSI and sprayed-on and troweled-on surfacing materials as ACM for the purposes of this standard. These materials are designated "presumed ACM or PACM," and are defined in WAC 296-62-07703. Asphalt and vinyl flooring installed no later than 1980 also must be treated as asbestos-containing. The employer or building owner may demonstrate that PACM and flooring materials do not contain asbestos by complying with WAC 296-62-07712 (10)(a)(ix).

(c) Duties of employers and building and facility owners.

(i) Building and facility owners must determine the presence, location, and quantity of ACM and/or PACM at the worksite. Employers and building and facility owners must exercise due diligence in complying with these requirements to inform employers and employees about the presence and location of ACM and PACM.

(ii) Before authorizing or allowing any construction, renovation, remodeling, maintenance, repair, or demolition project, an owner or owner's agent must perform, or cause to be performed, a good faith inspection to determine whether materials to be worked on or removed contain asbestos. The inspection must be documented by a written report maintained on file and made available upon request to the director.

(A) The good faith inspection must be conducted by an accredited inspector.

(B) Such good faith inspection is not required if the owner or owner's agent is reasonably certain that asbestos will not be disturbed by the project or the owner or owner's agent assumes that the suspect material contains asbestos and handles the material in accordance with WAC 296-62-07701 through 296-62-07753.

(iii) The owner or owner's agent must provide, to all contractors submitting a bid to undertake any construction, renovation, remodeling, maintenance, repair, or demolition project, the written statement either of the reasonable certainty of nondisturbance of asbestos or of assumption of the presence of asbestos. Contractors must be provided with the written report before they apply or bid to work.

(iv) Any owner or owner's agent who fails to comply with (c)(ii) and (iii) of this subsection must be subject to a mandatory fine of not less than two hundred fifty dollars for each violation. Each day the violation continues must be considered a separate violation. In addition, any construction, renovation, remodeling, maintenance, repair, or demolition which was started without meeting the requirements of this section must be halted immediately and cannot be resumed before meeting such requirements.

(v) Building and facility owners must inform employers of employees, and employers must inform employees who will perform housekeeping activities in areas which contain ACM and/or PACM of the presence and location of ACM and/or PACM in such areas which may be contacted during such activities.

(vi) Upon written or oral request, building or facility owners must make a copy of the written report required in this section available to the department of labor and industries and the collective bargaining representatives or employee representatives of any employee who may be exposed to any asbestos or asbestos-containing materials. A copy of the written report must be posted conspicuously at the location where employees report to work.

(vii) Building and facility owners must maintain records of all information required to be provided according to this section and/or otherwise known to the building owner concerning the presence, location and quantity of ACM and PACM in the building/facility. Such records must be kept for the duration of ownership and must be transferred to successive owners.

(2) Communication of hazards to employees. Requirements for construction and shipyard employment activities.

(a) Introduction. This section applies to the communication of information concerning asbestos hazards in construction and shipyard employment activities. Most asbestos-related construction and shipyard activities involve previously installed building materials. Building/vessel owners often are the only and/or best sources of information concerning them. Therefore, they, along with employers of potentially exposed employees, are assigned specific information conveying and retention duties under this section. Installed Asbestos Containing Building/Vessel Material: Employers and building/vessel owners must identify TSI and sprayed or troweled on surfacing materials as asbestos-containing unless the employer, by complying with WAC 296-62-07721(3) determines it is not asbestos containing. Asphalt or vinyl flooring/decking material installed in buildings or vessels no later than 1980 must also be considered as asbestos containing unless the employer/owner, according to WAC 296-62-07712 (10)(a)(ix) determines it is not asbestos containing. If the employer or building/vessel owner has actual knowledge

or should have known, through the exercise of due diligence, that materials other than TSI and sprayed-on or troweled-on surfacing materials are asbestos containing, they must be treated as such. When communicating information to employees according to this standard, owners and employers must identify "PACM" as ACM. Additional requirements relating to communication of asbestos work on multiemployer worksites are set out in WAC 296-62-07706.

(b) Duties of building/vessel and facility owners.

(i) Before work subject to this section is begun, building/vessel and facility owners must identify the presence, location and quantity of ACM, and/or PACM at the worksite. All thermal system insulation and sprayed on or troweled on surfacing materials in buildings/vessels or substrates constructed no later than 1980 must be identified as PACM. In addition, resilient flooring/decking material installed no later than 1980 must also be identified as asbestos containing.

(ii) Before authorizing or allowing any construction, renovation, remodeling, maintenance, repair, or demolition project, a building/vessel and facility owner or owner's agent must perform, or cause to be performed, a good faith inspection to determine whether materials to be worked on or removed contain asbestos. The inspection must be documented by a written report maintained on file and made available upon request to the director.

(A) The good faith inspection must be conducted by an accredited inspector.

(B) Such good faith inspection is not required if the building/vessel and facility owner or owner's agent assumes that the suspect material contains asbestos and handles the material in accordance with WAC 296-62-07701 through 296-62-07753 or if the owner or the owner's agent is reasonably certain that asbestos will not be disturbed by the project.

(iii) The building/vessel and facility owner or owner's agent must provide, to all contractors submitting a bid to undertake any construction, renovation, remodeling, maintenance, repair, or demolition project, the written statement either of the reasonable certainty of nondisturbance of asbestos or of assumption of the presence of asbestos. Contractors must be provided the written report before they apply or bid on work.

(iv) Any building/vessel and facility owner or owners agent who fails to comply with WAC 296-62-07721 (2)(b)(ii) and (iii) must be subject to a mandatory fine of not less than two hundred fifty dollars for each violation. Each day the violation continues must be considered a separate violation. In addition, any construction, renovation, remodeling, maintenance, repair, or demolition which was started without meeting the requirements of this section must be halted immediately and cannot be resumed before meeting such requirements.

(v) Upon written or oral request, building/vessel and facility owner or owner's agent must make a copy of the written report required in this section available to the department of labor and industries and the collective bargaining representatives or employee representatives of any employee who may be exposed to any asbestos or asbestos-containing materials. A copy of the written report must be posted conspicuously at the location where employees report to work.

(vi) Building/vessel and facility owner or owner's agent must notify in writing the following persons of the presence, location and quantity of ACM or PACM, at worksites in their buildings/facilities/vessels.

(A) Prospective employers applying or bidding for work whose employees reasonably can be expected to work in or adjacent to areas containing such material;

(B) Employees of the owner who will work in or adjacent to areas containing such material;

(C) On multiemployer worksites, all employers of employees who will be performing work within or adjacent to areas containing such materials;

(D) Tenants who will occupy areas containing such materials.

(c) Duties of employers whose employees perform work subject to this standard in or adjacent to areas containing ACM and PACM. Building/vessel and facility owner or owner's agents whose employees perform such work must comply with these provisions to the extent applicable.

(i) Before work subject to this standard is begun, building/vessel and facility owner or owner's agents must determine the presence, location, and quantity of ACM and/or PACM at the worksite according to WAC 296-62-07721 (2)(b).

(ii) Before work under this standard is performed employers of employees who will perform such work must inform the following persons of the location and quantity of ACM and/or PACM present at the worksite and the precautions to be taken to insure that airborne asbestos is confined to the area.

(A) Owners of the building/vessel or facility;

(B) Employees who will perform such work and employers of employees who work and/or will be working in adjacent areas;

(iii) Upon written or oral request, a copy of the written report required in this section must be made available to the department of labor and industries and the collective bargaining representatives or employee representatives of any employee who may be exposed to any asbestos or asbestos-containing materials. A copy of the written report must be posted conspicuously at the location where employees report to work.

(iv) Within 10 days of the completion of such work, the employer whose employees have performed work subject to this standard, must inform the building/vessel or facility owner and employers of employees who will be working in the area of the current location and quantity of PACM and/or ACM remaining in the former regulated area and final monitoring results, if any.

(d) In addition to the above requirements, all employers who discover ACM and/or PACM on a worksite must convey information concerning the presence, location and quantity of such newly discovered ACM and/or PACM to the owner and to other employers of employees working at the worksite, within 24 hours of the discovery.

(e) No contractor may commence any construction, renovation, remodeling, maintenance, repair, or demolition project without receiving a copy of the written response or statement required by WAC 296-62-07721 (2)(b). Any contractor who begins any project without the copy of the written report

or statement will be subject to a mandatory fine of not less than two hundred fifty dollars per day. Each day the violation continues will be considered a separate violation.

(3) Criteria to rebut the designation of installed material as PACM.

(a) At any time, an employer and/or building/vessel owner may demonstrate, for purposes of this standard, that PACM does not contain asbestos. Building/vessel owners and/or employers are not required to communicate information about the presence of building material for which such a demonstration according to the requirements of (b) of this subsection has been made. However, in all such cases, the information, data and analysis supporting the determination that PACM does not contain asbestos, must be retained according to WAC 296-62-07727.

(b) An employer or owner may demonstrate that PACM does not contain asbestos by the following:

(i) Having a completed inspection conducted according to the requirements of AHERA (40 C.F.R. Part 763, Subpart E) which demonstrates that the material is not ACM;

(ii) Performing tests of the material containing PACM which demonstrate that no asbestos is present in the material. Such tests must include analysis of bulk samples collected in the manner described in 40 C.F.R. 763.86, Asbestos-containing materials in schools. The tests, evaluation and sample collection must be conducted by an accredited inspector. Analysis of samples must be performed by persons or laboratories with proficiency demonstrated by current successful participation in a nationally recognized testing program such as the National Voluntary Laboratory Accreditation Program (NVLAP) of the National Institute for Standards and Technology (NIST) or the Round Robin for bulk samples administered by the American Industrial Hygiene Associate (AIHA), or an equivalent nationally recognized Round Robin testing program.

(4) ((~~At the entrance to mechanical rooms/areas in which employees reasonably can be expected to enter and which contain TSI or surfacing ACM and PACM, the building/vessel and facility owner or owner's agent must post signs which identify the material which is present, its location, and appropriate work practices which, if followed, will ensure that ACM and/or PACM will not be disturbed. The employer shall ensure, to the extent feasible, that employees who come in contact with these signs can comprehend them. Means to ensure employee comprehension may include the use of foreign languages, pictographs, graphics, and awareness training.~~

~~(5)~~)) Warning signs.

(a) Warning signs that demarcate the regulated area must be provided and displayed at each location where a regulated area is required to be established by WAC 296-62-07711. ((~~In addition, warning~~)) Signs must be posted at ((~~all approaches to regulated areas and be posted at such a distance from~~)) such a location that an employee may read the signs and take necessary protective steps before entering the area marked by the signs.

(b) Sign specifications:

(i) The warning signs required by (a) of this subsection must bear the following information:

DANGER
ASBESTOS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
AUTHORIZED PERSONNEL ONLY

(ii) In addition, where the use of respirators and protective clothing is required in the regulated area under this section, the warning signs shall include the following:

WEAR RESPIRATORY PROTECTION AND
PROTECTIVE CLOTHING IN THIS AREA

(iii) Prior to June 1, 2016, employers may use the following legend in lieu of that specified in (b)(i) and (ii) of this subsection:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA

(c) The employer shall ensure that employees working in and contiguous to regulated areas comprehend the warning signs required to be posted by (a) of this subsection. Means to ensure employee comprehension may include the use of foreign languages, pictographs, and graphics.

((~~(6)~~)) (d) At the entrance to mechanical rooms/areas in which employees reasonably can be expected to enter and which contain TSI or surfacing ACM and PACM, the building/vessel and facility owner or owner's agent must post signs which identify the material which is present, its location, and appropriate work practices which, if followed, will ensure that ACM and/or PACM will not be disturbed. The employer shall ensure, to the extent feasible, that employees who come in contact with these signs can comprehend them. Means to ensure employee comprehension may include the use of foreign languages, pictographs, graphics, and awareness training.

(5) Warning labels.

(a) ((~~Warning labels must be affixed to all products containing asbestos including raw materials, mixtures, scrap, waste, debris, and other products containing asbestos fibers, and to their containers including waste containers. Installed asbestos products must contain a visible label, except where such a label would clearly not be feasible.~~)) Labeling. Labels shall be affixed to all raw materials, mixtures, scrap, waste, debris, and other products containing asbestos fibers, or to their containers. When a building owner or employer identifies previously installed ACM and/or PACM, labels or signs shall be affixed or posted so that employees will be notified of what materials contain ACM and/or PACM. The employer shall attach such labels in areas where they will clearly be noticed by employees who are likely to be exposed, such as at the entrance to mechanical room/areas. Signs required by subsection (1) of this section may be posted in lieu of labels so long as they contain the information required for labeling.

(b) Labels must be printed in large, bold letters on a contrasting background.

(c) ((~~The labels must comply with the requirements of WAC 296-800-170, and must~~)) Label specifications. In addition to the requirements of subsection (1) of this section, the employer shall ensure that labels of bags or containers of pro-

tective clothing and equipment, scrap, waste, and debris containing asbestos fibers include the following information:

DANGER
CONTAINS ASBESTOS FIBERS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
DO NOT BREATHE DUST
AVOID CREATING DUST

(d) Prior to June 1, 2015, employers may include the following information on raw materials, mixtures or labels of bags or containers of protective clothing and equipment, scrap, waste, and debris containing asbestos fibers in lieu of the labeling requirements in subsections (1)(a)(i) and (6)(c) of this section:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD
AVOID BREATHING AIRBORNE ASBESTOS FIBERS

(((~~(7)~~))) (6) The provisions for labels and for safety data sheets required by subsection (((~~(6)(a)~~))) (1) of this section ((~~or for material safety data sheets required by subsection (8) of this section~~)) do not apply where:

(a) Asbestos fibers have been modified by a bonding agent, coating, binder, or other material, provided that the manufacturer can demonstrate that during any reasonably foreseeable use, handling, storage, disposal, processing, or transportation, no airborne concentrations of fibers of asbestos in excess of the excursion limit will be released; or

(b) Asbestos is present in a product in concentrations less than 1.0 percent by weight.

(((~~(8) Material~~))) (7) Safety data sheets. Employers who are manufacturers or importers of asbestos, or asbestos products must comply with the requirements regarding development of ((~~material~~)) safety data sheets as specified in WAC 296-62-05413, except as provided by subsection (((~~(7)~~))) (6) of this section.

(((~~(9)~~))) (8) When a building/vessel owner/or employer identifies previously installed PACM and/or ACM, labels or signs must be affixed or posted so that employees will be notified of what materials contain PACM and/or ACM. The employer must attach such labels in areas where they will clearly be noticed by employees who are likely to be exposed, such as at the entrance to mechanical rooms/areas. Signs required by subsection (((~~(5)~~))) (4)(a) of this section may be posted in lieu of labels so long as they contain information required for labeling. The employer must ensure, to the extent feasible, that employees who come in contact with these signs can comprehend them. Means to ensure employee comprehension may include the use of foreign languages, pictographs, graphics, and awareness training.

AMENDATORY SECTION (Amending WSR 06-16-106, filed 8/1/06, effective 9/1/06)

WAC 296-62-08017 Protective work clothing and equipment. (1) Provision and use. Where a hazard is present or is likely to be present from skin or eye contact with chromium (VI), the employer shall provide appropriate personal protective clothing and equipment at no cost to employees, and shall ensure that employees use such clothing and equipment.

(2) Removal and storage.

(a) The employer shall ensure that employees remove all protective clothing and equipment contaminated with chromium (VI) at the end of the work shift or at the completion of their tasks involving chromium (VI) exposure, whichever comes first.

(b) The employer shall ensure that no employee removes chromium (VI) contaminated protective clothing or equipment from the workplace, except for those employees whose job it is to launder, clean, maintain, or dispose of such clothing or equipment.

(c) When contaminated protective clothing or equipment is removed for laundering, cleaning, maintenance, or disposal, the employer shall ensure that it is stored and transported in sealed, impermeable bags or other closed, impermeable containers.

(d) The employer shall ensure that bags or containers of contaminated protective clothing or equipment that are removed from change rooms for laundering, cleaning, maintenance, or disposal shall be labeled in accordance with the requirements of ((~~WAC 296-800-170, Employer chemical hazard communication~~)) the hazard communication standard, WAC 296-901-140.

(3) Cleaning and replacement.

(a) The employer shall clean, launder, repair and replace all protective clothing and equipment required by this section as needed to maintain its effectiveness.

(b) The employer shall prohibit the removal of chromium (VI) from protective clothing and equipment by blowing, shaking, or any other means that disperses chromium (VI) into the air or onto an employee's body.

(c) The employer shall inform any person who launders or cleans protective clothing or equipment contaminated with chromium (VI) of the potentially harmful effects of exposure to chromium (VI) and that the clothing and equipment should be laundered or cleaned in a manner that minimizes skin or eye contact with chromium (VI) and effectively prevents the release of airborne chromium (VI) in excess of the PEL.

AMENDATORY SECTION (Amending WSR 06-16-106, filed 8/1/06, effective 9/1/06)

WAC 296-62-08021 Housekeeping.

Exemption: This section does not apply to construction, shipyards, marine terminals and longshoring.

(1) General. The employer shall ensure that:

(a) All surfaces are maintained as free as practicable of accumulations of chromium (VI).

(b) All spills and releases of chromium (VI) containing material are cleaned up promptly.

(2) Cleaning methods.

(a) The employer shall ensure that surfaces contaminated with chromium (VI) are cleaned by HEPA-filter vacuuming or other methods that minimize the likelihood of exposure to chromium (VI).

(b) Dry shoveling, dry sweeping, and dry brushing may be used only where HEPA-filtered vacuuming or other meth-

ods that minimize the likelihood of exposure to chromium (VI) have been tried and found not to be effective.

(c) The employer shall not allow compressed air to be used to remove chromium (VI) from any surface unless:

(i) The compressed air is used in conjunction with a ventilation system designed to capture the dust cloud created by the compressed air; or

(ii) No alternative method is feasible.

(d) The employer shall ensure that cleaning equipment is handled in a manner that minimizes the reentry of chromium (VI) into the workplace.

(3) Disposal. The employer shall ensure that:

(a) Waste, scrap, debris, and any other materials contaminated with chromium (VI) and consigned for disposal are collected and disposed of in sealed, impermeable bags or other closed, impermeable containers.

(b) Bags or containers of waste, scrap, debris, and any other materials contaminated with chromium (VI) that are consigned for disposal are labeled in accordance with the requirements of WAC ((~~296-800-170, Employer chemical~~)) 296-901-140, Hazard communication.

AMENDATORY SECTION (Amending WSR 06-16-106, filed 8/1/06, effective 9/1/06)

WAC 296-62-08025 Communication of chromium (VI) hazards ((~~to employees~~)). (1) Hazard communication - General. ((~~In addition to the requirements of WAC 296-800-170, Employer chemical hazard communication, employers shall comply with the following requirements.~~))

(a) Chemical manufacturers, importers, distributors, and employers shall comply with all requirements of the hazard communication standard (HCS), WAC 296-901-140 for chromium (VI).

(b) In classifying the hazards of chromium (VI) at least the following hazards are to be addressed: Cancer, eye irritation, and skin sensitization.

(c) Employers shall include chromium (VI) in the hazard communication program established to comply with the HCS, WAC 296-901-140. Employers shall ensure that each employee has access to labels on containers of chromium (VI) and to safety data sheets, and is trained in accordance with the requirements of HCS and subsection (2) of this section. The employer shall ensure that at least the following hazards are addressed: Cancer, skin sensitization, and eye irritation.

(2) Employee information and training.

(a) The employer shall ensure that each employee can demonstrate knowledge of at least the following:

(i) The contents of this section; and

(ii) The purpose and a description of the medical surveillance program required by (a)(i) of this subsection.

(b) The employer shall make a copy of this section readily available without cost to all affected employees.

AMENDATORY SECTION (Amending WSR 12-24-071, filed 12/4/12, effective 1/4/13)

WAC 296-62-14533 Cotton dust. (1) Scope and application.

(a) This section, in its entirety, applies to the control of employee exposure to cotton dust in all workplaces where employees engage in yarn manufacturing, engage in slashing and weaving operations, or work in waste houses for textile operations.

(b) This section does not apply to the handling or processing of woven or knitted materials; to maritime operations covered by chapters 296-56 and 296-304 WAC; to harvesting or ginning of cotton; or to the construction industry.

(c) Only subsection (8) of this section, Medical surveillance, subsection (11)(b) of this section, Medical surveillance, subsection (11)(c) of this section, Availability, subsection (11)(d) of this section, Transfer of records, and Appendices B, C, and D of this section apply in all work places where employees exposed to cotton dust engage in cottonseed processing or waste processing operations.

(d) This section applies to yarn manufacturing and slashing and weaving operations exclusively using washed cotton (as defined by subsection (14) of this section) only to the extent specified by subsection (14) of this section.

(e) This section, in its entirety, applies to the control of all employees exposure to the cotton dust generated in the preparation of washed cotton from opening until the cotton is thoroughly wetted.

(f) This section does not apply to knitting, classing or warehousing operations except that employers with these operations, if requested by WISHA, shall grant WISHA access to their employees and workplaces for exposure monitoring and medical examinations for purposes of a health study to be performed by WISHA on a sampling basis.

(2) Definitions applicable to this section:

(a) "Blow down" - The cleaning of equipment and surfaces with compressed air.

(b) "Blow off" - The use of compressed air for cleaning of short duration and usually for a specific machine or any portion of a machine.

(c) "Cotton dust" - Dust present in the air during the handling or processing of cotton, which may contain a mixture of many substances including ground-up plant matter, fiber, bacteria, fungi, soil, pesticides, noncotton plant matter and other contaminants which may have accumulated with the cotton during the growing, harvesting and subsequent processing or storage periods. Any dust present during the handling and processing of cotton through the weaving or knitting of fabrics, and dust present in other operations or manufacturing processes using raw or waste cotton fibers or cotton fiber by-products from textile mills are considered cotton dust within this definition. Lubricating oil mist associated with weaving operations is not considered cotton dust.

(d) "Director" - The director of labor and industries or his authorized representative.

(e) "Equivalent instrument" - A cotton dust sampling device that meets the vertical elutriator equivalency requirements as described in subsection (4)(a)(iii) of this section.

(f) "Lint-free respirable cotton dust" - Particles of cotton dust of approximately 15 microns or less aerodynamic equivalent diameter.

(g) "Vertical elutriator cotton dust sampler" or "vertical elutriator" - A dust sampler which has a particle size cut-off at approximately 15 microns aerodynamic equivalent diame-

ter when operating at the flow rate of 7.4 ± 0.2 liters per minute.

(h) "Waste processing" - Waste recycling (sorting, blending, cleaning and willowing) and garnetting.

(i) "Yarn manufacturing" - All textile mill operations from opening to, but not including, slashing and weaving.

(3) Permissible exposure limits and action levels.

(a) Permissible exposure limits (PEL).

(i) The employer shall assure that no employee who is exposed to cotton dust in yarn manufacturing and cotton washing operations is exposed to airborne concentrations of lint-free respirable cotton dust greater than 200 µg/m^3 mean concentration, averaged over an eight-hour period, as measured by a vertical elutriator or an equivalent instrument.

(ii) The employer shall assure than no employee who is exposed to cotton dust in textile mill waste house operations or is exposed in yarn manufacturing to dust from "lower grade washed cotton" as defined in subsection (14)(e) of this section is exposed to airborne concentrations of lint-free respirable cotton dust greater than 500 µg/m^3 mean concentration, averaged over an eight-hour period, as measured by a vertical elutriator or an equivalent instrument.

(iii) The employer shall assure that no employee who is exposed to cotton dust in the textile processes known as slashing and weaving is exposed to airborne concentrations of lint-free respirable cotton dust greater than 750 µg/m^3 mean concentration, averaged over an eight-hour period, as measured by a vertical elutriator or an equivalent instrument.

(b) Action levels.

(i) The action level for yarn manufacturing and cotton washing operations is an airborne concentration of lint-free respirable cotton dust of 100 µg/m^3 mean concentration, averaged over an eight-hour period, as measured by a vertical elutriator or an equivalent instrument.

(ii) The action level for waste houses for textile operations is an airborne concentration of lint-free respirable cotton dust of 250 µg/m^3 mean concentration, averaged over an eight-hour period, as measured by a vertical elutriator or an equivalent instrument.

(iii) The action level for the textile processes known as slashing and weaving is an airborne concentration of lint-free respirable cotton dust of 375 µg/m^3 mean concentration, averaged over an eight-hour period, as measured by a vertical elutriator or an equivalent instrument.

(4) Exposure monitoring and measurement.

(a) General.

(i) For the purposes of this section, employee exposure is that exposure which would occur if the employee were not using a respirator.

(ii) The sampling device to be used shall be either the vertical elutriator cotton dust sampler or an equivalent instrument.

(iii) If an alternative to the vertical elutriator cotton dust sampler is used, the employer shall establish equivalency by demonstrating that the alternative sampling devices:

(A) It collects respirable particulates in the same range as the vertical elutriator (approximately 15 microns);

(B) Replicate exposure data used to establish equivalency are collected in side-by-side field and laboratory comparisons; and

(C) A minimum of 100 samples over the range of 0.5 to 2 times the permissible exposure limit are collected, and ninety percent of these samples have an accuracy range of plus or minus twenty-five percent of the vertical elutriator reading with a ninety-five percent confidence level as demonstrated by a statistically valid protocol. (An acceptable protocol for demonstrating equivalency is described in Appendix E of this section.)

(iv) WISHA will issue a written opinion stating that an instrument is equivalent to a vertical elutriator cotton dust sampler if:

(A) A manufacturer or employer requests an opinion in writing and supplies the following information:

(I) Sufficient test data to demonstrate that the instrument meets the requirements specified in this paragraph and the protocol specified in Appendix E of this section;

(II) Any other relevant information about the instrument and its testing requested by WISHA; and

(III) A certification by the manufacturer or employer that the information supplied is accurate; and

(B) If WISHA finds, based on information submitted about the instrument, that the instrument meets the requirements for equivalency specified by this subsection.

(b) Initial monitoring. Each employer who has a place of employment within the scope of subsections (1)(a), (d) or (e) of this section shall conduct monitoring by obtaining measurements which are representative of the exposure of all employees to airborne concentrations of lint-free respirable cotton dust over an eight-hour period. The sampling program shall include at least one determination during each shift for each work area.

(c) Periodic monitoring.

(i) If the initial monitoring required by (4)(b) of this section or any subsequent monitoring reveals employee exposure to be at or below the permissible exposure limit, the employer shall repeat the monitoring for those employees at least annually.

(ii) If the initial monitoring required by (4)(b) of this section or any subsequent monitoring reveals employee exposure to be above the PEL, the employer shall repeat the monitoring for those employees at least every six months.

(iii) Whenever there has been a production, process, or control change which may result in new or additional exposure to cotton dust, or whenever the employer has any other reason to suspect an increase in employee exposure, the employer shall repeat the monitoring and measurements for those employees affected by the change or increase.

(d) Employee notification.

(i) Within fifteen working days after the receipt of monitoring results, the employer shall notify each employee in writing of the exposure measurements which represent that employee's exposure.

(ii) Whenever the results indicate that the employee's exposure exceeds the applicable permissible exposure limit specified in subsection (3) of this section, the employer shall include in the written notice a statement that the permissible exposure limit was exceeded and a description of the corrective action taken to reduce exposure below the permissible exposure limit.

(5) Methods of compliance.

(a) Engineering and work practice controls. The employer shall institute engineering and work practice controls to reduce and maintain employee exposure to cotton dust at or below the permissible exposure limit specified in subsection (3) of this section, except to the extent that the employer can establish that such controls are not feasible.

(b) Whenever feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the permissible exposure limit, the employer shall nonetheless institute these controls to immediately reduce exposure to the lowest feasible level, and shall supplement these controls with the use of respirators which shall comply with the provisions of subsection (6) of this section.

(c) Compliance program.

(i) Where the most recent exposure monitoring data indicates that any employee is exposed to cotton dust levels greater than the permissible exposure limit, the employer shall establish and implement a written program sufficient to reduce exposures to or below the permissible exposure limit solely by means of engineering controls and work practices as required by (a) of this subsection.

(ii) The written program shall include at least the following:

(A) A description of each operation or process resulting in employee exposure to cotton dust;

(B) Engineering plans and other studies used to determine the controls for each process;

(C) A report of the technology considered in meeting the permissible exposure limit;

(D) Monitoring data obtained in accordance with subsection (4) of this section;

(E) A detailed schedule for development and implementation of engineering and work practice controls, including exposure levels projected to be achieved by such controls;

(F) Work practice program; and

(G) Other relevant information.

(iii) The employer's schedule as set forth in the compliance program, shall project completion of the implementation of the compliance program no later than March 27, 1984 or as soon as possible if monitoring after March 27, 1984 reveals exposures over the PEL, except as provided in subsection (13)(b)(ii)(B) of this section.

(iv) The employer shall complete the steps set forth in his program by the dates in the schedule.

(v) Written programs shall be submitted, upon request, to the director, and shall be available at the worksite for examination and copying by the director, and any affected employee or their designated representatives.

(vi) The written programs required under subsection (5)(c) of this section shall be revised and updated at least every six months to reflect the current status of the program and current exposure levels.

(d) Mechanical ventilation. When mechanical ventilation is used to control exposure, measurements which demonstrate the effectiveness of the system to control exposure, such as capture velocity, duct velocity, or static pressure shall be made at reasonable intervals.

(6) Use of respirators.

(a) General. For employees who are required to use respirators by this section, the employer must provide each employee an appropriate respirator that complies with the requirements of this section. Respirators must be used during:

(i) Periods necessary to install or implement feasible engineering controls and work-practice controls;

(ii) Maintenance and repair activities for which engineering and work-practice controls are not feasible;

(iii) Work operations for which feasible engineering and work-practice controls are not yet sufficient to reduce employee exposure to or below the permissible exposure limits;

(iv) Work operations specified under subsection (7)(a) of this section;

(v) Periods for which an employee requests a respirator.

(b) Respirator program.

(i) The employer must develop, implement and maintain a respiratory protection program as required by chapter 296-842 WAC, Respirators, which covers each employee required by this chapter to use a respirator.

(ii) Whenever a physician determines that an employee who works in an area in which the cotton-dust concentration exceeds the PEL is unable to use a respirator, including a powered air-purifying respirator, the employee must be given the opportunity to transfer to an available position, or to a position that becomes available later, that has a cotton-dust concentration at or below the PEL. The employer must ensure that such employees retain their current wage rate or other benefits as a result of the transfer.

(c) Respirator selection. The employer must:

(i) Select and provide to employees the appropriate respirators by following requirements in this section and WAC 296-842-13005, found in the respirator rule.

(ii) Provide employees with a powered air-purifying respirator (PAPR) when the employee chooses to use a PAPR instead of a negative-pressure air-purifying respirator, and the PAPR will provide adequate protection.

(iii) Limit the use of filtering facepiece respirators for protection against cotton dust to concentrations less than or equal to five times (5x) the PEL.

(iv) Provide high-efficiency particulate air (HEPA) filters or N-, R-, or P-100 series filters for powered air-purifying respirators (PAPRs) and negative-pressure air-purifying respirators when used in cotton dust concentrations greater than ten times (10x) the PEL.

(7) Work practices. Each employer shall, regardless of the level of employee exposure, immediately establish and implement a written program of work practices which shall minimize cotton dust exposure. The following shall be included where applicable:

(a) Compressed air "blow down" cleaning shall be prohibited, where alternative means are feasible. Where compressed air is used for cleaning, the employees performing the "blow down" or "blow off" shall wear suitable respirators. Employees whose presence is not required to perform "blow down" or "blow off" shall be required to leave the area affected by the "blow down" or "blow off" during this cleaning operation.

(b) Cleaning of clothing or floors with compressed air shall be prohibited.

(c) Floor sweeping shall be performed with a vacuum or with methods designed to minimize dispersal of dust.

(d) In areas where employees are exposed to concentrations of cotton dust greater than the permissible exposure limit, cotton and cotton waste shall be stacked, sorted, baled, dumped, removed or otherwise handled by mechanical means, except where the employer can show that it is infeasible to do so. Where infeasible, the method used for handling cotton and cotton waste shall be the method which reduces exposure to the lowest level feasible.

(8) Medical surveillance.

(a) General.

(i) Each employer covered by the standard shall institute a program of medical surveillance for all employees exposed to cotton dust.

(ii) The employer shall assure that all medical examinations and procedures are performed by or under the supervision of a licensed physician and are provided without cost to the employee.

(iii) Persons other than licensed physicians, who administer the pulmonary function testing required by this section shall have completed a NIOSH approved training course in spirometry.

(b) Initial examinations. The employer shall provide medical surveillance to each employee who is or may be exposed to cotton dust. For new employees' this examination shall be provided prior to initial assignment. The medical surveillance shall include at least the following:

(i) A medical history;

(ii) The standardized questionnaire contained in WAC 296-62-14537; and

(iii) A pulmonary function measurement, including a determination of forced vital capacity (FVC) and forced expiratory volume in one second (FEV_1), the FEV_1/FVC ratio, and the percentage that the measured values of FEV_1 and FVC differ from the predicted values, using the standard tables in WAC 296-62-14539. These determinations shall be made for each employee before the employee enters the workplace on the first day of the work week, preceded by at least thirty-five hours of no exposure to cotton dust. The tests shall be repeated during the shift, no less than four hours and no more than ten hours after the beginning of the work shift; and, in any event, no more than one hour after cessation of exposure. Such exposure shall be typical of the employee's usual workplace exposure. The predicted FEV_1 and FVC for blacks shall be multiplied by 0.85 to adjust for ethnic differences.

(iv) Based upon the questionnaire results, each employee shall be graded according to Schilling's byssinosis classification system.

(c) Periodic examinations.

(i) The employer shall provide at least annual medical surveillance for all employees exposed to cotton dust above the action level in yarn manufacturing, slashing and weaving, cotton washing and waste house operations. The employer shall provide medical surveillance at least every two years for all employees exposed to cotton dust at or below the action level, for all employees exposed to cotton dust from washed cotton (except from washed cotton defined in subsection (9)(c) of this section), and for all employees exposed to cotton dust in cottonseed processing and waste processing operations. Periodic medical surveillance shall include at least an update of the medical history, standardized questionnaire (Appendix B-111), Schilling byssinosis grade, and the pulmonary function measurements in (b)(iii) of this subsection.

(ii) Medical surveillance as required in (c)(i) of this subsection shall be provided every six months for all employees in the following categories:

(A) An FEV_1 of greater than eighty percent of the predicted value, but with an FEV_1 decrement of five percent or 200 ml. on a first working day;

(B) An FEV_1 of less than eighty percent of the predicted value; or

(C) Where, in the opinion of the physician, any significant change in questionnaire findings, pulmonary function results, or other diagnostic tests have occurred.

(iii) An employee whose FEV_1 is less than sixty percent of the predicted value shall be referred to a physician for a detailed pulmonary examination.

(iv) A comparison shall be made between the current examination results and those of previous examinations and a determination made by the physician as to whether there has been a significant change.

(d) Information provided to the physician. The employer shall provide the following information to the examining physician:

(i) A copy of this regulation and its appendices;

(ii) A description of the affected employee's duties as they relate to the employee's exposure;

(iii) The employee's exposure level or anticipated exposure level;

(iv) A description of any personal protective equipment used or to be used; and

(v) Information from previous medical examinations of the affected employee which is not readily available to the examining physician.

(e) Physician's written opinion.

(i) The employer shall obtain and furnish the employee with a copy of a written opinion from the examining physician containing the following:

(A) The results of the medical examination and tests including the FEV_1, FVC, and FEV_1/FVC ratio;

(B) The physician's opinion as to whether the employee has any detected medical conditions which would place the employee at increased risk of material impairment of the employee's health from exposure to cotton dust;

(C) The physician's recommended limitations upon the employee's exposure to cotton dust or upon the employee's use of respirators including a determination of whether an employee can wear a negative pressure respirator, and where the employee cannot, a determination of the employee's ability to wear a powered air purifying respirator; and

(D) A statement that the employee has been informed by the physician of the results of the medical examination and any medical conditions which require further examination or treatment.

(ii) The written opinion obtained by the employer shall not reveal specific findings or diagnoses unrelated to occupational exposure.

(9) Employee education and training.

(a) Training program.

(i) The employer shall train each employee exposed to cotton dust in accordance with the requirements of this section and shall assure that each employee is informed of the following:

(A) The acute and long term health hazards associated with exposure to cotton dust;

(B) The names and descriptions of jobs and processes which could result in exposure to cotton dust at or above the PEL;

(C) The measures, including work practices required by subsection (7) of this section, necessary to protect the employee from exposures in excess of the permissible exposure limit;

(D) The purpose, proper use, limitations, and other training requirements for respiratory protection as required by subsection (6) of this section and chapter 296-842 WAC (see WAC 296-842-11005, 296-842-16005 and 296-842-19005);

(E) The purpose for and a description of the medical surveillance program required by subsection (8) of this section and other information which will aid exposed employees in understanding the hazards of cotton dust exposure; and

(F) The contents of this standard and its appendices.

(ii) The training program shall be provided prior to initial assignment and shall be repeated annually for each employee exposed to cotton dust, when job assignments or work processes change and when employee performance indicates a need for retraining.

(b) Access to training materials.

(i) Each employer shall post a copy of this section with its appendices in a public location at the workplace, and shall, upon request, make copies available to employees.

(ii) The employer shall provide all materials relating to the employee training and information program to the director upon request.

(10) Signs.

(a) The employer shall post the following warning sign in each work area where the permissible exposure limit for cotton dust is exceeded:

DANGER
COTTON DUST
CAUSES DAMAGE TO LUNGS
(BYSSINOSIS)
WEAR RESPIRATORY PROTECTION IN THIS AREA

(b) Prior to June 1, 2016, employers may use the following legend in lieu of that specified in (a) of this subsection:

WARNING
COTTON DUST WORK AREA
MAY CAUSE ACUTE OR DELAYED LUNG INJURY
(BYSSINOSIS)
RESPIRATORS REQUIRED IN THIS AREA

(11) Recordkeeping.

(a) Exposure measurements.

(i) The employer shall establish and maintain an accurate record of all measurements required by subsection (4) of this section.

(ii) The record shall include:

(A) A log containing the items listed in WAC 296-62-14535 (4)(a), and the dates, number, duration, and results of each of the samples taken, including a description of the procedure used to determine representative employee exposures;

(B) The type of protective devices worn, if any, and length of time worn; and

(C) The names, Social Security number, job classifications, and exposure levels of employees whose exposure the measurement is intended to represent.

(iii) The employer shall maintain this record for at least twenty years.

(b) Medical surveillance.

(i) The employer shall establish and maintain an accurate medical record for each employee subject to medical surveillance required by subsection (8) of this section.

(ii) The record shall include:

(A) The name and Social Security number and description of the duties of the employee;

(B) A copy of the medical examination results including the medical history, questionnaire response, results of all tests, and the physician's recommendation;

(C) A copy of the physician's written opinion;

(D) Any employee medical complaints related to exposure to cotton dust;

(E) A copy of this standard and its appendices, except that the employer may keep one copy of the standard and the appendices for all employees, provided that he references the standard and appendices in the medical surveillance record of each employee; and

(F) A copy of the information provided to the physician as required by subsection (8)(d) of this section.

(iii) The employer shall maintain this record for at least twenty years.

(c) Availability.

(i) The employer shall make all records required to be maintained by subsection (11) of this section available to the director for examination and copying.

(ii) Employee exposure measurement records and employee medical records required by this subsection shall be provided upon request to employees, designated representatives, and the assistant director in accordance with chapter 296-802 WAC.

(d) Transfer of records.

(i) Whenever the employer ceases to do business, the successor employer shall receive and retain all records required to be maintained by subsection (11) of this section.

(ii) The employer shall also comply with any additional requirements involving transfer of records set forth in WAC 296-802-60005.

(12) Observation of monitoring.

(a) The employer shall provide affected employees or their designated representatives an opportunity to observe any measuring or monitoring of employee exposure to cotton dust conducted pursuant to subsection (4) of this section.

(b) Whenever observation of the measuring or monitoring of employee exposure to cotton dust requires entry into an area where the use of personal protective equipment is required, the employer shall provide the observer with and assure the use of such equipment and shall require the

observer to comply with all other applicable safety and health procedures.

(c) Without interfering with the measurement, observers shall be entitled to:

(i) An explanation of the measurement procedures;

(ii) An opportunity to observe all steps related to the measurement of airborne concentrations of cotton dust performed at the place of exposure; and

(iii) An opportunity to record the results obtained.

(13) Washed cotton.

(a) Exemptions. Cotton, after it has been washed by the processes described in this section is exempt from all or parts of this section as specified if the requirements of this section are met.

(b) Initial requirements.

(i) In order for an employer to qualify as exempt or partially exempt from this standard for operations using washed cotton, the employer must demonstrate that the cotton was washed in a facility which is open to inspection by the director and the employer must provide sufficient accurate documentary evidence to demonstrate that the washing methods utilized meet the requirements of this section.

(ii) An employer who handles or processes cotton which has been washed in a facility not under the employer's control and claims an exemption or partial exemption under this paragraph, must obtain from the cotton washer and make available at the worksite, to the director, or his designated representative, to any affected employee, or to their designated representative the following:

(A) A certification by the washer of the cotton of the grade of cotton, the type of washing process, and that the batch meets the requirements of this section:

(B) Sufficient accurate documentation by the washer of the cotton grades and washing process; and

(C) An authorization by the washer that the director may inspect the washer's washing facilities and documentation of the process.

(c) Medical and dyed cotton. Medical grade (USP) cotton, cotton that has been scoured, bleached and dyed, and mercerized yarn shall be exempt from all provisions of this standard.

(d) Higher grade washed cotton. The handling or processing of cotton classed as "low middling light spotted or better" (color grade 52 or better and leaf grade code 5 or better according to the 1993 USDA classification system) shall be exempt from all provisions of the standard except requirements of subsection (8) of this section, medical surveillance; subsection (11)(b) through (d) of this section, recordkeeping-medical records, and Appendices B, C, and D of this section, if they have been washed on one of the following systems:

(i) On a continuous batt system or a rayon rinse system including the following conditions:

(A) With water;

(B) At a temperature of no less than 60°C;

(C) With a water-to-fiber ratio of no less than 40:1; and

(D) With the bacterial levels in the wash water controlled to limit bacterial contamination of the cotton.

(ii) On a batch kier washing system including the following conditions:

(A) With water;

(B) With cotton fiber mechanically opened and thoroughly prewetted before forming the cake;

(C) For low-temperature processing, at a temperature of no less than 60°C with a water-to-fiber ratio of no less than 40:1; or, for high-temperature processing, at a temperature of no less than 93°C with a water-to-fiber ratio of no less than 15:1;

(D) With a minimum of one wash cycle followed by two rinse cycles for each batch, using fresh water in each cycle; and

(E) With bacterial levels in the wash water controlled to limit bacterial contamination of the cotton.

(e) Lower grade washed cotton. The handling and processing of cotton of grades lower than "low middling light spotted," that has been washed as specified in (d) of this subsection and has also been bleached, shall be exempt from all provisions of the standard except the requirements of subsection (3)(a) of this section, Permissible exposure limits, subsection (4) of this section, Exposure monitoring and measurement, subsection (8) of this section, Medical surveillance, subsection (11) of this section, Recordkeeping, and Appendices B, C and D of this section.

(f) Mixed grades of washed cotton. If more than one grade of washed cotton is being handled or processed together, the requirements of the grade with the most stringent exposure limit, medical and monitoring requirements shall be followed.

(14) Appendices.

(a) Appendix B (B-I, B-II and B-III), WAC 296-62-14537, Appendix C, WAC 296-62-14539 and Appendix D, WAC 296-62-14541 are incorporated as part of this chapter and the contents of these appendices are mandatory.

(b) Appendix A of this chapter, WAC 296-62-14535 contains information which is not intended to create any additional obligations not otherwise imposed or to detract from any existing obligations.

(c) Appendix E of this chapter is a protocol which may be followed in the validation of alternative measuring devices as equivalent to the vertical elutriator cotton dust sampler. Other protocols may be used if it is demonstrated that they are statistically valid, meet the requirements in subsection (4)(a)(iii) of this section, and are appropriate for demonstrating equivalency.

AMENDATORY SECTION (Amending Order 77-14, filed 7/25/77)

WAC 296-62-20021 ((~~Precautionary signs and labels.~~)) Communication of hazards. (1) ((~~General.~~

~~(a) The employer may use labels or signs required by other statutes, regulations or ordinances in addition to, or in combination with, signs and labels required by this section.~~

~~(b) The employer shall assure that no statement appears on or near any sign required by this section which contradicts or detracts from the effects of the required sign.~~

~~(c) The employer shall assure that signs required by this section are illuminated and cleaned as necessary so that the legend is readily visible.~~)) Hazard communication - General. The employer shall include coke oven emissions in the program established to comply with the Hazard Communication

Standard (HCS), WAC 296-901-140. The employer shall ensure that each employee has access to labels on containers of chemicals and substances associated with coke oven processes and to safety data sheets, and is trained in accordance with the provisions of HCS and WAC 296-62-20019. The employer shall ensure that at least the following hazard is addressed: Cancer.

(2) Signs.

(a) The employer shall post signs in the regulated area bearing the legends:

((~~DANGER~~
~~CANCER HAZARD~~
~~AUTHORIZED PERSONNEL ONLY~~
~~NO SMOKING OR EATING~~))

DANGER
COKE OVEN EMISSIONS
MAY CAUSE CANCER
DO NOT EAT, DRINK OR SMOKE
WEAR RESPIRATORY PROTECTION IN THIS AREA
AUTHORIZED PERSONNEL ONLY

(b) In addition, ((~~not later than January 20, 1978,~~)) the employer shall post signs in the areas where the permissible exposure limit is exceeded bearing the legend:

((~~RESPIRATOR REQUIRED~~))

WEAR RESPIRATORY PROTECTION IN THIS AREA

(c) The employer shall ensure that no statement appears on or near any sign required by this section which contradicts or detracts from the effects of the required sign.

(d) The employer shall ensure that signs required by this subsection are illuminated and cleaned as necessary so that the legend is readily visible.

(e) Prior to June 1, 2016, employers may use the following legend in lieu of that specified in (a) of this subsection:

DANGER
CANCER HAZARD
AUTHORIZED PERSONNEL ONLY
NO SMOKING OR EATING

(f) Prior to June 1, 2016, employers may use the following legend in lieu of that specified in (b) of this subsection:

DANGER
RESPIRATOR REQUIRED

(3) Labels.

(a) The employer shall ((~~apply precautionary~~)) ensure that labels ((~~to all containers of protective clothing~~)) of contaminated ((~~with coke oven emissions. The label shall bear~~)) protective clothing and equipment include the following ((~~legend~~)) information:

CONTAMINATED WITH COKE EMISSIONS
MAY CAUSE CANCER
DO NOT REMOVE DUST BY BLOWING OR SHAKING

(b) Prior to June 1, 2015, employers may include the following information on contaminated protective clothing and equipment in lieu of the labeling requirements in (a) of this subsection:

CAUTION
CLOTHING CONTAMINATED WITH COKE EMISSIONS
DO NOT REMOVE DUST BY BLOWING OR SHAKING

AMENDATORY SECTION (Amending WSR 01-11-038, filed 5/9/01, effective 9/1/01)

WAC 296-63-009 Exemption requests. (1) Employers who do not have hazardous chemicals at their workplace may submit a written request for exemption to the department. Submission of an exemption request does not relieve an employer of his/her obligation to pay the fee assessment until such time as the request is approved. Employers granted exemptions will be removed from the listing of employers to be assessed a fee beginning with the current billing period.

(2) Exemptions shall only be considered for an employer's entire workplace consisting of all activities reported to the department under the same employer identification number.

(3) Each request for exemption must contain the following information:

(a) Firm name and employer identification number;

(b) Complete mailing address;

(c) Complete location (such as street) address;

(d) A certified statement in the form required by RCW 9A.72.085 that a hazardous chemical survey of the employer's premises has been completed by a qualified person, the identity and qualifications of the person completing the survey, and that no hazardous chemicals as defined by WAC ((~~296-800-170~~)) 296-901-140 are present at the workplace.

(4) The department may schedule an on-site inspection to determine the validity of the exemption request.

(5) The employer shall provide to the department within five working days of receiving a request from the department, any additional information identified by the department as necessary for evaluating the exemption request.

(6) Exemption requests shall be mailed to:

Right to Know Program
Department of Labor and Industries
P.O. Box 44620
Olympia, Washington 98504-4620

AMENDATORY SECTION (Amending WSR 07-03-163, filed 1/24/07, effective 4/1/07)

WAC 296-67-001 Process safety management of highly hazardous chemicals. (1) Purpose. This section contains requirements for preventing or minimizing the consequences of catastrophic releases of toxic, reactive, flammable, or explosive chemicals. These releases may result in toxic, fire, or explosion hazards.

(2) Application.

(a) This part applies to the following:

(i) A process which involves a chemical at or above the specified threshold quantities listed in WAC 296-67-285, Appendix A;

(ii) A process which involves a Category 1 flammable ((~~liquid or~~)) gas (as defined in WAC ((~~296-800-170~~)) 296-

901-14006) or a flammable liquid with a flashpoint below 100°F (37.8°C) on site in one location, in a quantity of 10,000 pounds (4535.9 kg) or more except for:

(A) Hydrocarbon fuels used solely for workplace consumption as a fuel (e.g., propane used for comfort heating, gasoline for vehicle refueling), if such fuels are not a part of a process containing another highly hazardous chemical covered by this standard;

(B) Flammable liquids with a flashpoint below 100°F (37.8°C) stored in atmospheric tanks or transferred which are kept below their normal boiling point without benefit of chilling or refrigeration.

(b) This part does not apply to:

(i) Retail facilities;

(ii) Oil or gas well drilling or servicing operations; or

(iii) Normally unoccupied remote facilities.

AMENDATORY SECTION (Amending WSR 01-11-038, filed 5/9/01, effective 9/1/01)

WAC 296-67-005 Definitions. "Atmospheric tank" means a storage tank which has been designed to operate at pressures from atmospheric through 0.5 p.s.i.g. (pounds per square inch gauge, 3.45 Kpa).

"Boiling point" means the boiling point of a liquid at a pressure of 14.7 pounds per square inch absolute (p.s.i.a.) (760 mm.). For the purposes of this part, where an accurate boiling point is unavailable for the material in question, or for mixtures which do not have a constant boiling point, the 10 percent point of a distillation performed in accordance with the Standard Method of Test for Distillation of Petroleum Products, ASTM D-86-62, may be used as the boiling point of the liquid.

"Catastrophic release" means a major uncontrolled emission, fire, or explosion, involving one or more highly hazardous chemicals, that presents serious danger to employees in the workplace.

"Facility" means the buildings, containers, or equipment which contain a process.

"Highly hazardous chemical" means a substance possessing toxic, reactive, flammable, or explosive properties and specified by WAC 296-67-001 (2)(a).

"Hot work" means work involving electric or gas welding, cutting, brazing, or similar flame or spark-producing operations.

"Normally unoccupied remote facility" means a facility which is operated, maintained, or serviced by employees who visit the facility only periodically to check its operation and to perform necessary operating or maintenance tasks. No employees are permanently stationed at the facility. Facilities meeting this definition are not contiguous with, and must be geographically remote from all other buildings, processes, or persons.

"Process" means any activity involving a highly hazardous chemical including any use, storage, manufacturing, handling, or the on-site movement of such chemicals, or combination of these activities. For purposes of this definition, any group of vessels which are interconnected and separate vessels which are located such that a highly hazardous chemical could be involved in a potential release shall be considered a single process.

"Replacement in kind" means a replacement which satisfies the design specification.

"Trade secret" means any confidential formula, pattern, process, device, information, or compilation of information that is used in an employer's business, and that gives the employer an opportunity to obtain an advantage over competitors who do not know or use it. ((~~Chapter 296-62 WAC, Part B-1,~~)) See WAC 296-901-14030, Appendix E—Definition of "trade secret." (Which sets out the criteria to be used in evaluating trade secrets).

AMENDATORY SECTION (Amending WSR 02-20-034, filed 9/24/02, effective 10/1/02)

WAC 296-67-291 Appendix C—Compliance guidelines and recommendations for process safety management (nonmandatory). This appendix serves as a nonmandatory guideline to assist employers and employees in complying with the requirements of this section, as well as provides other helpful recommendations and information. Examples presented in this appendix are not the only means of achieving the performance goals in the standard. This appendix neither adds nor detracts from the requirements of the standard.

(1) Introduction to process safety management. The major objective of process safety management of highly hazardous chemicals is to prevent unwanted releases of hazardous chemicals especially into locations which could expose employees and others to serious hazards. An effective process safety management program requires a systematic approach to evaluating the whole process. Using this approach the process design, process technology, operational and maintenance activities and procedures, nonroutine activities and procedures, emergency preparedness plans and procedures, training programs, and other elements which impact the process are all considered in the evaluation. The various lines of defense that have been incorporated into the design and operation of the process to prevent or mitigate the release of hazardous chemicals need to be evaluated and strengthened to assure their effectiveness at each level. Process safety management is the proactive identification, evaluation and mitigation or prevention of chemical releases that could occur as a result of failures in process, procedures, or equipment. The process safety management standard targets highly hazardous chemicals that have the potential to cause a catastrophic incident. This standard as a whole is to aid employers in their efforts to prevent or mitigate episodic chemical releases that could lead to a catastrophe in the workplace and possibly to the surrounding community. To control these types of hazards, employers need to develop the necessary expertise, experiences, judgment, and proactive initiative within their workforce to properly implement and maintain an effective process safety management program as envisioned in the WISHA standard. This WISHA standard is required by the Clean Air Act amendments as is the Environmental Protection Agency's Risk Management Plan. Employers, who merge the two sets of requirements into their process safety management program, will better assure full compli-

ance with each as well as enhancing their relationship with the local community. While WISHA believes process safety management will have a positive effect on the safety of employees in workplaces and also offers other potential benefits to employers (increased productivity), smaller businesses which may have limited resources available to them at this time, might consider alternative avenues of decreasing the risks associated with highly hazardous chemicals at their workplaces. One method which might be considered is the reduction in the inventory of the highly hazardous chemical. This reduction in inventory will result in a reduction of the risk or potential for a catastrophic incident. Also, employers including small employers may be able to establish more efficient inventory control by reducing the quantities of highly hazardous chemicals on site below the established threshold quantities. This reduction can be accomplished by ordering smaller shipments and maintaining the minimum inventory necessary for efficient and safe operation. When reduced inventory is not feasible, then the employer might consider dispersing inventory to several locations on site. Dispersing storage into locations where a release in one location will not cause a release in another location is a practical method to also reduce the risk or potential for catastrophic incidents.

(2) Employee involvement in process safety management. Section 304 of the Clean Air Act amendments states that employers are to consult with their employees and their representatives regarding the employers efforts in the development and implementation of the process safety management program elements and hazard assessments. Section 304 also requires employers to train and educate their employees and to inform affected employees of the findings from incident investigations required by the process safety management program. Many employers, under their safety and health programs, have already established means and methods to keep employees and their representatives informed about relevant safety and health issues and employers may be able to adapt these practices and procedures to meet their obligations under this standard. Employers who have not implemented an occupational safety and health program may wish to form a safety and health committee of employees and management representatives to help the employer meet the obligations specified by this standard. These committees can become a significant ally in helping the employer to implement and maintain an effective process safety management program for all employees.

(3) Process safety information. Complete and accurate written information concerning process chemicals, process technology, and process equipment is essential to an effective process safety management program and to a process hazards analysis. The compiled information will be a necessary resource to a variety of users including the team that will perform the process hazards analysis as required under WAC 296-67-017; those developing the training programs and the operating procedures; contractors whose employees will be working with the process; those conducting the prestartup reviews; local emergency preparedness planners; and incurrence and enforcement officials. The information to be compiled about the chemicals, including process intermediates, needs to be comprehensive enough for an accurate assessment of the fire and explosion characteristics, reactivity hazards, the safety and health hazards to workers, and the corrosion and erosion effects on the process equipment and monitoring tools. Current ((~~material~~)) safety data sheet (((~~MSDS~~))) (SDS) information can be used to help meet this requirement which must be supplemented with process chemistry information including runaway reaction and over pressure hazards if applicable. Process technology information will be a part of the process safety information package and it is expected that it will include diagrams of the type shown in WAC 296-67-289, Appendix B of this part as well as employer established criteria for maximum inventory levels for process chemicals; limits beyond which would be considered upset conditions; and a qualitative estimate of the consequences or results of deviation that could occur if operating beyond the established process limits. Employers are encouraged to use diagrams which will help users understand the process. A block flow diagram is used to show the major process equipment and interconnecting process flow lines and show flow rates, stream composition, temperatures, and pressures when necessary for clarity. The block flow diagram is a simplified diagram. Process flow diagrams are more complex and will show all main flow streams including valves to enhance the understanding of the process, as well as pressures and temperatures on all feed and product lines within all major vessels, in and out of headers and heat exchangers, and points of pressure and temperature control. Also, materials of construction information, pump capacities and pressure heads, compressor horsepower and vessel design pressures and temperatures are shown when necessary for clarity. In addition, major components of control loops are usually shown along with key utilities on process flow diagrams. Piping and instrument diagrams (P&IDs) may be the more appropriate type of diagrams to show some of the above details and to display the information for the piping designer and engineering staff. The P&Ids are to be used to describe the relationships between equipment and instrumentation as well as other relevant information that will enhance clarity. Computer software programs which do P&Ids or other diagrams useful to the information package, may be used to help meet this requirement. The information pertaining to process equipment design must be documented. In other words, what were the codes and standards relied on to establish good engineering practice. These codes and standards are published by such organizations as the American Society of Mechanical Engineers, American Petroleum Institute, American National Standards Institute, National Fire Protection Association, American Society for Testing and Materials, National Board of Boiler and Pressure Vessel Inspectors, National Association of Corrosion Engineers, American Society of Exchange Manufacturers Association, and model building code groups. In addition, various engineering societies issue technical reports which impact process design. For example, the American Institute of Chemical Engineers has published technical reports on topics such as two phase flow for venting devices. This type of technically recognized report would constitute good engineering practice. For existing equipment designed and constructed many years ago in accordance with the codes and standards available at that time and no longer in general use today, the employer must document which codes and standards were

used and that the design and construction along with the testing, inspection and operation are still suitable for the intended use. Where the process technology requires a design which departs from the applicable codes and standards, the employer must document that the design and construction is suitable for the intended purpose.

(4) Process hazard analysis. A process hazard analysis (PHA), sometimes called a process hazard evaluation, is one of the most important elements of the process safety management program. A PHA is an organized and systematic effort to identify and analyze the significance of potential hazards associated with the processing or handling of highly hazardous chemicals. A PHA provides information which will assist employers and employees in making decisions for improving safety and reducing the consequences of unwanted or unplanned releases of hazardous chemicals. A PHA is directed toward analyzing potential causes and consequences of fires, explosions, releases of toxic or flammable chemicals and major spills of hazardous chemicals. The PHA focuses on equipment, instrumentation, utilities, human actions (routine and nonroutine), and external factors that might impact the process. These considerations assist in determining the hazards and potential failure points or failure modes in a process. The selection of a PHA methodology or technique will be influenced by many factors including the amount of existing knowledge about the process. Is it a process that has been operated for a long period of time with little or no innovation and extensive experience has been generated with its use? Or, is it a new process or one which has been changed frequently by the inclusion of innovative features? Also, the size and complexity of the process will influence the decision as to the appropriate PHA methodology to use. All PHA methodologies are subject to certain limitations. For example, the checklist methodology works well when the process is very stable and no changes are made, but it is not as effective when the process has undergone extensive change. The checklist may miss the most recent changes and consequently the changes would not be evaluated. Another limitation to be considered concerns the assumptions made by the team or analyst. The PHA is dependent on good judgment and the assumptions made during the study need to be documented and understood by the team and reviewer and kept for a future PHA. The team conducting the PHA need to understand the methodology that is going to be used. A PHA team can vary in size from two people to a number of people with varied operational and technical backgrounds. Some team members may only be a part of the team for a limited time. The team leader needs to be fully knowledgeable in the proper implementation of the PHA methodology that is to be used and should be impartial in the evaluation. The other full or part time team members need to provide the team with expertise in areas such as process technology, process design, operating procedures and practices, including how the work is actually performed, alarms, emergency procedures, instrumentation, maintenance procedures, both routine and nonroutine tasks, including how the tasks are authorized, procurement of parts and supplies, safety and health, and any other relevant subject as the need dictates. At least one team member must be familiar with the process. The ideal team will have an intimate knowledge of the standards, codes, specifications and regulations applicable to the process being studied. The selected team members need to be compatible and the team leader needs to be able to manage the team, and the PHA study. The team needs to be able to work together while benefiting from the expertise of others on the team or outside the team, to resolve issues, and to forge a consensus on the findings of the study and recommendations. The application of a PHA to a process may involve the use of different methodologies for various parts of the process. For example, a process involving a series of unit operations of varying sizes, complexities, and ages may use different methodologies and team members for each operation. Then the conclusions can be integrated into one final study and evaluation. A more specific example is the use of a checklist PHA for a standard boiler or heat exchanger and the use of a hazard and operability PHA for the overall process. Also, for batch type processes like custom batch operations, a generic PHA of a representative batch may be used where there are only small changes of monomer or other ingredient ratios and the chemistry is documented for the full range and ratio of batch ingredients. Another process that might consider using a generic type of PHA is a gas plant. Often these plants are simply moved from site to site and therefore, a generic PHA may be used for these movable plants. Also, when an employer has several similar size gas plants and no sour gas is being processed at the site, then a generic PHA is feasible as long as the variations of the individual sites are accounted for in the PHA. Finally, when an employer has a large continuous process which has several control rooms for different portions of the process such as for a distillation tower and a blending operation, the employer may wish to do each segment separately and then integrate the final results. Additionally, small businesses which are covered by this rule, will often have processes that have less storage volume, less capacity, and less complicated than processes at a large facility. Therefore, WISHA would anticipate that the less complex methodologies would be used to meet the process hazard analysis criteria in the standard. These process hazard analyses can be done in less time and with a few people being involved. A less complex process generally means that less data, P&Ids, and process information is needed to perform a process hazard analysis. Many small businesses have processes that are not unique, such as cold storage lockers or water treatment facilities. Where employer associations have a number of members with such facilities, a generic PHA, evolved from a checklist or what-if questions, could be developed and used by each employer effectively to reflect his/her particular process; this would simplify compliance for them. When the employer has a number of processes which require a PHA, the employer must set up a priority system of which PHAs to conduct first. A preliminary or gross hazard analysis may be useful in prioritizing the processes that the employer has determined are subject to coverage by the process safety management standard. Consideration should first be given to those processes with the potential of adversely affecting the largest number of employees. This prioritizing should consider the potential severity of a chemical release, the number of potentially affected employees, the operating history of the process such as the frequency of chemical releases, the age of the process and any other relevant factors. These factors

would suggest a ranking order and would suggest either using a weighing factor system or a systematic ranking method. The use of a preliminary hazard analysis would assist an employer in determining which process should be of the highest priority and thereby the employer would obtain the greatest improvement in safety at the facility. Detailed guidance on the content and application of process hazard analysis methodologies is available from the American Institute of Chemical Engineers' Center for Chemical Process Safety (see WAC 296-67-293, Appendix D).

(5) Operating procedures and practices. Operating procedures describe tasks to be performed, data to be recorded, operating conditions to be maintained, samples to be collected, and safety and health precautions to be taken. The procedures need to be technically accurate, understandable to employees, and revised periodically to ensure that they reflect current operations. The process safety information package is to be used as a resource to better assure that the operating procedures and practices are consistent with the known hazards of the chemicals in the process and that the operating parameters are accurate. Operating procedures should be reviewed by engineering staff and operating personnel to ensure that they are accurate and provide practical instructions on how to actually carry out job duties safely. Operating procedures will include specific instructions or details on what steps are to be taken or followed in carrying out the stated procedures. These operating instructions for each procedure should include the applicable safety precautions and should contain appropriate information on safety implications. For example, the operating procedures addressing operating parameters will contain operating instructions about pressure limits, temperature ranges, flow rates, what to do when an upset condition occurs, what alarms and instruments are pertinent if an upset condition occurs, and other subjects. Another example of using operating instructions to properly implement operating procedures is in starting up or shutting down the process. In these cases, different parameters will be required from those of normal operation. These operating instructions need to clearly indicate the distinctions between startup and normal operations such as the appropriate allowances for heating up a unit to reach the normal operating parameters. Also the operating instructions need to describe the proper method for increasing the temperature of the unit until the normal operating temperature parameters are achieved. Computerized process control systems add complexity to operating instructions. These operating instructions need to describe the logic of the software as well as the relationship between the equipment and the control system; otherwise, it may not be apparent to the operator. Operating procedures and instructions are important for training operating personnel. The operating procedures are often viewed as the standard operating practices (SOPs) for operations. Control room personnel and operating staff, in general, need to have a full understanding of operating procedures. If workers are not fluent in English then procedures and instructions need to be prepared in a second language understood by the workers. In addition, operating procedures need to be changed when there is a change in the process as a result of the management of change procedures. The consequences of operating procedure changes need to be fully evaluated and the information conveyed to the personnel. For example, mechanical changes to the process made by the maintenance department (like changing a valve from steel to brass or other subtle changes) need to be evaluated to determine if operating procedures and practices also need to be changed. All management of change actions must be coordinated and integrated with current operating procedures and operating personnel must be oriented to the changes in procedures before the change is made. When the process is shut down in order to make a change, then the operating procedures must be updated before startup of the process. Training in how to handle upset conditions must be accomplished as well as what operating personnel are to do in emergencies such as when a pump seal fails or a pipeline ruptures. Communication between operating personnel and workers performing work within the process area, such as nonroutine tasks, also must be maintained. The hazards of the tasks are to be conveyed to operating personnel in accordance with established procedures and to those performing the actual tasks. When the work is completed, operating personnel should be informed to provide closure on the job.

(6) Employee training. All employees, including maintenance and contractor employees, involved with highly hazardous chemicals need to fully understand the safety and health hazards of the chemicals and processes they work with for the protection of themselves, their fellow employees and the citizens of nearby communities. Training conducted in compliance with WAC ((~~296-800-170~~)) 296-901-140, ((~~chemical~~)) Hazard communication ((~~program standard~~)), will help employees to be more knowledgeable about the chemicals they work with as well as familiarize them with reading and understanding ((~~MSDS~~)) SDS. However, additional training in subjects such as operating procedures and safety work practices, emergency evacuation and response, safety procedures, routine and nonroutine work authorization activities, and other areas pertinent to process safety and health will need to be covered by an employer's training program. In establishing their training programs, employers must clearly define the employees to be trained and what subjects are to be covered in their training. Employers in setting up their training program will need to clearly establish the goals and objectives they wish to achieve with the training that they provide to their employees. The learning goals or objectives should be written in clear measurable terms before the training begins. These goals and objectives need to be tailored to each of the specific training modules or segments. Employers should describe the important actions and conditions under which the employee will demonstrate competence or knowledge as well as what is acceptable performance. Hands-on-training where employees are able to use their senses beyond listening, will enhance learning. For example, operating personnel, who will work in a control room or at control panels, would benefit by being trained at a simulated control panel or panels. Upset conditions of various types could be displayed on the simulator, and then the employee could go through the proper operating procedures to bring the simulator panel back to the normal operating parameters. A training environment could be created to help the trainee feel the full reality of the situation but, of course, under controlled conditions. This realistic type of training can

be very effective in teaching employees correct procedures while allowing them to also see the consequences of what might happen if they do not follow established operating procedures. Other training techniques using videos or on-the-job training can also be very effective for teaching other job tasks, duties, or other important information. An effective training program will allow the employee to fully participate in the training process and to practice their skill or knowledge. Employers need to periodically evaluate their training programs to see if the necessary skills, knowledge, and routines are being properly understood and implemented by their trained employees. The means or methods for evaluating the training should be developed along with the training program goals and objectives. Training program evaluation will help employers to determine the amount of training their employees understood, and whether the desired results were obtained. If, after the evaluation, it appears that the trained employees are not at the level of knowledge and skill that was expected, the employer will need to revise the training program, provide retraining, or provide more frequent refresher training sessions until the deficiency is resolved. Those who conducted the training and those who received the training should also be consulted as to how best to improve the training process. If there is a language barrier, the language known to the trainees should be used to reinforce the training messages and information. Careful consideration must be given to assure that employees including maintenance and contract employees receive current and updated training. For example, if changes are made to a process, impacted employees must be trained in the changes and understand the effects of the changes on their job tasks (e.g., any new operating procedures pertinent to their tasks). Additionally, as already discussed the evaluation of the employee's absorption of training will certainly influence the need for training.

(7) Contractors. Employers who use contractors to perform work in and around processes that involve highly hazardous chemicals, will need to establish a screening process so that they hire and use contractors who accomplish the desired job tasks without compromising the safety and health of employees at a facility. For contractors, whose safety performance on the job is not known to the hiring employer, the employer will need to obtain information on injury and illness rates and experience and should obtain contractor references. Additionally, the employer must assure that the contractor has the appropriate job skills, knowledge and certifications (such as for pressure vessel welders). Contractor work methods and experiences should be evaluated. For example, does the contractor conducting demolition work swing loads over operating processes or does the contractor avoid such hazards? Maintaining a site injury and illness log for contractors is another method employers must use to track and maintain current knowledge of work activities involving contract employees working on or adjacent to covered processes. Injury and illness logs of both the employer's employees and contract employees allow an employer to have full knowledge of process injury and illness experience. This log will also contain information which will be of use to those auditing process safety management compliance and those involved in incident investigations. Contract employees must perform their work safely. Considering that contractors often perform very specialized and potentially hazardous tasks such as confined space entry activities and nonroutine repair activities it is quite important that their activities be controlled while they are working on or near a covered process. A permit system or work authorization system for these activities would also be helpful to all affected employers. The use of a work authorization system keeps an employer informed of contract employee activities, and as a benefit the employer will have better coordination and more management control over the work being performed in the process area. A well run and well maintained process where employee safety is fully recognized will benefit all of those who work in the facility whether they be contract employees or employees of the owner.

(8) Prestartup safety. For new processes, the employer will find a PHA helpful in improving the design and construction of the process from a reliability and quality point of view. The safe operation of the new process will be enhanced by making use of the PHA recommendations before final installations are completed. P&Ids are to be completed along with having the operating procedures in place and the operating staff trained to run the process before startup. The initial startup procedures and normal operating procedures need to be fully evaluated as part of the prestartup review to assure a safe transfer into the normal operating mode for meeting the process parameters. For existing processes that have been shutdown for turnaround, or modification, etc., the employer must assure that any changes other than "replacement in kind" made to the process during shutdown go through the management of change procedures. P&Ids will need to be updated as necessary, as well as operating procedures and instructions. If the changes made to the process during shutdown are significant and impact the training program, then operating personnel as well as employees engaged in routine and nonroutine work in the process area may need some refresher or additional training in light of the changes. Any incident investigation recommendations, compliance audits or PHA recommendations need to be reviewed as well to see what impacts they may have on the process before beginning the startup.

(9) Mechanical integrity. Employers will need to review their maintenance programs and schedules to see if there are areas where "breakdown" maintenance is used rather than an ongoing mechanical integrity program. Equipment used to process, store, or handle highly hazardous chemicals needs to be designed, constructed, installed, and maintained to minimize the risk of releases of such chemicals. This requires that a mechanical integrity program be in place to assure the continued integrity of process equipment. Elements of a mechanical integrity program include the identification and categorization of equipment and instrumentation, inspections and tests, testing and inspection frequencies, development of maintenance procedures, training of maintenance personnel, the establishment of criteria for acceptable test results, documentation of test and inspection results, and documentation of manufacturer recommendations as to meantime to failure for equipment and instrumentation. The first line of defense an employer has available is to operate and maintain the process as designed, and to keep the chemicals contained. This line of defense is backed up by the next line of defense which

is the controlled release of chemicals through venting to scrubbers or flares, or to surge or overflow tanks which are designed to receive such chemicals, etc. These lines of defense are the primary lines of defense or means to prevent unwanted releases. The secondary lines of defense would include fixed fire protection systems like sprinklers, water spray, or deluge systems, monitor guns, etc., dikes, designed drainage systems, and other systems which would control or mitigate hazardous chemicals once an unwanted release occurs. These primary and secondary lines of defense are what the mechanical integrity program needs to protect and strengthen these primary and secondary lines of defenses where appropriate. The first step of an effective mechanical integrity program is to compile and categorize a list of process equipment and instrumentation for inclusion in the program. This list would include pressure vessels, storage tanks, process piping, relief and vent systems, fire protection system components, emergency shutdown systems, and alarms and interlocks and pumps. For the categorization of instrumentation and the listed equipment the employer would prioritize which pieces of equipment require closer scrutiny than others. Meantime to failure of various instrumentation and equipment parts would be known from the manufacturer's data or the employer's experience with the parts, which would then influence the inspection and testing frequency and associated procedures. Also, applicable codes and standards such as the National Board Inspection Code, or those from the American Society for Testing and Material, American Petroleum Institute, National Fire Protection Association, American National Standards Institute, American Society of Mechanical Engineers, and other groups, provide information to help establish an effective testing and inspection frequency, as well as appropriate methodologies. The applicable codes and standards provide criteria for external inspections for such items as foundation and supports, anchor bolts, concrete or steel supports, guy wires, nozzles and sprinklers, pipe hangers, grounding connections, protective coatings and insulation, and external metal surfaces of piping and vessels, etc. These codes and standards also provide information on methodologies for internal inspection, and a frequency formula based on the corrosion rate of the materials of construction. Also, erosion both internal and external needs to be considered along with corrosion effects for piping and valves. Where the corrosion rate is not known, a maximum inspection frequency is recommended, and methods of developing the corrosion rate are available in the codes. Internal inspections need to cover items such as vessel shell, bottom and head; metallic linings; nonmetallic linings; thickness measurements for vessels and piping; inspection for erosion, corrosion, cracking and bulges; internal equipment like trays, baffles, sensors, and screens for erosion, corrosion or cracking and other deficiencies. Some of these inspections may be performed by state or local government inspectors under state and local statutes. However, each employer needs to develop procedures to ensure that tests and inspections are conducted properly and that consistency is maintained even where different employees may be involved. Appropriate training is to be provided to maintenance personnel to ensure that they understand the preventive maintenance program procedures, safe practices, and the proper use and application of special equipment or unique tools that may be required. This training is part of the overall training program called for in the standard. A quality assurance system is needed to help ensure that the proper materials of construction are used, that fabrication and inspection procedures are proper, and that installation procedures recognize field installation concerns. The quality assurance program is an essential part of the mechanical integrity program and will help to maintain the primary and secondary lines of defense that have been designed into the process to prevent unwanted chemical releases or those which control or mitigate a release. "As built" drawings, together with certifications of coded vessels and other equipment, and materials of construction need to be verified and retained in the quality assurance documentation. Equipment installation jobs need to be properly inspected in the field for use of proper materials and procedures and to assure that qualified craftsmen are used to do the job. The use of appropriate gaskets, packing, bolts, valves, lubricants, and welding rods need to be verified in the field. Also procedures for installation of safety devices need to be verified, such as the torque on the bolts on ruptured disc installations, uniform torque on flange bolts, proper installation of pump seals, etc. If the quality of parts is a problem, it may be appropriate to conduct audits of the equipment supplier's facilities to better assure proper purchases of required equipment which is suitable for its intended service. Any changes in equipment that may become necessary will need to go through the management of change procedures.

(10) Nonroutine work authorizations. Nonroutine work which is conducted in process areas needs to be controlled by the employer in a consistent manner. The hazards identified involving the work that is to be accomplished must be communicated to those doing the work, but also to those operating personnel whose work could affect the safety of the process. A work authorization notice or permit must have a procedure that describes the steps the maintenance supervisor, contractor representative or other person needs to follow to obtain the necessary clearance to get the job started. The work authorization procedures need to reference and coordinate, as applicable, lockout/tagout procedures, line breaking procedures, confined space entry procedures and hot work authorizations. This procedure also needs to provide clear steps to follow once the job is completed in order to provide closure for those that need to know the job is now completed and equipment can be returned to normal.

(11) Managing change. To properly manage changes to process chemicals, technology, equipment and facilities, one must define what is meant by change. In this process safety management standard, change includes all modifications to equipment, procedures, raw materials and processing conditions other than "replacement in kind." These changes need to be properly managed by identifying and reviewing them prior to implementation of the change. For example, the operating procedures contain the operating parameters (pressure limits, temperature ranges, flow rates, etc.) and the importance of operating within these limits. While the operator must have the flexibility to maintain safe operation within the established parameters, any operation outside of these parameters requires review and approval by a written management of change procedure. Management of change covers such as

changes in process technology and changes to equipment and instrumentation. Changes in process technology can result from changes in production rates, raw materials, experimentation, equipment unavailability, new equipment, new product development, change in catalyst and changes in operating conditions to improve yield or quality. Equipment changes include among others change in materials of construction, equipment specifications, piping prearrangements, experimental equipment, computer program revisions and changes in alarms and interlocks. Employers need to establish means and methods to detect both technical changes and mechanical changes. Temporary changes have caused a number of catastrophes over the years, and employers need to establish ways to detect temporary changes as well as those that are permanent. It is important that a time limit for temporary changes be established and monitored since, without control, these changes may tend to become permanent. Temporary changes are subject to the management of change provisions. In addition, the management of change procedures are used to insure that the equipment and procedures are returned to their original or designed conditions at the end of the temporary change. Proper documentation and review of these changes is invaluable in assuring that the safety and health considerations are being incorporated into the operating procedures and the process. Employers may wish to develop a form or clearance sheet to facilitate the processing of changes through the management of change procedures. A typical change form may include a description and the purpose of the change, the technical basis for the change, safety and health considerations, documentation of changes for the operating procedures, maintenance procedures, inspection and testing, P&Ids, electrical classification, training and communications, prestartup inspection, duration if a temporary change, approvals and authorization. Where the impact of the change is minor and well understood, a check list reviewed by an authorized person with proper communication to others who are affected may be sufficient. However, for a more complex or significant design change, a hazard evaluation procedure with approvals by operations, maintenance, and safety departments may be appropriate. Changes in documents such as P&Ids, raw materials, operating procedures, mechanical integrity programs, electrical classifications, etc., need to be noted so that these revisions can be made permanent when the drawings and procedure manuals are updated. Copies of process changes need to be kept in an accessible location to ensure that design changes are available to operating personnel as well as to PHA team members when a PHA is being done or one is being updated.

(12) Investigation of incidents. Incident investigation is the process of identifying the underlying causes of incidents and implementing steps to prevent similar events from occurring. The intent of an incident investigation is for employers to learn from past experiences and thus avoid repeating past mistakes. The incidents for which WISHA expects employers to become aware and to investigate are the types of events which result in or could reasonably have resulted in a catastrophic release. Some of the events are sometimes referred to as "near misses," meaning that a serious consequence did not occur, but could have. Employers need to develop in-house capability to investigate incidents that occur in their facilities. A team needs to be assembled by the employer and trained in the techniques of investigation including how to conduct interviews of witnesses, needed documentation and report writing. A multidisciplinary team is better able to gather the facts of the event and to analyze them and develop plausible scenarios as to what happened, and why. Team members should be selected on the basis of their training, knowledge and ability to contribute to a team effort to fully investigate the incident. Employees in the process area where the incident occurred should be consulted, interviewed, or made a member of the team. Their knowledge of the events form a significant set of facts about the incident which occurred. The report, its findings and recommendations are to be shared with those who can benefit from the information. The cooperation of employees is essential to an effective incident investigation. The focus of the investigation should be to obtain facts, and not to place blame. The team and the investigation process should clearly deal with all involved individuals in a fair, open, and consistent manner.

(13) Emergency preparedness. Each employer must address what actions employees are to take when there is an unwanted release of highly hazardous chemicals. Emergency preparedness or the employer's tertiary (third) lines of defense are those that will be relied on along with the secondary lines of defense when the primary lines of defense which are used to prevent an unwanted release fail to stop the release. Employers will need to decide if they want employees to handle and stop small or minor incidental releases. Whether they wish to mobilize the available resources at the plant and have them brought to bear on a more significant release. Or whether employers want their employees to evacuate the danger area and promptly escape to a preplanned safe zone area, and allow the local community emergency response organizations to handle the release. Or whether the employer wants to use some combination of these actions. Employers will need to select how many different emergency preparedness or tertiary lines of defense they plan to have and then develop the necessary plans and procedures, and appropriately train employees in their emergency duties and responsibilities and then implement these lines of defense. Employers at a minimum must have an emergency action plan which will facilitate the prompt evacuation of employees due to an unwanted release of a highly hazardous chemical. This means that the employer will have a plan that will be activated by an alarm system to alert employees when to evacuate and, that employees who are physically impaired, will have the necessary support and assistance to get them to the safe zone as well. The intent of these requirements is to alert and move employees to a safe zone quickly. Delaying alarms or confusing alarms are to be avoided. The use of process control centers or similar process buildings in the process area as safe areas is discouraged. Recent catastrophes have shown that a large life loss has occurred in these structures because of where they have been sited and because they are not necessarily designed to withstand over-pressures from shockwaves resulting from explosions in the process area. Unwanted incidental releases of highly hazardous chemicals in the process area must be addressed by the employer as to what actions employees are to take. If the employer wants employees to evacuate the area, then the emergency action

plan will be activated. For outdoor processes where wind direction is important for selecting the safe route to a refuge area, the employer should place a wind direction indicator such as a wind sock or pennant at the highest point that can be seen throughout the process area. Employees can move in the direction of cross wind to upwind to gain safe access to the refuge area by knowing the wind direction. If the employer wants specific employees in the release area to control or stop the minor emergency or incidental release, these actions must be planned for in advance and procedures developed and implemented. Preplanning for handling incidental releases for minor emergencies in the process area needs to be done, appropriate equipment for the hazards must be provided, and training conducted for those employees who will perform the emergency work before they respond to handle an actual release. The employer's training program, including the hazard communication standard training is to address the training needs for employees who are expected to handle incidental or minor releases. Preplanning for releases that are more serious than incidental releases is another important line of defense to be used by the employer. When a serious release of a highly hazardous chemical occurs, the employer through preplanning will have determined in advance what actions employees are to take. The evacuation of the immediate release area and other areas as necessary would be accomplished under the emergency action plan. If the employer wishes to use plant personnel such as a fire brigade, spill control team, a hazardous materials team, or use employees to render aid to those in the immediate release area and control or mitigate the incident, these actions are covered by chapter 296-824 WAC, Emergency response to hazardous substance releases. If outside assistance is necessary, such as through mutual aid agreements between employers or local government emergency response organizations, these emergency responders are also covered by chapter 296-824 WAC. The safety and health protections required for emergency responders are the responsibility of their employers and of the on-scene incident commander. Responders may be working under very hazardous conditions and therefore the objective is to have them competently led by an on-scene incident commander and the commander's staff, properly equipped to do their assigned work safely, and fully trained to carry out their duties safely before they respond to an emergency. Drills, training exercises, or simulations with the local community emergency response planners and responder organizations is one means to obtain better preparedness. This close cooperation and coordination between plant and local community emergency preparedness managers will also aid the employer in complying with the Environmental Protection Agency's risk management plan criteria. One effective way for medium to large facilities to enhance coordination and communication during emergencies for on plant operations and with local community organizations is for employers to establish and equip an emergency control center. The emergency control center would be sited in a safe zone area so that it could be occupied throughout the duration of an emergency. The center would serve as the major communication link between the on-scene incident commander and plant or corporate management as well as with the local community officials. The communication equipment in the emergency control center should include a network to receive and transmit information by telephone, radio, or other means. It is important to have a backup communication network in case of power failure or one communication means fails. The center should also be equipped with the plant layout and community maps, utility drawings including fire water, emergency lighting, appropriate reference materials such as a government agency notification list, company personnel phone list, SARA Title III reports and ((~~material~~)) safety data sheets, emergency plans and procedures manual, a listing with the location of emergency response equipment, mutual aid information, and access to meteorological or weather condition data and any dispersion modeling data.

(14) Compliance audits. Employers need to select a trained individual or assemble a trained team of people to audit the process safety management system and program. A small process or plant may need only one knowledgeable person to conduct an audit. The audit is to include an evaluation of the design and effectiveness of the process safety management system and a field inspection of the safety and health conditions and practices to verify that the employer's systems are effectively implemented. The audit should be conducted or led by a person knowledgeable in audit techniques and who is impartial towards the facility or area being audited. The essential elements of an audit program include planning, staffing, conducting the audit, evaluation and corrective action, follow-up and documentation. Planning in advance is essential to the success of the auditing process. Each employer needs to establish the format, staffing, scheduling, and verification methods prior to conducting the audit. The format should be designed to provide the lead auditor with a procedure or checklist which details the requirements of each section of the standard. The names of the audit team members should be listed as part of the format as well. The checklist, if properly designed, could serve as the verification sheet which provides the auditor with the necessary information to expedite the review and assure that no requirements of the standard are omitted. This verification sheet format could also identify those elements that will require evaluation or a response to correct deficiencies. This sheet could also be used for developing the follow-up and documentation requirements. The selection of effective audit team members is critical to the success of the program. Team members should be chosen for their experience, knowledge, and training and should be familiar with the processes and with auditing techniques, practices, and procedures. The size of the team will vary depending on the size and complexity of the process under consideration. For a large, complex, highly instrumented plant, it may be desirable to have team members with expertise in process engineering and design, process chemistry, instrumentation and computer controls, electrical hazards and classifications, safety and health disciplines, maintenance, emergency preparedness, warehousing or shipping, and process safety auditing. The team may use part-time members to provide for the depth of expertise required as well as for what is actually done or followed, compared to what is written. An effective audit includes a review of the relevant documentation and process safety information, inspection of the physical facilities, and interviews with all levels of plant personnel. Utilizing the audit procedure and

checklist developed in the preplanning stage, the audit team can systematically analyze compliance with the provisions of the standard and any other corporate policies that are relevant. For example, the audit team will review all aspects of the training program as part of the overall audit. The team will review the written training program for adequacy of content, frequency of training, effectiveness of training in terms of its goals and objectives as well as to how it fits into meeting the standard's requirements, documentation, etc. Through interviews, the team can determine the employee's knowledge and awareness of the safety procedures, duties, rules, emergency response assignments, etc. During the inspection, the team can observe actual practices such as safety and health policies, procedures, and work authorization practices. This approach enables the team to identify deficiencies and determine where corrective actions or improvements are necessary. An audit is a technique used to gather sufficient facts and information, including statistical information, to verify compliance with standards. Auditors should select as part of their preplanning a sample size sufficient to give a degree of confidence that the audit reflects the level of compliance with the standard. The audit team, through this systematic analysis, should document areas which require corrective action as well as those areas where the process safety management system is effective and working in an effective manner. This provides a record of the audit procedures and findings, and serves as a baseline of operation data for future audits. It will assist future auditors in determining changes or trends from previous audits. Corrective action is one of the most important parts of the audit. It includes not only addressing the identified deficiencies, but also planning, followup, and documentation. The corrective action process normally begins with a management review of the audit findings. The purpose of this review is to determine what actions are appropriate, and to establish priorities, timetables, resource allocations, and requirements and responsibilities. In some cases, corrective action may involve a simple change in procedure or minor maintenance effort to remedy the concern. Management of change procedures need to be used, as appropriate, even for what may seem to be a minor change. Many of the deficiencies can be acted on promptly, while some may require engineering studies or indepth review of actual procedures and practices. There may be instances where no action is necessary and this is a valid response to an audit finding. All actions taken, including an explanation where no action is taken on a finding, needs to be documented as to what was done and why. It is important to assure that each deficiency identified is addressed, the corrective action to be taken noted, and the audit person or team responsible be properly documented by the employer. To control the corrective action process, the employer should consider the use of a tracking system. This tracking system might include periodic status reports shared with affected levels of management, specific reports such as completion of an engineering study, and a final implementation report to provide closure for audit findings that have been through management of change, if appropriate, and then shared with affected employees and management. This type of tracking system provides the employer with the status of the corrective action. It also provides the documentation required to verify that appropriate corrective actions were taken on deficiencies identified in the audit.

AMENDATORY SECTION (Amending WSR 09-05-071, filed 2/17/09, effective 4/1/09)

WAC 296-78-515 Management's responsibility. (1) It shall be the responsibility of management to establish, supervise, and enforce, in a manner which is effective in practice:

(a) A safe and healthful working environment.

(b) An accident prevention program as required by these standards.

(c) Training programs to improve the skill and competency of all employees in the field of occupational safety and health. Such training shall include the on-the-job instructions on the safe use of powered materials handling equipment, machine tool operations, use of toxic materials and operation of utility systems prior to assignments to jobs involving such exposures.

(2) The employer shall develop and maintain a ((~~chemical~~)) hazard communication program as required by WAC ((~~296-800-170~~)) 296-901-140, which will provide information to all employees relative to hazardous chemicals or substances to which they are exposed, or may become exposed, in the course of their employment.

(3) Management shall not assign mechanics, millwrights, or other persons to work on equipment by themselves when there is a probability that the person could fall from elevated work locations or equipment or that a person could be pinned down by heavy parts or equipment so that they could not call for or obtain assistance if the need arises.

Note: This subsection does not apply to operators of motor vehicles, watchperson or certain other jobs which, by their nature, are singular employee assignments. However, a definite procedure for checking the welfare of all employees during their working hours shall be instituted and all employees so advised.

(4) After the emergency actions following accidents that cause serious injuries that have immediate symptoms, a preliminary investigation of the cause of the accident shall be conducted. The investigation shall be conducted by a person designated by the employer, the immediate supervisor of the injured employee, witnesses, employee representative if available and any other person with the special expertise required to evaluate the facts relating to the cause of the accident. The findings of the investigation shall be documented by the employer for reference at any following formal investigation.

(5) Reporting of fatality or hospitalization incidents.

(a) Within eight hours after the fatality or probable fatality of any employee from a work-related incident or the inpatient hospitalization of any employee as a result of a work-related incident, the employer of any employees so affected shall report the fatality/hospitalization by telephone or in person, to the nearest office of the department or by using the OSHA toll-free central telephone number, 1-800-321-6742.

(i) This requirement applies to each such fatality or hospitalization which occurs within thirty days of the incident.

(ii) Exception: If any employer does not learn of a reportable incident at the time it occurs and the incident would otherwise be reportable under this subsection, the

employer shall make a report within eight hours of the time the incident is reported to any agent or employee of the employer.

(iii) Each report required by this subsection shall relate the following information: Establishment name, location of the incident, time of the incident, number of fatalities or hospitalized employees, contact person, phone number, and a brief description of the incident.

(b) Equipment involved in an incident resulting in an immediate or probable fatality or in the in-patient hospitalization of any employee, shall not be moved, until a representative of the department investigates the incident and releases such equipment, except where removal is essential to prevent further incident. Where necessary to remove the victim, such equipment may be moved only to the extent of making possible such removal.

(c) Upon arrival of a department investigator, employer shall assign to assist the investigator, the immediate supervisor and all employees who were witnesses to the incident, or whoever the investigator deems necessary to complete the investigation.

(6) A system for maintaining records of occupational injuries and illnesses as prescribed by chapter 296-27 WAC.

Note: Recordable cases include:
(a) Every occupational death.
(b) Every industrial illness.
(c) Every occupational injury that involves one of the following:
(i) Unconsciousness.
(ii) Inability to perform all phases of regular job.
(iii) Inability to work full time on regular job.
(iv) Temporary assignment to another job.
(v) Medical treatment beyond first aid.

All employers with eleven or more employees shall record occupational injury and illness information on forms OSHA 101 - supplementary record occupational injuries and illnesses and OSHA 200 - log and summary. Forms other than OSHA 101 may be substituted for the supplementary record of occupational injuries and illnesses if they contain the same items.

(7) Personal protective equipment required by this standard shall be provided at no cost to employees.

AMENDATORY SECTION (Amending WSR 07-05-062, filed 2/20/07, effective 4/1/07)

WAC 296-78-71015 Tanks and chemicals. (1) All open vats and tanks into which workers may fall shall be guarded with standard railings or screen guards in all cases where such guarding is possible with regard to practical operation.

(2) Foundations of elevated tanks shall be accessible for inspections. When the tank platform is more than five feet above the ground a stairway or ladder shall be permanently attached.

(3) Every open tank over five feet in height shall be equipped with fixed standard ladders both inside and out, extending from the bottom to the rim of the tank arranged to be accessible to each other, so far as local conditions permit.

(4) The use of chemicals for treating of lumber for prevention of sap stain or mold or as preservatives, shall conform to the requirements of chapter 296-835 WAC, Dipping and coating operations (dip tanks).

(a) Storage, handling, and use of chemicals. Threshold limits. Employees shall not be exposed to airborne concentration of toxic dusts, vapors, mists or gases that exceed the threshold limit values set forth in chapter 296-62 WAC, Part H, and chapter 296-841 WAC, Airborne contaminants.

(b) Protective equipment. The use of chemicals shall be controlled so as to protect employees from harmful exposure to toxic materials. Where necessary, employees shall be provided with and required to wear such protective equipment as will afford adequate protection against harmful exposure as required by WAC 296-800-160, and chapter 296-842 WAC, Respirators.

(5)(a) Means shall be provided and used to collect any excess of chemicals used in treating lumber so as to protect workers from accidental contact with harmful concentrations of toxic chemicals or fumes.

(b) Dip tanks containing flammable ((~~or combustible~~)) liquids shall be constructed, maintained and used in accordance with chapter 296-835 WAC, Dipping and coating operations (dip tanks).

(c) An evacuation plan shall be developed and implemented for all employees working in the vicinity of dip tanks using flammable ((~~and/or combustible~~)) liquids. A copy of the plan shall be available at the establishment for inspection at all times. Every employee shall be made aware of the evacuation plan and know what to do in the event of an emergency and be evacuated in accordance with the plan. The plan shall be reviewed with employees at least quarterly and documented.

(d) When automatic foam, automatic carbon dioxide or automatic dry chemical extinguishing systems are used, an alarm device shall be activated to alert employees in the dip tank area before and during the activation of the system. The following combinations of extinguishment systems when used in conjunction with the evacuation plan as stated above will be acceptable in lieu of bottom drains:

(i) A dip tank cover with an automatic foam extinguishing system under the cover, or an automatic carbon dioxide system, or an automatic dry chemical extinguishing system, or an automatic water spray extinguishing system;

(ii) An automatic dry chemical extinguishing system with an automatic carbon dioxide system or a second automatic dry chemical extinguishing system or an automatic foam extinguishing system;

(iii) An automatic carbon dioxide system with a second automatic carbon dioxide system or an automatic foam extinguishing system.

(e) The automatic water spray extinguishing systems, automatic foam extinguishing systems, and dip tank covers shall conform with the requirements of chapter 296-835 WAC, Dipping and coating operations (dip tanks). The automatic carbon dioxide systems and dry chemical extinguishing system shall conform with the requirements of WAC 296-24-615 and 296-24-620.

(6) Where workers are engaged in the treating of lumber with chemicals or are required to handle lumber or other

materials so treated, the workers shall be provided with, at no cost to the worker, and required to use such protective equipment as will provide complete protection against contact with toxic chemicals or fumes therefrom.

(7) Sanitation requirements. The requirements of WAC 296-800-220 and 296-800-230 (safety and health core rules), shall govern sanitation practices.

(8) The sides of steam vats and soaking pits unless otherwise guarded shall extend forty-two inches above the floor level. The floor adjacent thereto shall be of nonslip construction.

(9) Large steam vats or soaking pits, divided into sections, shall be provided with substantial walkways between each section, each walkway to be provided with standard railings which may be removable if necessary.

(10) Covers shall be removed only from that portion of the steaming vats on which workers are working and a portable railing shall be placed at this point to protect the operators.

(11) Workers shall not ride or step on logs in steam vats.

AMENDATORY SECTION (Amending WSR 08-20-123, filed 10/1/08, effective 11/1/08)

WAC 296-115-050 General requirements. (1) Where an existing charter vessel does not meet a particular requirement of this section, the assistant director may grant:

(a) A temporary variance to allow time for modifications to be made.

(b) A permanent variance if the degree of protection afforded is judged to be adequate for the service in which the vessel is used.

(2) Lifesaving equipment required by this section must be approved by the USCG.

(3) The following lifesaving equipment is required:

(a) All vessels carrying passengers must carry life floats or buoyant apparatus for all persons on board.

(i) All life floats or buoyant apparatus must be international orange in color.

(ii) Vessels operating not more than one mile from land are not required to carry life floats or buoyant apparatus.

(iii) Lifeboats, life rafts, dinghies, dories, skiffs, or similar type craft may be substituted for the required life floats or buoyant apparatus if the substitution is approved by the assistant director.

(iv) Life floats, buoyant apparatus, or any authorized substitute must be U.S. Coast Guard approved and have the following equipment:

• Two paddles or oars not less than four feet in length.

• A painter of at least one-half inch diameter and thirty feet in length.

(b) All vessels must have a USCG-approved adult life preserver for the number of people the vessel is certified to carry, with at least ten percent additional of a type suitable for children or greater number to provide a life jacket for each child-sized person on board.

(i) Life preservers must be stowed in readily accessible places in the upper part of the vessel; and

(ii) Each life preserver must be marked with the vessel's name.

(c) All vessels must carry in a readily accessible location at least one ring life buoy of an approved type with sixty feet of buoyant line attached. The ring life buoy must:

(i) Be ready to cast loose at any time; and

(ii) Have a floating water light, unless operation is limited to daytime.

(4) Fire protection general.

(a) The general construction of a vessel must minimize fire hazards.

(b) Internal combustion engine exhausts, boiler and galley uptakes, and similar sources of ignition must be kept clear of and suitably insulated from woodwork or other combustible material.

(c) Lamp, paint, and oil lockers and similar storage areas for flammable ((~~or combustible~~)) liquids must be constructed of metal or lined with metal.

(5) Fire protection equipment. Equipment required to be of an approved type must be approved by the USCG or other agency acceptable to the director.

(a) Fire pumps.

(i) All vessels carrying more than forty-nine passengers must carry an approved power fire pump capable of reaching any part of the vessel.

(ii) All other vessels must carry an approved hand fire pump. These pumps must be provided with a suitable suction and discharge hose, and may also serve as bilge pumps.

(b) Fixed fire extinguishing system.

(i) The following vessels must have a fixed fire extinguishing system to protect the machinery and fuel tank spaces:

• Those powered by internal combustion engines using gasoline or other fuel having a flashpoint of 110°F or lower; and

• Those with hulls constructed of fiber-reinforced plastic (FRP) or wood.

(ii) This system must be an approved type and have a capacity sufficient to protect the space.

(iii) Controls for the fixed system must be installed in an accessible location outside the space protected.

(iv) A device must be provided to automatically shut down power ventilation serving the protected space and engines that draw intake air from the protected space prior to release of the extinguishing agent into the space.

(c) Fire axe. All vessels must have one fire axe located in or near the pilothouse.

(d) Portable fire extinguishers.

(i) All vessels must have a minimum number of portable fire extinguishers of an approved size and type. The number required will be determined by Table 1, Portable Fire Extinguishers.

(ii) Portable fire extinguishers must be inspected at least once a month. Extinguishers found defective must be serviced or replaced.

(iii) Portable fire extinguishers must be serviced at least once a year. The required service must consist of discharging and recharging foam and dry chemical extinguishers and weighing and inspecting carbon dioxide extinguishers.

(iv) Portable fire extinguishers must be hydrostatically tested at intervals not to exceed those specified in WAC 296-800-300 in the safety and health core rules.

(v) Portable fire extinguishers of the vaporizing liquid type such as carbon tetrachloride and other toxic vaporizing liquids are prohibited and must not be carried on any vessel.

(vi) Portable fire extinguishers must be mounted in brackets or hangers near the space protected. The location must be marked in a manner satisfactory to the assistant director.

Table 1
Portable Fire Extinguishers

		Type Extinguisher Permitted		
Space Protected	**Minimum # Required**	**CG Class**	**Medium**	**Minimum Size**
Operating station	1	B-I, C-I	Halon CO_2 Dry chemical	2.5 lb. 4 lb. 2 lb.
Machinery space	1 Located just outside exit	B-II, C-II	CO_2 Dry chemical	15 lb. 10 lb.
Open vehicle deck	1 for every 10 vehicles	B-II	Foam Halon CO_2 Dry chemical	2.5 gal. 10 lb. 15 lb. 10 lb.
Accommodation space	1 for each 2,500 sq. ft. or fraction thereof	A-II	Foam Dry chemical	2.5 gal. 10 lb.
Galley, pantry, concession stand	1	A-II, B-II	Foam Dry chemical	2.5 gal. 10 lb.

(6) Means of escape.

(a) All vessels must have at least two avenues of escape from all general areas accessible to the passengers or where the crew may be quartered or normally employed. The avenues must be located so that if one is not available the other may be. At least one of the avenues should be independent of watertight doors.

(b) One vertical means of escape is acceptable where the length of the compartment is less than twelve feet under the following conditions:

(i) There is no source of fire in the space, such as a galley stove or heater and the vertical escape is remote from the engine and fuel tank space; or

(ii) The arrangement is such that the installation of two means of escape does not materially improve the safety of the vessel or those aboard.

(7) Ventilation.

(a) All enclosed spaces within the vessel must be properly vented or ventilated. Where such openings would endanger the vessel under adverse weather conditions, means must be provided to close them.

(b) All crew and passenger space must be adequately ventilated in a manner suitable to the purpose of the space.

(8) Crew and passenger accommodations.

(a) Vessels with crew members living aboard must have suitable accommodations.

(b) Vessels carrying passengers must have fixed seating for the maximum number of passengers permitted, installed as follows:

(i) Spacing that provides for ready escape in case of fire or other casualty.

walks in the way of deckhouse sides, hand grabs may be substituted.

(ii) Aisles not over fifteen feet long must be not less than twenty-four inches wide.

(iii) Aisles over fifteen feet long must be not less than thirty inches wide.

(iv) Where seats are in rows the distance from seat front to seat front must be not less than thirty inches.

(v) The assistant director may grant special exception to fixed seating spacing requirements if escape over the side can be readily accomplished through windows or other openings in the way of the seats.

(c) Portable or temporary seating may be installed but must be arranged as provided for fixed seating.

(9) Toilet facilities and drinking water.

(a) Vessels must be provided with toilets and wash basins as specified in WAC 296-800-230 unless vessels are used exclusively on short runs of approximately thirty minutes or less.

(b) All toilets and wash basins must be fitted with adequate plumbing. Facilities for men and women must be in separate compartments, except in the case of vessels carrying forty-nine passengers and less, the assistant director may approve other arrangements.

(c) Potable drinking water must be provided for all passengers and crew according to WAC 296-800-23005.

(d) Covered trash containers must be provided in passenger areas.

(10) Rails and guards.

(a) Rails or equivalent protection must be installed near the periphery of all weather decks accessible to passengers and crews. Where space limitations make deck rails impractical for areas designed for crew only, such as at narrow cat-

(b) Rails must consist of evenly spaced courses. The spacing must not be greater than four inches except as provided in WAC 296-115-050 (10)(d). Lower rail courses may not be required if all or part of the space below the upper rail course is fitted with a bulwark, chain link fencing, wire mesh or the equivalent.

(c) On passenger decks of vessels engaged in ferry or excursion type operation, rails must be at least forty-two inches high. The top rail must be pipe, wire, chain, or wood and must withstand at least two hundred pounds of side loading. The space below the top rail must be fitted with bulwarks, chain link fencing, wire mesh, or the equivalent.

(d) On vessels engaged in other than passenger service, the rails must be not less than thirty-six inches high. Where vessels are used in special service, the assistant director may approve other arrangements, but in no case less than thirty inches high.

(e) Suitable storm rails or hand grabs must be installed where necessary in all passageways, at deckhouse sides, and at ladders and hatches where passengers or crew might have normal access.

(f) Suitable covers, guards, or rails must be installed in the way of all exposed and hazardous places such as gears or machinery. (See chapter 296-806 WAC, Machine safety for detailed requirements.)

(11) Machinery installation.

(a) Propulsion machinery.

(i) Propulsion machinery must be suitable in type and design for the propulsion requirements of the hull of the vessel in which it is installed. Installations meeting the requirements of the USCG or USCG-recognized classification society are considered acceptable to the assistant director.

(ii) Installations using gasoline or diesel as a fuel must meet the requirements of applicable USCG standards.

(b) Auxiliary machinery and bilge systems.

(i) All vessels must be provided with a suitable bilge pump, piping, and valves for removing water from the vessel.

(ii) Vessels carrying more than forty-nine passengers must have a power operated bilge pump. The source of power must be independent of the propulsion machinery. Other vessels must have a hand operated bilge pump, but may have a power operated pump if it is operated by an independent power source.

(c) Steering apparatus and miscellaneous systems.

(i) All vessels must be provided with a suitable steering apparatus.

(ii) All vessels must be provided with navigation lights and shapes, whistles, fog horns, and fog bells as required by the USCG rules of navigation.

(iii) All vessels must be equipped with a suitable number of portable battery lights for emergency purposes. There should be at least two, one located at the operating station and the other at the access to the propulsion machinery.

(d) Electrical installations. The electrical installations of all vessels must be at least equal to applicable USCG standards, or as approved by the assistant director.

the assistant director approves the type, quantity, and manner

AMENDATORY SECTION (Amending WSR 08-20-123, filed 10/1/08, effective 11/1/08)

WAC 296-115-060 Operations. (1) No person will rent, lease, or hire out a charter boat, carry, advertise for carrying, or arrange for carrying, more than six passengers on a vessel for a fee or other consideration on state waters unless the vessel meets the requirements of this chapter.

(2) Notice of casualty.

(a) The owner or person in charge of any vessel involved in a marine accident or casualty involving any of the following must report the incident immediately to the department:

(i) Damage to property in excess of one thousand five hundred dollars.

(ii) Major damage affecting the seaworthiness or safety of the vessel.

(iii) Loss of life or an injury to a person that requires medical treatment beyond first aid.

(iv) Fire on board the vessel.

(b) The report must be in writing to the assistant director. Upon receipt of the report the assistant director may request an investigation by a marine dock inspector.

(3) Miscellaneous operations.

(a) In the case of collision, accident, or other casualty involving a vessel the operator, must:

(i) So far as possible without serious danger to the vessel or persons aboard, render any necessary assistance to other persons affected by the collision, accident, or casualty to save them from danger.

(ii) Provide the name and address of the vessel owner and the name of the vessel to any person injured and to the owner of any property damaged.

(b) The person in charge of the vessel must see that the provisions of the certificate of inspection are strictly adhered to. This will not limit the person in charge from taking any action in an emergency judged necessary to help vessels in distress or to prevent loss of life.

(c) The operator of a vessel must comply with the provisions of the USCG Navigation Rules International/Inland, Commandants Instruction M16672.2D.

(d) The operator of a vessel must test the vessel's steering gear, signaling whistle, controls, and communication system before getting under way for the day's operation.

(e) Vessels using fuel with a flashpoint of 110°F or lower must not take on fuel when passengers are on board.

(f) All vessels must enforce "no smoking" provisions when fueling. Locations on the vessel where flammable ((~~or combustible~~)) liquids are stored must be posted "no smoking."

(g) All vessels must prepare and post emergency checkoff lists in a conspicuous place accessible to crew and passengers, covering the following:

(i) Man overboard.

(ii) Fire.

(h) The persons in charge must conduct emergency drills to ensure that the crew is familiar with their duties in an emergency and must document the drills.

(i) Carrying hazardous substances is prohibited on vessels. However, the assistant director may authorize a vessel to carry specific types and quantities of hazardous substances if in which it is carried.

(j) All areas accessible to passengers or crew must be kept in a clean and sanitary condition. All walking surfaces must be free of slipping or tripping hazards and in good repair.

(4) First aid.

(a) All passenger vessels at all times must have a person holding a valid certificate of first-aid/CPR training.

(b) A first-aid kit or first-aid room must be provided on all vessels. The size and quantity of first-aid supplies or equipment required must be determined by the number of persons normally dependent upon each kit or equipment. The first-aid kit or supplies must be in a weatherproof container with individually sealed packages for each type of item. The location of the first-aid station or kit must be posted or marked "first aid" on the container.

AMENDATORY SECTION (Amending WSR 01-11-038, filed 5/9/01, effective 9/1/01)

WAC 296-155-17323 Communication of hazards ((~~to employees~~)). (1) ((~~Signs and labels~~)) Hazard communication—General.

(a) Chemical manufacturers, importers, distributors and employers shall comply with all requirements of the Hazard Communication Standard (HCS), WAC 296-901-140 for MDA.

(b) In classifying the hazards for MDA at least the following hazards are to be addressed: Cancer; liver effects; and skin sensitization.

(c) Employers shall include MDA in the hazard communication program established to comply with the HCS, WAC 296-901-140. Employers shall ensure that each employee has access to labels on containers of MDA and to safety data sheets, and is trained in accordance with the requirements of HCS and subsection (4) of this section.

(2) Signs and labels.

(a) Signs.

(i) The employer shall post and maintain legible signs demarcating regulated areas and entrances or ((~~access ways~~)) accessways to regulated areas that bear the following legend:

DANGER MDA MAY CAUSE CANCER CAUSES DAMAGE TO THE LIVER ((~~TOXIN~~
~~AUTHORIZED PERSONNEL ONLY~~
~~RESPIRATORS AND~~))
RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING MAY BE REQUIRED ((~~TO BE WORN~~)) IN THIS AREA
AUTHORIZED PERSONNEL ONLY

(ii) Prior to June 1, 2016, employers may use the following legend in lieu of that specified in (a)(i) of this subsection:

DANGER MDA MAY CAUSE CANCER LIVER TOXIN
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING MAY BE REQUIRED TO BE WORN IN THIS AREA

(b) ((~~The employer shall ensure that labels or other appropriate forms of warning are provided for containers of MDA within the~~)) Labels. Prior to June 1, 2015, employers may include the following information workplace((~~. The~~)) labels ((~~shall comply with the requirements of WAC 296-800-170 and shall include one of the following legends~~)) in lieu of the labeling requirements in subsection (1) of this section:

(i) For pure MDA:

DANGER CONTAINS MDA MAY CAUSE CANCER LIVER TOXIN

(ii) For mixtures containing MDA:

DANGER CONTAINS MDA CONTAINS MATERIALS WHICH MAY CAUSE CANCER LIVER TOXIN

((~~(2) Material~~)) (3) Safety data sheets ((~~(MSDS)~~)) (SDS). ((~~Employers shall obtain or develop, and shall provide access to their employees to, a material safety data sheet (MSDS) for MDA.~~

~~(3)~~)) In meeting the obligation to provide safety data sheets, employers shall make appropriate use of the information found in Appendices A and B to WAC 296-62-076.

(4) Information and training.

(a) The employer shall provide employees with information and training on MDA, in accordance with WAC ((~~296-800-170~~)) 296-901-14016, at the time of initial assignment and at least annually thereafter.

(b) In addition to the information required under WAC ((~~296-800-170~~)) 296-901-140, the employer shall:

(i) Provide an explanation of the contents of this section, including Appendices A and B of this section, and indicate to employees where a copy of the standard is available;

(ii) Describe the medical surveillance program required under WAC 296-155-17327, and explain the information contained in Appendix C of this standard; and

(iii) Describe the medical removal provision required under WAC 296-155-17327.

((~~(4)~~)) (5) Access to training materials.

(a) The employer shall make readily available to all affected employees, without cost, all written materials relating to the employee training program, including a copy of this regulation.

(b) The employer shall provide to the director, upon request, all information and training materials relating to the employee information and training program.

AMENDATORY SECTION (Amending WSR 09-15-145, filed 7/21/09, effective 9/1/09)

WAC 296-155-174 Cadmium. (1) Scope. This standard applies to all occupational exposures to cadmium and cadmium compounds, in all forms, in all construction work where an employee may potentially be exposed to cadmium. Construction work is defined as work involving construction, alteration, and/or repair, including but not limited to the following:

(a) Wrecking, demolition, or salvage of structures where cadmium or materials containing cadmium are present;

(b) Use of cadmium containing-paints and cutting, brazing, burning, grinding, or welding on surfaces that were painted with cadmium-containing paints;

(c) Construction, alteration, repair, maintenance, or renovation of structures, substrates, or portions thereof, that contain cadmium, or materials containing cadmium;

(d) Cadmium welding; cutting and welding cadmium-plated steel; brazing or welding with cadmium alloys;

(e) Installation of products containing cadmium;

(f) Electrical grounding with cadmium-welding, or electrical work using cadmium-coated conduit;

(g) Maintaining or retrofitting cadmium-coated equipment;

(h) Cadmium contamination/emergency cleanup; and

(i) Transportation, disposal, storage, or containment of cadmium or materials containing cadmium on the site or location at which construction activities are performed.

(2) Definitions.

(a) Action level (AL) is defined as an airborne concentration of cadmium of 2.5 micrograms per cubic meter of air (2.5 μg/m^3), calculated as an 8-hour time-weighted average (TWA).

(b) Authorized person means any person authorized by the employer and required by work duties to be present in regulated areas or any person authorized by WISHA or regulations issued under it to be in regulated areas.

(c) Competent person, in accordance with WAC 296-155-012(4), means a person designated by the employer to act on the employer's behalf who is capable of identifying existing and potential cadmium hazards in the workplace and the proper methods to control them in order to protect workers, and has the authority necessary to take prompt corrective measures to eliminate or control such hazards. The duties of a competent person include at least the following: Determining prior to the performance of work whether cadmium is present in the workplace; establishing, where necessary, regulated areas and assuring that access to and from those areas is limited to authorized employees; assuring the adequacy of any employee exposure monitoring required by this standard; assuring that all employees exposed to air cadmium levels above the PEL wear appropriate personal protective equipment and are trained in the use of appropriate methods of exposure control; assuring that proper hygiene facilities are provided and that workers are trained to use those facilities; and assuring that the engineering controls required by this standard are implemented, maintained in proper operating condition, and functioning properly.

(d) Director means the director of the department of labor and industries or authorized representative.

(e) Employee exposure and similar language referring to the air cadmium level to which an employee is exposed means the exposure to airborne cadmium that would occur if the employee were not using respiratory protective equipment.

(f) Final medical determination is the written medical opinion of the employee's health status by the examining physician under subsection (12)(c) through (l) of this section or, if multiple physician review under subsection (12)(m) of this section or the alternative physician determination under subsection (12)(n) of this section is invoked, it is the final, written medical finding, recommendation or determination that emerges from that process.

(g) High-efficiency particulate air (HEPA) filter means a filter capable of trapping and retaining at least 99.97 percent of mono-dispersed particles of 0.3 micrometers in diameter.

(h) Regulated area means an area demarcated by the employer where an employee's exposure to airborne concentrations of cadmium exceeds, or can reasonably be expected to exceed the permissible exposure limit (PEL).

(i) This section means this cadmium standard.

(3) Permissible exposure limit (PEL). The employer shall assure that no employee is exposed to an airborne concentration of cadmium in excess of five micrograms per cubic meter of air (5 μg/m^3), calculated as an 8-hour time-weighted average exposure (TWA).

(4) Exposure monitoring.

(a) General.

(i) Prior to the performance of any construction work where employees may be potentially exposed to cadmium, the employer shall establish the applicability of this standard by determining whether cadmium is present in the workplace and whether there is the possibility that employee exposures will be at or above the action level. The employer shall designate a competent person who shall make this determination. Investigation and material testing techniques shall be used, as appropriate, in the determination. Investigation shall include a review of relevant plans, past reports, ((~~material~~)) safety data sheets, and other available records, and consultations with the property owner and discussions with appropriate individuals and agencies.

(ii) Where cadmium has been determined to be present in the workplace, and it has been determined that there is a possibility the employee's exposure will be at or above the action level, the competent person shall identify employees potentially exposed to cadmium at or above the action level.

(iii) Determinations of employee exposure shall be made from breathing-zone air samples that reflect the monitored employee's regular, daily 8-hour TWA exposure to cadmium.

(iv) Eight-hour TWA exposures shall be determined for each employee on the basis of one or more personal breathing-zone air samples reflecting full shift exposure on each shift, for each job classification, in each work area. Where several employees perform the same job tasks, in the same job classification, on the same shift, in the same work area, and the length, duration, and level of cadmium exposures are similar, an employer may sample a representative fraction of the employees instead of all employees in order to meet this requirement. In representative sampling, the employer shall sample the employee(s) expected to have the highest cadmium exposures.

(b) Specific.

(i) Initial monitoring. Except as provided for in (b)(iii) of this subsection, where a determination conducted under (a)(i) of this subsection shows the possibility of employee exposure to cadmium at or above the action level, the employer shall conduct exposure monitoring as soon as practicable that is representative of the exposure for each employee in the workplace who is or may be exposed to cadmium at or above the action level.

(ii) In addition, if the employee periodically performs tasks that may expose the employee to a higher concentration of airborne cadmium, the employee shall be monitored while performing those tasks.

(iii) Where the employer has objective data, as defined in subsection (14)(b) of this section, demonstrating that employee exposure to cadmium will not exceed airborne concentrations at or above the action level under the expected

conditions of processing, use, or handling, the employer may rely upon such data instead of implementing initial monitoring.

(iv) Where a determination conducted under (a) or (b) of this subsection is made that a potentially exposed employee is not exposed to airborne concentrations of cadmium at or above the action level, the employer shall make a written record of such determination. The record shall include at least the monitoring data developed under (b)(i) through (iii) of this subsection, where applicable, and shall also include the date of determination, and the name and Social Security number of each employee.

(c) Monitoring frequency (periodic monitoring).

(i) If the initial monitoring or periodic monitoring reveals employee exposures to be at or above the action level, the employer shall monitor at a frequency and pattern needed to assure that the monitoring results reflect with reasonable accuracy the employee's typical exposure levels, given the variability in the tasks performed, work practices, and environmental conditions on the job site, and to assure the adequacy of respiratory selection and the effectiveness of engineering and work practice controls.

(ii) If the initial monitoring or the periodic monitoring indicates that employee exposures are below the action level and that result is confirmed by the results of another monitoring taken at least seven days later, the employer may discontinue the monitoring for those employees whose exposures are represented by such monitoring.

(d) Additional monitoring. The employer also shall institute the exposure monitoring required under (b)(i) and (c) of this subsection whenever there has been a change in the raw materials, equipment, personnel, work practices, or finished products that may result in additional employees being exposed to cadmium at or above the action level or in employees already exposed to cadmium at or above the action level being exposed above the PEL, or whenever the employer or competent person has any reason to suspect that any other change might result in such further exposure.

(e) Employee notification of monitoring results.

(i) No later than five working days after the receipt of the results of any monitoring performed under this section, the employer shall notify each affected employee individually in writing of the results. In addition, within the same time period, the employer shall post the results of the exposure monitoring in an appropriate location that is accessible to all affected employees.

(ii) Wherever monitoring results indicate that employee exposure exceeds the PEL, the employer shall include in the written notice a statement that the PEL has been exceeded and a description of the corrective action being taken by the employer to reduce employee exposure to or below the PEL.

(f) Accuracy of measurement. The employer shall use a method of monitoring and analysis that has an accuracy of not less than plus or minus 25 percent (± 25%), with a confidence level of 95 percent, for airborne concentrations of cadmium at or above the action level and the permissible exposure limit.

(5) Regulated areas.

(a) Establishment. The employer shall establish a regulated area wherever an employee's exposure to airborne concentrations of cadmium is, or can reasonably be expected to be in excess of the permissible exposure limit (PEL).

(b) Demarcation. Regulated areas shall be demarcated from the rest of the workplace in any manner that adequately establishes and alerts employees of the boundaries of the regulated area, including employees who are or may be incidentally in the regulated areas, and that protects persons outside the area from exposure to airborne concentrations of cadmium in excess of the PEL.

(c) Access. Access to regulated areas shall be limited to authorized persons.

(d) Provision of respirators. Each person entering a regulated area shall be supplied with and required to use a respirator, selected in accordance with subsection (7)(b) of this section.

(e) Prohibited activities. The employer shall assure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in regulated areas, or carry the products associated with any of these activities into regulated areas or store such products in those areas.

(6) Methods of compliance.

(a) Compliance hierarchy.

(i) Except as specified in (a)(ii) of this subsection, the employer shall implement engineering and work practice controls to reduce and maintain employee exposure to cadmium at or below the PEL, except to the extent that the employer can demonstrate that such controls are not feasible.

(ii) The requirement to implement engineering controls to achieve the PEL does not apply where the employer demonstrates the following:

(A) The employee is only intermittently exposed; and

(B) The employee is not exposed above the PEL on thirty or more days per year (twelve consecutive months).

(iii) Wherever engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, the employer nonetheless shall implement such controls to reduce exposures to the lowest levels achievable. The employer shall supplement such controls with respiratory protection that complies with the requirements of subsection (7) of this section and the PEL.

(iv) The employer shall not use employee rotation as a method of compliance.

(b) Specific operations.

(i) Abrasive blasting. Abrasive blasting on cadmium or cadmium-containing materials shall be conducted in a manner that will provide adequate protection.

(ii) Heating cadmium and cadmium-containing materials. Welding, cutting, and other forms of heating of cadmium or cadmium-containing materials shall be conducted in accordance with the requirements of WAC 296-155-415 and 296-155-420, where applicable.

(c) Prohibitions.

(i) High speed abrasive disc saws and similar abrasive power equipment shall not be used for work on cadmium or cadmium-containing materials unless they are equipped with appropriate engineering controls to minimize emissions, if the exposure levels are above the PEL.

(ii) Materials containing cadmium shall not be applied by spray methods, if exposures are above the PEL, unless employees are protected with supplied-air respirators with full facepiece, hood, helmet, suit, operated in positive pressure mode and measures are instituted to limit overspray and prevent contamination of adjacent areas.

(d) Mechanical ventilation.

(i) When ventilation is used to control exposure, measurements that demonstrate the effectiveness of the system in controlling exposure, such as capture velocity, duct velocity, or static pressure shall be made as necessary to maintain its effectiveness.

(ii) Measurements of the system's effectiveness in controlling exposure shall be made as necessary within five working days of any change in production, process, or control that might result in a significant increase in employee exposure to cadmium.

(iii) Recirculation of air. If air from exhaust ventilation is recirculated into the workplace, the system shall have a high efficiency filter and be monitored to assure effectiveness.

(iv) Procedures shall be developed and implemented to minimize employee exposure to cadmium when maintenance of ventilation systems and changing of filters is being conducted.

(e) Compliance program.

(i) Where employee exposure to cadmium exceeds the PEL and the employer is required under (a) of this subsection to implement controls to comply with the PEL, prior to the commencement of the job the employer shall establish and implement a written compliance program to reduce employee exposure to or below the PEL. To the extent that engineering and work practice controls cannot reduce exposures to or below the PEL, the employer shall include in the written compliance program the use of appropriate respiratory protection to achieve compliance with the PEL.

(ii) Written compliance programs shall be reviewed and updated as often and as promptly as necessary to reflect significant changes in the employer's compliance status or significant changes in the lowest air cadmium level that is technologically feasible.

(iii) A competent person shall review the comprehensive compliance program initially and after each change.

(iv) Written compliance programs shall be provided upon request for examination and copying to the director, or authorized representatives, affected employees, and designated employee representatives.

(7) Respirator protection.

(a) General. For employees who use respirators required by this section, the employer must provide each employee with an appropriate respirator that complies with the requirements of this section. Respirators must be used during:

(i) Periods necessary to install or implement feasible engineering and work-practice controls when employee exposures exceed the PEL.

(ii) Maintenance and repair activities, and brief or intermittent operations, for which employee exposures exceed the PEL and engineering and work-practice controls are not feasible or are not required.

(iii) Work operations in regulated areas specified in subsection (5) of this section.

(iv) Work operations for which the employer has implemented all feasible engineering and work-practice controls, and such controls are not sufficient to reduce exposures to or below the PEL.

(v) Emergencies.

(vi) Work operations for which an employee, who is exposed to cadmium at or above the action level, requests a respirator.

(vii) Work operations for which engineering controls are not required under (a)(ii) of this subsection to reduce employee exposures that exceed the PEL.

(b) Respirator program.

(i) The employer must develop, implement, and maintain a respiratory protection program as required by chapter 296-842 WAC, except WAC 296-842-14005, which covers each employee required by this chapter to use a respirator.

(ii) If an employee has breathing difficulty during fit testing or respirator use, the employer must provide the employee with a medical examination as required by subsection (12)(f)(ii) of this section to determine if the employee can use a respirator while performing the required duties.

(iii) No employees must use a respirator when, based on their recent medical examination, the examining physician determines that the employee will be unable to continue to function normally while using a respirator. If the physician determines the employee must be limited in, or removed from, their current job because of the employee's inability to use a respirator, the job limitation or removal must be conducted as required by (k) and (l) of this subsection.

(c) Respirator selection. The employer must:

(i) Select and provide the appropriate respirator as specified in this section and WAC 296-842-13005 in the respirator rule.

• Provide employees with full facepiece respirators when they experience eye irritation.

• Make sure high-efficiency particulate air (HEPA) filters or N-, R-, or P-100 series filters are provided for powered air-purifying respirators (PAPRs) and negative-pressure air-purifying respirators.

(ii) The employer shall provide a powered, air-purifying respirator (PAPR) instead of a negative-pressure respirator when an employee entitled to a respirator chooses to use this type of respirator and such a respirator will provide adequate protection to the employee.

(8) Emergency situations. The employer shall develop and implement a written plan for dealing with emergency situations involving substantial releases of airborne cadmium. The plan shall include provisions for the use of appropriate respirators and personal protective equipment. In addition, employees not essential to correcting the emergency situation shall be restricted from the area and normal operations halted in that area until the emergency is abated.

(9) Protective work clothing and equipment.

(a) Provision and use. If an employee is exposed to airborne cadmium above the PEL or where skin or eye irritation is associated with cadmium exposure at any level, the employer shall provide at no cost to the employee, and assure that the employee uses, appropriate protective work clothing and equipment that prevents contamination of the employee

and the employee's garments. Protective work clothing and equipment includes, but is not limited to:

(i) Coveralls or similar full-body work clothing;

(ii) Gloves, head coverings, and boots or foot coverings; and

(iii) Face shields, vented goggles, or other appropriate protective equipment that complies with WAC 296-155-215.

(b) Removal and storage.

(i) The employer shall assure that employees remove all protective clothing and equipment contaminated with cadmium at the completion of the work shift and do so only in change rooms provided in accordance with subsection (10)(a) of this section.

(ii) The employer shall assure that no employee takes cadmium-contaminated protective clothing or equipment from the workplace, except for employees authorized to do so for purposes of laundering, cleaning, maintaining, or disposing of cadmium-contaminated protective clothing and equipment at an appropriate location or facility away from the workplace.

(iii) The employer shall assure that contaminated protective clothing and equipment, when removed for laundering, cleaning, maintenance, or disposal, is placed and stored in sealed, impermeable bags or other closed, impermeable containers that are designed to prevent dispersion of cadmium dust.

(iv) The employer shall assure that containers of contaminated protective clothing and equipment that are to be taken out of the change rooms or the workplace for laundering, cleaning, maintenance or disposal shall bear labels in accordance with subsection (13)(c)(ii) of this section.

(c) Cleaning, replacement, and disposal.

(i) The employer shall provide the protective clothing and equipment required by (a) of this subsection in a clean and dry condition as often as necessary to maintain its effectiveness, but in any event at least weekly. The employer is responsible for cleaning and laundering the protective clothing and equipment required by this subsection to maintain its effectiveness and is also responsible for disposing of such clothing and equipment.

(ii) The employer also is responsible for repairing or replacing required protective clothing and equipment as needed to maintain its effectiveness. When rips or tears are detected while an employee is working they shall be immediately mended, or the worksuit shall be immediately replaced.

(iii) The employer shall prohibit the removal of cadmium from protective clothing and equipment by blowing, shaking, or any other means that disperses cadmium into the air.

(iv) The employer shall assure that any laundering of contaminated clothing or cleaning of contaminated equipment in the workplace is done in a manner that prevents the release of airborne cadmium in excess of the permissible exposure limit prescribed in subsection (3) of this section.

(v) The employer shall inform any person who launders or cleans protective clothing or equipment contaminated with cadmium of the potentially harmful effects of exposure to cadmium, and that the clothing and equipment should be laundered or cleaned in a manner to effectively prevent the release of airborne cadmium in excess of the PEL.

(10) Hygiene areas and practices.

(a) General. For employees whose airborne exposure to cadmium is above the PEL, the employer shall provide clean change rooms, handwashing facilities, showers, and lunchroom facilities that comply with WAC 296-155-140.

(b) Change rooms. The employer shall assure that change rooms are equipped with separate storage facilities for street clothes and for protective clothing and equipment, which are designed to prevent dispersion of cadmium and contamination of the employee's street clothes.

(c) Showers and handwashing facilities.

(i) The employer shall assure that employees whose airborne exposure to cadmium is above the PEL shower during the end of the work shift.

(ii) The employer shall assure that employees who are exposed to cadmium above the PEL wash their hands and faces prior to eating, drinking, smoking, chewing tobacco or gum, or applying cosmetics.

(d) Lunchroom facilities.

(i) The employer shall assure that the lunchroom facilities are readily accessible to employees, that tables for eating are maintained free of cadmium, and that no employee in a lunchroom facility is exposed at any time to cadmium at or above a concentration of 2.5 $\mu g/m^3$.

(ii) The employer shall assure that employees do not enter lunchroom facilities with protective work clothing or equipment unless surface cadmium has been removed from the clothing and equipment by HEPA vacuuming or some other method that removes cadmium dust without dispersing it.

(11) Housekeeping.

(a) All surfaces shall be maintained as free as practicable of accumulations of cadmium.

(b) All spills and sudden releases of material containing cadmium shall be cleaned up as soon as possible.

(c) Surfaces contaminated with cadmium shall, wherever possible, be cleaned by vacuuming or other methods that minimize the likelihood of cadmium becoming airborne.

(d) HEPA-filtered vacuuming equipment or equally effective filtration methods shall be used for vacuuming. The equipment shall be used and emptied in a manner that minimizes the reentry of cadmium into the workplace.

(e) Shoveling, dry or wet sweeping, and brushing may be used only where vacuuming or other methods that minimize the likelihood of cadmium becoming airborne have been tried and found not to be effective.

(f) Compressed air shall not be used to remove cadmium from any surface unless the compressed air is used in conjunction with a ventilation system designed to capture the dust cloud created by the compressed air.

(g) Waste, scrap, debris, bags, containers, personal protective equipment, and clothing contaminated with cadmium and consigned for disposal shall be collected and disposed of in sealed impermeable bags or other closed, impermeable containers. These bags and containers shall be labeled in accordance with subsection (13)((~~(b)~~)) (c)(ii) of this section.

(12) Medical surveillance.

(a) General.

(i) Scope.

(A) Currently exposed—The employer shall institute a medical surveillance program for all employees who are or may be exposed at or above the action level and all employees who perform the following tasks, operations, or jobs: Electrical grounding with cadmium-welding; cutting, brazing, burning, grinding, or welding on surfaces that were painted with cadmium-containing paints; electrical work using cadmium-coated conduit; use of cadmium containing paints; cutting and welding cadmium-plated steel; brazing or welding with cadmium alloys; fusing of reinforced steel by cadmium welding; maintaining or retrofitting cadmium-coated equipment; and, wrecking and demolition where cadmium is present. A medical surveillance program will not be required if the employer demonstrates that the employee:

(I) Is not currently exposed by the employer to airborne concentrations of cadmium at or above the action level on thirty or more days per year (twelve consecutive months); and

(II) Is not currently exposed by the employer in those tasks on thirty or more days per year (twelve consecutive months).

(B) Previously exposed—The employer shall also institute a medical surveillance program for all employees who might previously have been exposed to cadmium by the employer prior to the effective date of this section in tasks specified under (a)(i)(A) of this subsection, unless the employer demonstrates that the employee did not in the years prior to the effective date of this section work in those tasks for the employer with exposure to cadmium for an aggregated total of more than twelve months.

(ii) To determine an employee's fitness for using a respirator, the employer shall provide the limited medical examination specified in (f) of this subsection.

(iii) The employer shall assure that all medical examinations and procedures required by this section are performed by or under the supervision of a licensed physician, who has read and is familiar with the health effects WAC 296-62-07441, Appendix A, the regulatory text of this section, the protocol for sample handling and lab selection in WAC 296-62-07451, Appendix F, and the questionnaire of WAC 296-62-07447, Appendix D.

(iv) The employer shall provide the medical surveillance required by this section, including multiple physician review under (m) of this subsection without cost to employees, and at a time and place that is reasonable and convenient to employees.

(v) The employer shall assure that the collecting and handling of biological samples of cadmium in urine (CdU), cadmium in blood (CdB), and beta-2 microglobulin in urine (B_2-M) taken from employees under this section is done in a manner that assures their reliability and that analysis of biological samples of cadmium in urine (CdU), cadmium in blood (CdB), and beta-2 microglobulin in urine (B_2-M) taken from employees under this section is performed in laboratories with demonstrated proficiency to perform the particular analysis. (See WAC 296-62-07451, Appendix F.)

(b) Initial examination.

(i) For employees covered by medical surveillance under (a)(i) of this subsection, the employer shall provide an initial medical examination. The examination shall be provided to those employees within thirty days after initial assignment to a job with exposure to cadmium or no later than ninety days after the effective date of this section, whichever date is later.

(ii) The initial medical examination shall include:

(A) A detailed medical and work history, with emphasis on: Past, present, and anticipated future exposure to cadmium; any history of renal, cardiovascular, respiratory, hematopoietic, reproductive, and/or musculo-skeletal system dysfunction; current usage of medication with potential nephrotoxic side-effects; and smoking history and current status; and

(B) Biological monitoring that includes the following tests:

(I) Cadmium in urine (CdU), standardized to grams of creatinine (g/Cr);

(II) Beta-2 microglobulin in urine (B_2-M), standardized to grams of creatinine (g/Cr), with pH specified, as described in WAC 296-62-07451, Appendix F; and

(III) Cadmium in blood (CdB), standardized to liters of whole blood (lwb).

(iii) Recent examination: An initial examination is not required to be provided if adequate records show that the employee has been examined in accordance with the requirements of (b)(ii) of this subsection within the past twelve months. In that case, such records shall be maintained as part of the employee's medical record and the prior exam shall be treated as if it were an initial examination for the purposes of (c) and (d) of this subsection.

(c) Actions triggered by initial biological monitoring.

(i) If the results of the biological monitoring tests in the initial examination show the employee's CdU level to be at or below 3 μg/g Cr, B_2-M level to be at or below 300 μg/g Cr and CdB level to be at or below 5 μg/lwb, then:

(A) For employees who are subject to medical surveillance under (a)(i)(A) of this subsection because of current or anticipated exposure to cadmium, the employer shall provide the minimum level of periodic medical surveillance in accordance with the requirements in (d)(i) of this subsection; and

(B) For employees who are subject to medical surveillance under (a)(i)(B) of this subsection because of prior but not current exposure, the employer shall provide biological monitoring for CdU, B_2-M, and CdB one year after the initial biological monitoring and then the employer shall comply with the requirements of (d)(vi) of this subsection.

(ii) For all employees who are subject to medical surveillance under (a)(i) of this subsection, if the results of the initial biological monitoring tests show the level of CdU to exceed 3 μg/g Cr, the level of B_2-M to be in excess of 300 μg/g Cr, or the level of CdB to be in excess of 5 μg/lwb, the employer shall:

(A) Within two weeks after receipt of biological monitoring results, reassess the employee's occupational exposure to cadmium as follows:

(I) Reassess the employee's work practices and personal hygiene;

(II) Reevaluate the employee's respirator use, if any, and the respirator program;

(III) Review the hygiene facilities;

(IV) Reevaluate the maintenance and effectiveness of the relevant engineering controls;

(V) Assess the employee's smoking history and status;

(B) Within thirty days after the exposure reassessment, specified in (c)(ii)(A) of this subsection, take reasonable steps to correct any deficiencies found in the reassessment that may be responsible for the employee's excess exposure to cadmium; and

(C) Within ninety days after receipt of biological monitoring results, provide a full medical examination to the employee in accordance with the requirements of (d)(ii) of this subsection. After completing the medical examination, the examining physician shall determine in a written medical opinion whether to medically remove the employee. If the physician determines that medical removal is not necessary, then until the employee's CdU level falls to or below 3 µg/g Cr, B_2-M level falls to or below 300 µg/g Cr and CdB level falls to or below 5 µg/lwb, the employer shall:

(I) Provide biological monitoring in accordance with (b)(ii)(B) of this subsection on a semiannual basis; and

(II) Provide annual medical examinations in accordance with (d)(ii) of this subsection.

(iii) For all employees who are subject to medical surveillance under (a)(i) of this subsection, if the results of the initial biological monitoring tests show the level of CdU to be in excess of 15 µg/g Cr, or the level of CdB to be in excess of 15 µg/lwb, or the level of B_2-M to be in excess of 1,500 µg/g Cr, the employer shall comply with the requirements of (c)(ii)(A) and (B) of this subsection. Within ninety days after receipt of biological monitoring results, the employer shall provide a full medical examination to the employee in accordance with the requirements of (d)(ii) of this subsection. After completing the medical examination, the examining physician shall determine in a written medical opinion whether to medically remove the employee. However, if the initial biological monitoring results and the biological monitoring results obtained during the medical examination both show that: CdU exceeds 15 µg/g Cr; or CdB exceeds 15 µg/lwb; or B_2-M exceeds 1500 µ/g Cr, and in addition CdU exceeds 3 µg/g Cr or CdB exceeds 5 µg/liter of whole blood, then the physician shall medically remove the employee from exposure to cadmium at or above the action level. If the second set of biological monitoring results obtained during the medical examination does not show that a mandatory removal trigger level has been exceeded, then the employee is not required to be removed by the mandatory provisions of this section. If the employee is not required to be removed by the mandatory provisions of this section or by the physician's determination, then until the employee's CdU level falls to or below 3 µg/g Cr, B_2-M level falls to or below 300 µg/g Cr and CdB level falls to or below 5 µg/lwb, the employer shall:

(A) Periodically reassess the employee's occupational exposure to cadmium;

(B) Provide biological monitoring in accordance with (b)(ii)(B) of this subsection on a quarterly basis; and

(C) Provide semiannual medical examinations in accordance with (d)(ii) of this subsection.

(iv) For all employees to whom medical surveillance is provided, beginning on January 1, 1999, and in lieu of (c)(iii) of this subsection, whenever the results of initial biological monitoring tests show the employee's CdU level to be in excess of 7 µg/g Cr, or B_2-M level to be in excess of 750 µg/g Cr, or CdB level to be in excess of 10 µg/lwb, the employer shall comply with the requirements of (c)(ii)(A) and (B) of this subsection. Within ninety days after receipt of biological monitoring results, the employer shall provide a full medical examination to the employee in accordance with the requirements of (d)(ii) of this subsection. After completing the medical examination, the examining physician shall determine in a written medical opinion whether to medically remove the employee. However, if the initial biological monitoring results and the biological monitoring results obtained during the medical examination both show that: CdU exceeds 7 µg/g Cr; or CdB exceeds 10 µg/lwb; or B_2-M exceeds 750 µg/g Cr, and in addition CdU exceeds 3 µg/g Cr or CdB exceeds 5 µg/liter of whole blood, then the physician shall medically remove the employee from exposure to cadmium at or above the action level. If the second set of biological monitoring results obtained during the medical examination does not show that a mandatory removal trigger level has been exceeded, then the employee is not required to be removed by the mandatory provisions of this section. If the employee is not required to be removed by the mandatory provisions of this section or by the physician's determination, then until the employee's CdU level falls to or below 3 µg/g Cr, B_2-M level falls to or below 300 µg/g Cr and CdB level falls to or below 5 µg/lwb, the employer shall:

(A) Periodically reassess the employee's occupational exposure to cadmium;

(B) Provide biological monitoring in accordance with (b)(ii)(B) of this subsection on a quarterly basis; and

(C) Provide semiannual medical examinations in accordance with (d)(ii) of this subsection.

(d) Periodic medical surveillance.

(i) For each employee who is covered by medical surveillance under (a)(i)(A) of this subsection because of current or anticipated exposure to cadmium, the employer shall provide at least the minimum level of periodic medical surveillance, which consists of periodic medical examinations and periodic biological monitoring. A periodic medical examination shall be provided within one year after the initial examination required by (b) of this subsection and thereafter at least biennially. Biological sampling shall be provided at least annually either as part of a periodic medical examination or separately as periodic biological monitoring.

(ii) The periodic medical examination shall include:

(A) A detailed medical and work history, or update thereof, with emphasis on: Past, present, and anticipated future exposure to cadmium; smoking history and current status; reproductive history; current use of medications with potential nephrotoxic side-effects; any history of renal, cardiovascular, respiratory, hematopoietic, and/or musculoskeletal system dysfunction; and as part of the medical and work history, for employees who wear respirators, questions 3 through 11 and 25 through 32 in WAC 296-62-07447, Appendix D;

(B) A complete physical examination with emphasis on: Blood pressure, the respiratory system, and the urinary system;

(C) A 14 inch by 17 inch, or a reasonably standard sized posterior-anterior chest X ray (after the initial X ray, the frequency of chest X rays is to be determined by the examining physician);

(D) Pulmonary function tests, including forced vital capacity (FVC) and forced expiratory volume at 1 second (FEV1);

(E) Biological monitoring, as required in (b)(ii)(B) of this subsection;

(F) Blood analysis, in addition to the analysis required under (b)(ii)(B) of this subsection, including blood urea nitrogen, complete blood count, and serum creatinine;

(G) Urinalysis, in addition to the analysis required under (b)(ii)(B) of this subsection, including the determination of albumin, glucose, and total and low molecular weight proteins;

(H) For males over forty years old, prostate palpation, or other at least as effective diagnostic test(s); and

(I) Any additional tests or procedures deemed appropriate by the examining physician.

(iii) Periodic biological monitoring shall be provided in accordance with (b)(ii)(B) of this subsection.

(iv) If the results of periodic biological monitoring or the results of biological monitoring performed as part of the periodic medical examination show the level of the employee's CdU, B_2-M, or CdB to be in excess of the levels specified in (c)(ii) and (iii) of this subsection; or, beginning on January 1, 1999, in excess of the levels specified in (c)(ii) or (iv) of this subsection, the employer shall take the appropriate actions specified in (c)(ii) through (iv) of this subsection, respectively.

(v) For previously exposed employees under (a)(i)(B) of this subsection:

(A) If the employee's levels of CdU did not exceed 3 µg/g Cr, CdB did not exceed 5 µg/lwb, and B_2-M did not exceed 300 µg/g Cr in the initial biological monitoring tests, and if the results of the follow-up biological monitoring required by (c)(i)(B) of this subsection one year after the initial examination confirm the previous results, the employer may discontinue all periodic medical surveillance for that employee.

(B) If the initial biological monitoring results for CdU, CdB, or B_2-M were in excess of the levels specified in (c)(i) of this subsection, but subsequent biological monitoring results required by (c)(ii) through (iv) of this subsection show that the employee's CdU levels no longer exceed 3 µg/g Cr, CdB levels no longer exceed 5 µg/lwb, and B_2-M levels no longer exceed 300 µg/g Cr, the employer shall provide biological monitoring for CdU, CdB, and B_2-M one year after these most recent biological monitoring results. If the results of the follow-up biological monitoring specified in this section, confirm the previous results, the employer may discontinue all periodic medical surveillance for that employee.

(C) However, if the results of the follow-up tests specified in (d)(v)(A) or (B) of this subsection indicate that the level of the employee's CdU, B_2-M, or CdB exceeds these same levels, the employer is required to provide annual medical examinations in accordance with the provisions of (d)(ii) of this subsection until the results of biological monitoring are consistently below these levels or the examining physician determines in a written medical opinion that further medical surveillance is not required to protect the employee's health.

(vi) A routine, biennial medical examination is not required to be provided in accordance with (c)(i) and (d) of this subsection if adequate medical records show that the employee has been examined in accordance with the requirements of (d)(ii) of this subsection within the past twelve months. In that case, such records shall be maintained by the employer as part of the employee's medical record, and the next routine, periodic medical examination shall be made available to the employee within two years of the previous examination.

(e) Actions triggered by medical examinations. If the results of a medical examination carried out in accordance with this section indicate any laboratory or clinical finding consistent with cadmium toxicity that does not require employer action under (b), (c), or (d) of this subsection, the employer shall take the following steps and continue to take them until the physician determines that they are no longer necessary.

(i) Periodically reassess: The employee's work practices and personal hygiene; the employee's respirator use, if any; the employee's smoking history and status; the respiratory protection program; the hygiene facilities; the maintenance and effectiveness of the relevant engineering controls; and take all reasonable steps to correct the deficiencies found in the reassessment that may be responsible for the employee's excess exposure to cadmium.

(ii) Provide semiannual medical reexaminations to evaluate the abnormal clinical sign(s) of cadmium toxicity until the results are normal or the employee is medically removed; and

(iii) Where the results of tests for total proteins in urine are abnormal, provide a more detailed medical evaluation of the toxic effects of cadmium on the employee's renal system.

(f) Examination for respirator use.

(i) To determine an employee's fitness for respirator use, the employer shall provide a medical examination that includes the elements specified in (f)(i)(A) through (D) of this subsection. This examination shall be provided prior to the employee's being assigned to a job that requires the use of a respirator or no later than ninety days after this section goes into effect, whichever date is later, to any employee without a medical examination within the preceding twelve months that satisfies the requirements of this section.

(A) A detailed medical and work history, or update thereof, with emphasis on: Past exposure to cadmium; smoking history and current status; any history of renal, cardiovascular, respiratory, hematopoietic, and/or musculo-skeletal system dysfunction; a description of the job for which the respirator is required; and questions 3 through 11 and 25 through 32 in WAC 296-62-07447, Appendix D;

(B) A blood pressure test;

(C) Biological monitoring of the employee's levels of CdU, CdB and B_2-M in accordance with the requirements of (b)(ii)(B) of this subsection, unless such results already have been obtained within the twelve months; and

(D) Any other test or procedure that the examining physician deems appropriate.

(ii) After reviewing all the information obtained from the medical examination required in (f)(i) of this subsection, the physician shall determine whether the employee is fit to wear a respirator.

(iii) Whenever an employee has exhibited difficulty in breathing during a respirator fit test or during use of a respirator, the employer, as soon as possible, shall provide the employee with a periodic medical examination in accordance with (d)(ii) of this subsection to determine the employee's fitness to wear a respirator.

(iv) Where the results of the examination required under (f)(i), (ii), or (iii) of this subsection are abnormal, medical limitation or prohibition of respirator use shall be considered. If the employee is allowed to wear a respirator, the employee's ability to continue to do so shall be periodically evaluated by a physician.

(g) Emergency examinations.

(i) In addition to the medical surveillance required in (b) through (f) of this subsection, the employer shall provide a medical examination as soon as possible to any employee who may have been acutely exposed to cadmium because of an emergency.

(ii) The examination shall include the requirements of (d)(ii), of this subsection, with emphasis on the respiratory system, other organ systems considered appropriate by the examining physician, and symptoms of acute overexposure, as identified in Appendix A, WAC 296-62-07441 (2)(b)(i) and (ii) and (4).

(h) Termination of employment examination.

(i) At termination of employment, the employer shall provide a medical examination in accordance with (d)(ii) of this subsection, including a chest X ray where necessary, to any employee to whom at any prior time the employer was required to provide medical surveillance under (a)(i) or (g) of this subsection. However, if the last examination satisfied the requirements of (d)(ii) of this subsection and was less than six months prior to the date of termination, no further examination is required unless otherwise specified in (c) or (e) of this subsection;

(ii) In addition, if the employer has discontinued all periodic medical surveillance under (d)(v) of this subsection, no termination of employment medical examination is required.

(i) Information provided to the physician. The employer shall provide the following information to the examining physician:

(i) A copy of this standard and appendices;

(ii) A description of the affected employee's former, current, and anticipated duties as they relate to the employee's occupational exposure to cadmium;

(iii) The employee's former, current, and anticipated future levels of occupational exposure to cadmium;

(iv) A description of any personal protective equipment, including respirators, used or to be used by the employee, including when and for how long the employee has used that equipment; and

(v) Relevant results of previous biological monitoring and medical examinations.

(j) Physician's written medical opinion.

(i) The employer shall promptly obtain a written, signed, medical opinion from the examining physician for each medical examination performed on each employee. This written opinion shall contain:

(A) The physician's diagnosis for the employee;

(B) The physician's opinion as to whether the employee has any detected medical condition(s) that would place the employee at increased risk of material impairment to health from further exposure to cadmium, including any indications of potential cadmium toxicity;

(C) The results of any biological or other testing or related evaluations that directly assess the employee's absorption of cadmium;

(D) Any recommended removal from, or limitation on the activities or duties of the employee or on the employee's use of personal protective equipment, such as respirators;

(E) A statement that the physician has clearly and carefully explained to the employee the results of the medical examination, including all biological monitoring results and any medical conditions related to cadmium exposure that require further evaluation or treatment, and any limitation on the employee's diet or use of medications.

(ii) The employer shall promptly obtain a copy of the results of any biological monitoring provided by an employer to an employee independently of a medical examination under (b) and (d) of this subsection, and, in lieu of a written medical opinion, an explanation sheet explaining those results.

(iii) The employer shall instruct the physician not to reveal orally or in the written medical opinion given to the employer specific findings or diagnoses unrelated to occupational exposure to cadmium.

(k) Medical removal protection (MRP).

(i) General.

(A) The employer shall temporarily remove an employee from work where there is excess exposure to cadmium on each occasion that medical removal is required under (c), (d), or (f) of this subsection and on each occasion that a physician determines in a written medical opinion that the employee should be removed from such exposure. The physician's determination may be based on biological monitoring results, inability to wear a respirator, evidence of illness, other signs or symptoms of cadmium-related dysfunction or disease, or any other reason deemed medically sufficient by the physician.

(B) The employer shall medically remove an employee in accordance with (k) of this subsection regardless of whether at the time of removal a job is available into which the removed employee may be transferred.

(C) Whenever an employee is medically removed under (k) of this subsection, the employer shall transfer the removed employee to a job where the exposure to cadmium is within the permissible levels specified in subsection (12) of this section as soon as one becomes available.

(D) For any employee who is medically removed under the provisions of (k)(i) of this subsection, the employer shall provide follow-up medical examinations semiannually until, in a written medical opinion, the examining physician determines that either the employee may be returned to his/her former job status or the employee must be permanently removed from excess cadmium exposure.

(E) The employer may not return an employee who has been medically removed for any reason to his/her former job status until a physician determines in a written medical opinion that continued medical removal is no longer necessary to protect the employee's health.

(ii) Where an employee is found unfit to wear a respirator under (f)(ii) of this subsection, the employer shall remove the employee from work where exposure to cadmium is above the PEL.

(iii) Where removal is based upon any reason other than the employee's inability to wear a respirator, the employer shall remove the employee from work where exposure to cadmium is at or above the action level.

(iv) Except as specified in (k)(v) of this subsection, no employee who was removed because his/her level of CdU, CdB and/or B_2-M exceeded the trigger levels in (c) or (d) of this subsection may be returned to work with exposure to cadmium at or above the action level until the employee's levels of CdU fall to or below 3 µg/g Cr, CdB fall to or below 5 µg/lwb, and B_2-M fall to or below 300 µg/g Cr.

(v) However, when in the examining physician's opinion continued exposure to cadmium will not pose an increased risk to the employee's health and there are special circumstances that make continued medical removal an inappropriate remedy, the physician shall fully discuss these matters with the employee, and then in a written determination may return a worker to his/her former job status despite what would otherwise be unacceptably high biological monitoring results. Thereafter and until such time as the employee's biological monitoring results have decreased to levels where he/she could have been returned to his/her former job status, the returned employee shall continue medical surveillance as if he/she were still on medical removal. Until such time, the employee is no longer subject to mandatory medical removal. Subsequent questions regarding the employee's medical removal shall be decided solely by a final medical determination.

(vi) Where an employer, although not required by this section to do so, removes an employee from exposure to cadmium or otherwise places limitations on an employee due to the effects of cadmium exposure on the employee's medical condition, the employer shall provide the same medical removal protection benefits to that employee under (l) of this subsection as would have been provided had the removal been required under (k) of this subsection.

(l) Medical removal protection benefits.

(i) The employer shall provide medical removal protection benefits to an employee for up to a maximum of eighteen months each time, and while the employee is temporarily medically removed under (k) of this subsection.

(ii) For purposes of this section, the requirement that the employer provide medical removal protection benefits means that the employer shall maintain the total normal earnings, seniority, and all other employee rights and benefits of the removed employee, including the employee's right to his/her former job status, as if the employee had not been removed from the employee's job or otherwise medically limited.

(iii) Where, after eighteen months on medical removal because of elevated biological monitoring results, the employee's monitoring results have not declined to a low enough level to permit the employee to be returned to his/her former job status:

(A) The employer shall make available to the employee a medical examination pursuant to this section in order to obtain a final medical determination as to whether the employee may be returned to his/her former job status or must be permanently removed from excess cadmium exposure; and

(B) The employer shall assure that the final medical determination indicates whether the employee may be returned to his/her former job status and what steps, if any, should be taken to protect the employee's health.

(iv) The employer may condition the provision of medical removal protection benefits upon the employee's participation in medical surveillance provided in accordance with this section.

(m) Multiple physician review.

(i) If the employer selects the initial physician to conduct any medical examination or consultation provided to an employee under this section, the employee may designate a second physician to:

(A) Review any findings, determinations, or recommendations of the initial physician; and

(B) Conduct such examinations, consultations, and laboratory tests as the second physician deems necessary to facilitate this review.

(ii) The employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial physician provided by the employer conducts a medical examination or consultation pursuant to this section. The employer may condition its participation in, and payment for, multiple physician review upon the employee doing the following within fifteen days after receipt of this notice, or receipt of the initial physician's written opinion, whichever is later:

(A) Informing the employer that he or she intends to seek a medical opinion; and

(B) Initiating steps to make an appointment with a second physician.

(iii) If the findings, determinations, or recommendations of the second physician differ from those of the initial physician, then the employer and the employee shall assure that efforts are made for the two physicians to resolve any disagreement.

(iv) If the two physicians have been unable to quickly resolve their disagreement, then the employer and the employee, through their respective physicians, shall designate a third physician to:

(A) Review any findings, determinations, or recommendations of the other two physicians; and

(B) Conduct such examinations, consultations, laboratory tests, and discussions with the other two physicians as the third physician deems necessary to resolve the disagreement among them.

(v) The employer shall act consistently with the findings, determinations, and recommendations of the third physician, unless the employer and the employee reach an agreement that is consistent with the recommendations of at least one of the other two physicians.

(n) Alternate physician determination. The employer and an employee or designated employee representative may agree upon the use of any alternate form of physician determination in lieu of the multiple physician review provided by (m) of this subsection, so long as the alternative is expeditious and at least as protective of the employee.

(o) Information the employer must provide the employee.

(i) The employer shall provide a copy of the physician's written medical opinion to the examined employee within five working days after receipt thereof.

(ii) The employer shall provide the employee with a copy of the employee's biological monitoring results and an explanation sheet explaining the results within five working days after receipt thereof.

(iii) Within thirty days after a request by an employee, the employer shall provide the employee with the information the employer is required to provide the examining physician under (i) of this subsection.

(p) Reporting. In addition to other medical events that are required to be reported on the OSHA Form No. 200, the employer shall report any abnormal condition or disorder caused by occupational exposure to cadmium associated with employment as specified in Chapter (V)(E) of the Bureau of Labor Statistics Recordkeeping Guidelines for Occupational Injuries and Illnesses.

(13) Communication of cadmium hazards to employees.

(a) ((~~General. In communications concerning cadmium hazards,~~)) Hazard communication. The employer((~~s~~)) shall include cadmium in the program established to comply with the requirements of WISHA's Hazard Communication Standard (HCS), ((~~chapter 296-62 WAC, Part C, including but not limited to the requirements concerning warning signs and labels, material~~)) WAC 296-901-140. The employer shall ensure that each employee has access to labels on containers of cadmium safety data sheets (((~~MSDS~~))) (SDSs), and ((~~employee information and training. In addition, employers shall comply with~~)) is trained in accordance with the provisions of HCS and (d) of this subsection. The employer shall provide information on at least the following ((~~requirements:~~)) hazards: Cancer; lung effects; kidney effects; and acute toxicity effects.

(b) Warning signs.

(i) Warning signs shall be provided and displayed in regulated areas. In addition, warning signs shall be posted at all approaches to regulated areas so that an employee may read the signs and take necessary protective steps before entering the area.

(ii) Warning signs required by (b)(i) of this subsection shall bear the following ((~~information~~)) legend:

((~~Danger, Cadmium, Cancer Hazard,~~
~~Can Cause Lung and Kidney Disease,~~
~~Authorized Personnel Only,~~
~~Respirators Required in This Area~~))

DANGER
CADMIUM
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS AND KIDNEYS
WEAR RESPIRATORY PROTECTION IN THIS AREA
AUTHORIZED PERSONNEL ONLY

(iii) The employer shall ((~~assure~~)) ensure that signs required by this section are illuminated, cleaned, and maintained as necessary so that the legend is readily visible.

(iv) Prior to June 1, 2016, employers may use the following legend in lieu of that specified in (b)(i) of this subsection:

DANGER
CADMIUM
CANCER HAZARD
CAN CAUSE LUNG AND KIDNEY DISEASE
AUTHORIZED PERSONNEL ONLY
RESPIRATORS REQUIRED IN THIS AREA

(c) Warning labels.

(i) Shipping and storage containers containing cadmium((~~,~~)) or cadmium compounds((~~, or cadmium contaminated clothing, equipment, waste, scrap, or debris~~)) shall bear appropriate warning labels, as specified in (((~~(c)(ii)~~))) (a) of this subsection.

(ii) The warning labels for containers of cadmium-contaminated protective clothing, equipment, waste, scrap, or debris shall include at least the following information:

((~~Danger, Contains Cadmium, Cancer Hazard,~~
~~Avoid Creating Dust,~~
~~Can Cause Lung and Kidney Disease~~))

DANGER
CONTAINS CADMIUM
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS AND KIDNEYS
AVOID CREATING DUST

(iii) Where feasible, installed cadmium products shall have a visible label or other indication that cadmium is present.

(iv) Prior to June 1, 2015, employers may include the following information on shipping and storage containers containing cadmium, cadmium compounds, or cadmium-contaminated clothing, equipment, waste, scrap, or debris in lieu of the labeling requirements specified in (c)(i) and (ii) of this subsection:

DANGER
CONTAINS CADMIUM
CANCER HAZARD
AVOID CREATING DUST
CAN CAUSE LUNG AND KIDNEY DISEASE

(d) Employee information and training.

(i) The employer shall institute a training program for all employees who are potentially exposed to cadmium, assure employee participation in the program, and maintain a record of the contents of such program.

(ii) Training shall be provided prior to or at the time of initial assignment to a job involving potential exposure to cadmium and at least annually thereafter.

(iii) The employer shall make the training program understandable to the employee and shall assure that each employee is informed of the following:

(A) The health hazards associated with cadmium exposure, with special attention to the information incorporated in WAC 296-62-07441, Appendix A;

(B) The quantity, location, manner of use, release, and storage of cadmium in the workplace and the specific nature of operations that could result in exposure to cadmium, especially exposures above the PEL;

(C) The engineering controls and work practices associated with the employee's job assignment;

(D) The measures employees can take to protect themselves from exposure to cadmium, including modification of such habits as smoking and personal hygiene, and specific procedures the employer has implemented to protect employees from exposure to cadmium such as appropriate work practices, emergency procedures, and the provision of personal protective equipment;

(E) The purpose, proper selection, fitting, proper use, and limitations of respirators and protective clothing;

(F) The purpose and a description of the medical surveillance program required by subsection (12) of this section;

(G) The contents of this section and its appendices; and

(H) The employee's rights of access to records under chapter 296-62 WAC, Part B.

(iv) Additional access to information and training program and materials.

(A) The employer shall make a copy of this section and its appendices readily available to all affected employees and shall provide a copy without cost if requested.

(B) Upon request, the employer shall provide to the director or authorized representative, all materials relating to the employee information and the training program.

(e) Multiemployer workplace. In a multiemployer workplace, an employer who produces, uses, or stores cadmium in a manner that may expose employees of other employers to cadmium shall notify those employers of the potential hazard in accordance with WAC ((~~296-800-170~~)) 296-901-140 of the ((~~chemical~~)) hazard communication ((~~program~~)) standard.

(14) Recordkeeping.

(a) Exposure monitoring.

(i) The employer shall establish and keep an accurate record of all air monitoring for cadmium in the workplace.

(ii) This record shall include at least the following information:

(A) The monitoring date, shift, duration, air volume, and results in terms of an eight-hour TWA of each sample taken, and if cadmium is not detected, the detection level;

(B) The name, Social Security number, and job classification of all employees monitored and of all other employees whose exposures the monitoring result is intended to represent, including, where applicable, a description of how it was determined that the employee's monitoring result could be taken to represent other employee's exposures;

(C) A description of the sampling and analytical methods used and evidence of their accuracy;

(D) The type of respiratory protective device, if any, worn by the monitored employee and by any other employee whose exposure the monitoring result is intended to represent;

(E) A notation of any other conditions that might have affected the monitoring results;

(F) Any exposure monitoring or objective data that were used and the levels.

(iii) The employer shall maintain this record for at least thirty years, in accordance with chapter 296-802 WAC.

(iv) The employer shall also provide a copy of the results of an employee's air monitoring prescribed in subsection (4) of this section to an industry trade association and to the employee's union, if any, or, if either of such associations or unions do not exist, to another comparable organization that is competent to maintain such records and is reasonably accessible to employers and employees in the industry.

(b) Objective data for exemption from requirement for initial monitoring.

(i) For purposes of this section, objective data are information demonstrating that a particular product or material containing cadmium or a specific process, operation, or activity involving cadmium cannot release dust or fumes in concentrations at or above the action level even under the worst-case release conditions. Objective data can be obtained from an industry-wide study or from laboratory product test results from manufacturers of cadmium-containing products or materials. The data the employer uses from an industry-wide survey must be obtained under workplace conditions closely resembling the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

(ii) The employer shall maintain the record for at least 30 years of the objective data relied upon.

(c) Medical surveillance.

(i) The employer shall establish and maintain an accurate record for each employee covered by medical surveillance under (a)(i) of this subsection.

(ii) The record shall include at least the following information about the employee:

(A) Name, Social Security number, and description of duties;

(B) A copy of the physician's written opinions and of the explanation sheets for biological monitoring results;

(C) A copy of the medical history, and the results of any physical examination and all test results that are required to be provided by this section, including biological tests, X rays, pulmonary function tests, etc., or that have been obtained to further evaluate any condition that might be related to cadmium exposure;

(D) The employee's medical symptoms that might be related to exposure to cadmium; and

(E) A copy of the information provided to the physician as required by subsection (12)(i) of this section.

(iii) The employer shall assure that this record is maintained for the duration of employment plus thirty years, in accordance with chapter 296-802 WAC.

(iv) At the employee's request, the employer shall promptly provide a copy of the employee's medical record, or update as appropriate, to a medical doctor or a union specified by the employee.

(d) Training. The employer shall certify that employees have been trained by preparing a certification record which includes the identity of the person trained, the signature of the

employer or the person who conducted the training, and the date the training was completed. The certification records shall be prepared at the completion of training and shall be maintained on file for one year beyond the date of training of that employee.

(e) Availability.

(i) Except as otherwise provided for in this section, access to all records required to be maintained by (a) through (d) of this subsection shall be in accordance with the provisions of chapter 296-802 WAC.

(ii) Within fifteen days after a request, the employer shall make an employee's medical records required to be kept by (c) of this subsection available for examination and copying to the subject employee, to designated representatives, to anyone having the specific written consent of the subject employee, and after the employee's death or incapacitation, to the employee's family members.

(f) Transfer of records. Whenever an employer ceases to do business and there is no successor employer or designated organization to receive and retain records for the prescribed period, the employer shall comply with the requirements concerning transfer of records set forth in chapter 296-802 WAC.

(15) Observation of monitoring.

(a) Employee observation. The employer shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to cadmium.

(b) Observation procedures. When observation of monitoring requires entry into an area where the use of protective clothing or equipment is required, the employer shall provide the observer with that clothing and equipment and shall assure that the observer uses such clothing and equipment and complies with all other applicable safety and health procedures.

(16) Appendices.

(a) Compliance with the fit testing requirements in WAC 296-842-15005 are mandatory.

(b) Except where portions of WAC 296-62-07441, 296-62-07443, 296-62-07447, 296-62-07449, and 296-62-07451, Appendices A, B, D, E, and F, respectively, to this section are expressly incorporated in requirements of this section, these appendices are purely informational and are not intended to create any additional obligations not otherwise imposed or to detract from any existing obligations.

AMENDATORY SECTION (Amending WSR 01-11-038, filed 5/9/01, effective 9/1/01)

WAC 296-155-17609 Exposure assessment. (1) General.

(a) Each employer who has a workplace or operation covered by this standard shall initially determine if any employee may be exposed to lead at or above the action level.

(b) For the purposes of this section, employee exposure is that exposure which would occur if the employee were not using a respirator.

(c) With the exception of monitoring under subsection (3) of this section, where monitoring is required by this standard, the employer shall collect personal samples representative of a full shift including at least one sample for each job classification in each work area either for each shift or for the shift with the highest exposure level.

(d) Full shift personal samples shall be representative of the monitored employee's regular, daily exposure to lead.

(2) Protection of employees during assessment of exposure.

(a) With respect to the lead related tasks listed in this subdivision, where lead is present, until the employer performs an employee exposure assessment as required in this section and documents that the employee performing any of the listed tasks is not exposed above the PEL, the employer shall treat the employee as if the employee were exposed above the PEL, and not in excess of ten (10) times the PEL, and shall implement employee protective measures prescribed in subdivision (e) of this subsection. The tasks covered by this requirement are:

(i) Where lead containing coatings or paint are present: Manual demolition of structures (e.g, dry wall), manual scraping, manual sanding, heat gun applications, and power tool cleaning with dust collection systems;

(ii) Spray painting with lead paint.

(b) In addition, with regard to tasks not listed in subdivision (a), where the employer has any reason to believe that an employee performing the task may be exposed to lead in excess of the PEL, until the employer performs an employee exposure assessment as required by this section and documents that the employee's lead exposure is not above the PEL the employer shall treat the employee as if the employee were exposed above the PEL and shall implement employee protective measures as prescribed in subdivision (e) of this subsection.

(c) With respect to the tasks listed in this subdivision, where lead is present, until the employer performs an employee exposure assessment as required in this section, and documents that the employee performing any of the listed tasks is not exposed in excess of 500 $\mu g/m^3$, the employer shall treat the employee as if the employee were exposed to lead in excess of 500 $\mu g/m^3$ and shall implement employee protective measures as prescribed in subdivision (e) of this subsection. Where the employer does establish that the employee is exposed to levels of lead below 500 $\mu g/m^3$, the employer may provide the exposed employee with the appropriate respirator prescribed for such use at such lower exposures, in accordance with Table 1 of WAC 296-155-17613. The tasks covered by this requirement are:

(i) Using lead containing mortar; lead burning;

(ii) Where lead containing coatings or paint are present: Rivet busting; power tool cleaning without dust collection systems; cleanup activities where dry expendable abrasives are used; and abrasive blasting enclosure movement and removal.

(d) With respect to the tasks listed in this subdivision, where lead is present, until the employer performs an employee exposure assessment as required in this section and documents that the employee performing any of the listed tasks is not exposed to lead in excess of 2,500 $\mu g/m^3$ (50xPEL), the employer shall treat the employee as if the employee were exposed to lead in excess of 2,500 $\mu g/m^3$ and shall implement employee protective measures as prescribed in (e) of this subsection. Where the employer does establish

that the employee is exposed to levels of lead below 2,500 µg/m^3, the employer may provide the exposed employee with the appropriate respirator prescribed for use at such lower exposures, in accordance with Table I of this WAC 296-155-17613. Protection described in this section is required where lead containing coatings or paint are present on structures when performing:

(i) Abrasive blasting;

(ii) Welding;

(iii) Cutting; and

(iv) Torch burning.

(e) Until the employer performs an employee exposure assessment as required by this section and determines actual employee exposure, the employer shall provide to employees performing the tasks described in (a) through (d) of this subsection with interim protection as follows:

(i) Appropriate respiratory protection in accordance with WAC 296-155-17613.

(ii) Appropriate personal protective clothing and equipment in accordance with WAC 296-155-17615.

(iii) Change areas in accordance with WAC 296-155-17619(2).

(iv) Hand washing facilities in accordance with WAC 296-155-17619(5).

(v) Biological monitoring in accordance with WAC 296-155-17621 (1)(a), to consist of blood sampling and analysis for lead and zinc protoporphyrin levels, and

(vi) Training as required by WAC 296-155-17625 (1)(a) regarding WAC ((~~296-800-170, Chemical~~)) 296-901-140, Hazard communication; training as required by WAC 296-155-17625 (2)(c), regarding use of respirators; and training in accordance with WAC 296-155-100.

(3) Basis of initial determination.

(a) Except as provided by (c) and (d) of this subsection the employer shall monitor employee exposures and shall base initial determinations on the employee exposure monitoring results and any of the following, relevant considerations:

(i) Any information, observations, or calculations which would indicate employee exposure to lead;

(ii) Any previous measurements of airborne lead; and

(iii) Any employee complaints of symptoms which may be attributable to exposure to lead.

(b) Monitoring for the initial determination where performed may be limited to a representative sample of the exposed employees who the employer reasonably believes are exposed to the greatest airborne concentrations of lead in the workplace.

(c) Where the employer has previously monitored for lead exposures, and the data were obtained within the past twelve months during work operations conducted under workplace conditions closely resembling the processes, type of material, control methods, work practices, and environmental conditions used and prevailing in the employer's current operations, the employer may rely on such earlier monitoring results to satisfy the requirements of subdivision (a) of this subsection and subsection (5) of this section if the sampling and analytical methods meet the accuracy and confidence levels of subsection (9) of this section.

(d) Where the employer has objective data, demonstrating that a particular product or material containing lead or a specific process, operation or activity involving lead cannot result in employee exposure to lead at or above the action level during processing, use, or handling, the employer may rely upon such data instead of implementing initial monitoring.

(i) The employer shall establish and maintain an accurate record documenting the nature and relevancy of objective data as specified in WAC 296-155-17629(4), where used in assessing employee exposure in lieu of exposure monitoring.

(ii) Objective data, as described in subdivision (d) of this subsection, is not permitted to be used for exposure assessment in connection with subsection (2) of this section.

(4) Positive initial determination and initial monitoring.

(a) Where a determination conducted under subsections (1), (2) and (3) of this section shows the possibility of any employee exposure at or above the action level the employer shall conduct monitoring which is representative of the exposure for each employee in the workplace who is exposed to lead.

(b) Where the employer has previously monitored for lead exposure, and the data were obtained within the past twelve months during work operations conducted under workplace conditions closely resembling the processes, type of material, control methods, work practices, and environmental conditions used and prevailing in the employer's current operations, the employer may rely on such earlier monitoring results to satisfy the requirements of (a) of this subsection if the sampling and analytical methods meet the accuracy and confidence levels of subsection (9) of this section.

(5) Negative initial determination. Where a determination, conducted under subsections (1), (2), and (3) of this section is made that no employee is exposed to airborne concentrations of lead at or above the action level the employer shall make a written record of such determination. The record shall include at least the information specified in subsection (3)(a) of this section and shall also include the date of determination, location within the worksite, and the name and Social Security number of each employee monitored.

(6) Frequency.

(a) If the initial determination reveals employee exposure to be below the action level further exposure determination need not be repeated except as otherwise provided in subsection (7) of this section.

(b) If the initial determination or subsequent determination reveals employee exposure to be at or above the action level but at or below the PEL the employer shall perform monitoring in accordance with this section at least every six months. The employer shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least seven days apart, are below the action level at which time the employer may discontinue monitoring for that employee except as otherwise provided in subsection (7) of this section.

(c) If the initial determination reveals that employee exposure is above the PEL the employer shall perform monitoring quarterly. The employer shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least seven days apart, are at or below the

PEL but at or above the action level at which time the employer shall repeat monitoring for that employee at the frequency specified in subdivision (b) of this subsection, except as otherwise provided in subsection (7) of this section. The employer shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least seven days apart, are below the action level at which time the employer may discontinue monitoring for that employee except as otherwise provided in subsection (7) of this section.

(7) Additional exposure assessments. Whenever there has been a change of equipment, process, control, personnel or a new task has been initiated that may result in additional employees being exposed to lead at or above the action level or may result in employees already exposed at or above the action level being exposed above the PEL, the employer shall conduct additional monitoring in accordance with this section.

(8) Employee notification.

(a) Within five working days after completion of the exposure assessment the employer shall notify each employee in writing of the results which represent that employee's exposure.

(b) Whenever the results indicate that the representative employee exposure, without regard to respirators, is at or above the PEL the employer shall include in the written notice a statement that the employees exposure was at or above that level and a description of the corrective action taken or to be taken to reduce exposure to below that level.

(9) Accuracy of measurement. The employer shall use a method of monitoring and analysis which has an accuracy (to a confidence level of ninety-five percent) of not less than plus or minus twenty-five percent for airborne concentrations of lead equal to or greater than 30 µg/m^3.

AMENDATORY SECTION (Amending WSR 01-11-038, filed 5/9/01, effective 9/1/01)

WAC 296-155-17615 Protective work clothing and equipment. (1) Provision and use. Where an employee is exposed to lead above the PEL without regard to the use of respirators, where employees are exposed to lead compounds which may cause skin or eye irritation (e.g., lead arsenate, lead azide), and as protection for employees performing tasks as specified in WAC 296-155-17609(2), the employer shall provide at no cost to the employee and assure that the employee uses appropriate protective work clothing and equipment that prevents contamination of the employee and the employee's garments such as, but not limited to:

(a) Coveralls or similar full-body work clothing;

(b) Gloves, hats, and shoes or disposable shoe coverlets; and

(c) Face shields, vented goggles, or other appropriate protective equipment which complies with WAC 296-800-160.

(2) Cleaning and replacement.

(a) The employer shall provide the protective clothing required in subsection (1) of this section in a clean and dry condition at least weekly, and daily to employees whose exposure levels without regard to a respirator are over 200 µg/m^3 of lead as an 8-hour TWA.

(b) The employer shall provide for the cleaning, laundering, and disposal of protective clothing and equipment required by subsection (1) of this section.

(c) The employer shall repair or replace required protective clothing and equipment as needed to maintain their effectiveness.

(d) The employer shall assure that all protective clothing is removed at the completion of a work shift only in change areas provided for that purpose as prescribed in WAC 296-155-17619(2).

(e) The employer shall assure that contaminated protective clothing which is to be cleaned, laundered, or disposed of, is placed in a closed container in the change area which prevents dispersion of lead outside the container.

(f) The employer shall inform in writing any person who cleans or launders protective clothing or equipment of the potentially harmful effects of exposure to lead.

(g) The employer shall ((~~assure~~)) ensure that the containers of contaminated protective clothing and equipment required ((~~by subdivision~~)) under (e) of this subsection are labeled as follows:

DANGER: CLOTHING AND EQUIPMENT CONTAMINATED WITH LEAD.
MAY DAMAGE FERTILITY OR THE UNBORN CHILD.
CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM.
DO NOT EAT, DRINK OR SMOKE WHEN HANDLING.
DO NOT REMOVE DUST BY BLOWING OR SHAKING.
DISPOSE OF LEAD CONTAMINATED WASH WATER IN ACCORDANCE WITH
APPLICABLE LOCAL, STATE, OR FEDERAL REGULATIONS.

(h) Prior to June 1, 2015, employers may include the following information on bags or containers of contaminated protective clothing and equipment required under (e) of this subsection in lieu of the labeling requirements stated above in this section:

Caution: Clothing contaminated with lead. Do not remove dust by blowing or shaking. Dispose of lead contaminated wash water in accordance with applicable local, state, or federal regulations.

((~~(h)~~)) (i) The employer shall prohibit the removal of lead from protective clothing or equipment by blowing, shaking, or any other means which disperses lead into the air.

AMENDATORY SECTION (Amending WSR 09-15-145, filed 7/21/09, effective 9/1/09)

WAC 296-155-17625 ((~~Employee information and training.~~)) Communication of hazards. (1) General.

(a) Hazard communication. The employer shall ((~~communicate information concerning~~)) include lead ((~~hazards according to the requirements of WISHA's Hazard Communication Standard for the construction industry, chapter 296-800 WAC, including but not limited to the requirements concerning warning signs and~~)) in the program established to comply with the Hazard Communication Standard (HCS), WAC 296-901-140. The employer shall ensure that each employee has access to labels((~~, material~~)) on containers of lead and safety data sheets (((~~MSDS~~))), and ((~~employee information and training~~)) is trained in accordance with the provisions of HCS and subsection (1) of this section. ((~~In addition,~~)) The employer((~~s~~)) shall ((~~comply with~~)) ensure

that at least the following ((~~requirements~~)) hazards are addressed:

(i) Reproductive/developmental toxicity;

(ii) Central nervous system effects;

(iii) Kidney effects;

(iv) Blood effects; and

(v) Acute toxicity effects.

(b) The employer shall train each employee who is subject to exposure to lead at or above the action level on any day or who is subject to exposure to lead compounds which may cause skin or eye irritation (e.g., lead arsenate, lead azide), in accordance with the requirements of this chapter. The employer shall institute a training program in accordance with subsection (2) of this section and ensure employee participation.

(c) The employer shall provide the training program as initial training prior to the time of job assignment or prior to the start up date for this requirement, whichever comes last.

(d) The employer shall also provide the training program at least annually for each employee who is subject to lead exposure at or above the action level on any day.

(2) Training program. The employer shall assure that each employee is trained in the following:

(a) The content of this standard and its appendices;

(b) The specific nature of the operations which could result in exposure to lead above the action level;

(c) The training requirements for respiratory protection as required by WAC 296-842-110, 296-842-19005, and 296-842-16005;

(d) The purpose and a description of the medical surveillance program, and the medical removal protection program including information concerning the adverse health effects associated with excessive exposure to lead (with particular attention to the adverse reproductive effects on both males and females and hazards to the fetus and additional precautions for employees who are pregnant);

(e) The engineering controls and work practices associated with the employee's job assignment including training of employees to follow relevant good work practices described in Appendix B, WAC 296-155-17652;

(f) The contents of any compliance plan in effect;

(g) Instructions to employees that chelating agents should not routinely be used to remove lead from their bodies and should not be used at all except under the direction of a licensed physician; and

(h) The employee's right of access to records under Part B, chapter 296-62 WAC and chapter 296-800 WAC.

(3) Access to information and training materials.

(a) The employer shall make readily available to all affected employees a copy of this standard and its appendices.

(b) The employer shall provide, upon request, all materials relating to the employee information and training program to affected employees and their designated representatives, and the director.

AMENDATORY SECTION (Amending WSR 93-22-054, filed 10/29/93, effective 12/10/93)

WAC 296-155-17627 Signs. ((~~(1)~~)) General.

(((~~(a) The employer may use signs required by other statutes, regulations or ordinances in addition to, or in combination with, signs required by this section.~~

~~(b) The employer shall assure that no statement appears on or near any sign required by this section which contradicts or detracts from the meaning of the required sign.~~

~~(2) Signs.~~

~~(a)~~)) (1) The employer shall post the following warning signs in each work area where an ((~~employees~~)) employee's exposure to lead is above the PEL.

((~~WARNING~~
~~LEAD WORK AREA~~
~~POISON~~
~~NO SMOKING OR EATING~~))

DANGER LEAD WORK AREA
MAY DAMAGE FERTILITY OR THE UNBORN CHILD
CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM
DO NOT EAT, DRINK OR SMOKE IN THIS AREA

(2) The employer shall ensure that no statement appears on or near any sign required by this section which contradicts or detracts from the meaning of the required sign.

(((~~(b)~~))) (3) The employer shall ((~~assure~~)) ensure that signs required by this section are illuminated and cleaned as necessary so that the legend is readily visible.

(4) The employer may use signs required by other statutes, regulations or ordinances in addition to, or in combination with, signs required by this section.

(5) Prior to June 1, 2016, employers may use the following legend in lieu of that specified in subsection (1) of this section:

WARNING
LEAD WORK AREA
POISON
NO SMOKING OR EATING

AMENDATORY SECTION (Amending WSR 05-03-093, filed 1/18/05, effective 3/1/05)

WAC 296-155-17652 Appendix B to WAC 296-155-176—Employee standard summary. This appendix summarizes key provisions of the standard for lead in construction that you as a worker should become familiar with.

(1) Permissible exposure limit (PEL)—WAC 296-62-17607.

The standard sets a permissible exposure limit (PEL) of 50 micrograms of lead per cubic meter of air (50 $\mu g/m^3$), averaged over an eight-hour workday which is referred to as a time-weighted average (TWA). This is the highest level of lead in air to which you may be permissibly exposed over an eight-hour workday. However, since this is an eight-hour average, short exposures above the PEL are permitted so long as for each eight-hour work day your average exposure does not exceed this level. This standard, however, takes into account the fact that your daily exposure to lead can extend beyond a typical eight-hour workday as the result of overtime or other alterations in your work schedule. To deal with this situation, the standard contains a formula which reduces your permissible exposure when you are exposed more than eight hours. For example, if you are exposed to lead for ten hours a

day, the maximum permitted average exposure would be 40 μg/m³.

(2) Exposure assessment—WAC 296-155-17609.

If lead is present in your workplace in any quantity, your employer is required to make an initial determination of whether any employee's exposure to lead exceeds the action level (30 μg/m³ averaged over an eight-hour day). Employee exposure is that exposure which would occur if the employee were not using a respirator. This initial determination requires your employer to monitor workers' exposures unless the employee has objective data which can demonstrate conclusively that no employee will be exposed to lead in excess of the action level. Where objective data is used in lieu of actual monitoring the employer must establish and maintain an accurate record, documenting its relevancy in assessing exposure levels for current job conditions. If such objective data is available, the employer need proceed no further on employee exposure assessment until such time that conditions have changed and the determination is no longer valid.

Objective data may be compiled from various sources, e.g., insurance companies and trade associations and information from suppliers or exposure data collected from similar operations. Objective data may also comprise previously-collected sampling data including area monitoring. If it cannot be determined through using objective data that worker exposure is less than the action level, your employer must conduct monitoring or must rely on relevant previous personal sampling, if available. Where monitoring is required for the initial determination, it may be limited to a representative number of employees who are reasonably expected to have the highest exposure levels. If your employer has conducted appropriate air sampling for lead in the past twelve months, they may use these results, provided they are applicable to the same employee tasks and exposure conditions and meet the requirements for accuracy as specified in the standard. As with objective data, if such results are relied upon for the initial determination, your employer must establish and maintain a record as to the relevancy of such data to current job conditions.

If there have been any employee complaints of symptoms which may be attributable to exposure to lead or if there is any other information or observations which would indicate employee exposure to lead, this must also be considered as part of the initial determination. If this initial determination shows that a reasonable possibility exists that any employee may be exposed, without regard to respirator, over the action level, your employer must set up an air monitoring program to determine the exposure level representative of each employee exposed to lead at your workplace. In carrying out this air monitoring program, your employer is not required to monitor the exposure of every employee, but they must monitor a representative number of employees and job types. Enough sampling must be done to enable each employee's exposure level to be reasonably represent full shift exposure. In addition, these air samples must be taken under conditions which represent each employee's regular, daily exposure to lead. Sampling performed in the past twelve months may be used to determine exposures above the action level if such sampling was conducted during work activities essentially similar to present work conditions.

The standard lists certain tasks which may likely result in exposures to lead in excess of the PEL and, in some cases, exposures in excess of fifty times the PEL. If you are performing any of these tasks, your employer must provide you with appropriate respiratory protection, protective clothing and equipment, change areas, hand washing facilities, biological monitoring, and training until such time that an exposure assessment is conducted which demonstrates that your exposure level is below the PEL.

If you are exposed to lead and air sampling is performed, your employer is required to notify you in writing within five working days of the air monitoring results which represent your exposure. If the results indicate that your exposure exceeds the PEL (without regard to your use of a respirator), then your employer must also notify you of this in writing, and provide you with a description of the corrective action that has been taken or will be taken to reduce your exposure.

Your exposure must be rechecked by monitoring, at least every six months if your exposure is at or over the action level but below the PEL. Your employer may discontinue monitoring for you if two consecutive measurements, taken at least seven days apart, are at or below the action level. Air monitoring must be repeated every three months if you are exposed over the PEL. Your employer must continue monitoring for you at this frequency until two consecutive measurements, taken at least seven days apart, are below the PEL but above the action level, at which time your employer must repeat monitoring of your exposure every six months and may discontinue monitoring only after your exposure drops to or below the action level. However, whenever there is a change of equipment, process, control, or personnel or a new type of job is added at your workplace which may result in new or additional exposure to lead, your employer must perform additional monitoring.

(3) Methods of compliance—WAC 296-155-17611.

Your employer is required to assure that no employee is exposed to lead in excess of the PEL as an eight-hour TWA. The standard for lead in construction requires employers to institute engineering and work practice controls including administrative controls to the extent feasible to reduce employee exposure to lead. Where such controls are feasible but not adequate to reduce exposures below the PEL they must be used nonetheless to reduce exposures to the lowest level that can be accomplished by these means and then supplemented with appropriate respiratory protection.

Your employer is required to develop and implement a written compliance program prior to the commencement of any job where employee exposures may reach the PEL as an eight-hour TWA. The standard identifies the various elements that must be included in the plan. For example, employers are required to include a description of operations in which lead is emitted, detailing other relevant information about the operation such as the type of equipment used, the type of material involved, employee job responsibilities, operating procedures and maintenance practices. In addition, your employer's compliance plan must specify the means that will be used to achieve compliance and, where engineering controls are required, include any engineering plans or studies that have been used to select the control methods. If administrative controls involving job rotation are used to

reduce employee exposure to lead, the job rotation schedule must be included in the compliance plan. The plan must also detail the type of protective clothing and equipment, including respirator, housekeeping and hygiene practices that will be used to protect you from the adverse effects of exposure to lead.

The written compliance program must be made available, upon request, to affected employees and their designated representatives, and the director.

Finally, the plan must be reviewed and updated at least every six months to assure it reflects the current status in exposure control.

(4) Respiratory protection—WAC 296-155-17613.

Your employer is required to select respirator from the types listed in Table I of the Respiratory Protection section of the standard (see WAC 296-155-17613). Any respirator chosen must be certified by the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 42 C.F.R. part 84. This respirator selection table will enable your employer to choose a type of respirator that will give you a proper amount of protection based on your airborne lead exposure. Your employer may select a type of respirator that provides greater protection than that required by the standard; that is, one recommended for a higher concentration of lead than is present in your workplace. For example, a powered air-purifying respirator (PAPR) is much more protective than a typical negative pressure respirator, and may also be more comfortable to wear. A PAPR has a filter, cartridge, or canister to clean the air, and a power source which continuously blows filtered air into your breathing zone. Your employer might make a PAPR available to you to ease the burden of having to wear a respirator for long periods of time. The standard provides that you can obtain a PAPR upon request.

Your employer must also start a Respiratory Protection Program. This program must include written procedures for the proper selection, use, cleaning, storage, and maintenance of respirator.

Your employer must ensure that your respirator facepiece fits properly. Proper fit of a respirator facepiece is critical to your protection from airborne lead. Obtaining a proper fit on each employee may require your employer to make available several different types of respirator masks. To ensure that your respirator fits properly and that facepiece leakage is minimal, your employer must give you either a qualitative or quantitative fit test as specified in WAC 296-842-15005.

(5) Protective work clothing and equipment—WAC 296-155-17615.

If you are exposed to lead above the PEL as an 8-hour TWA, without regard to your use of a respirator, or if you are exposed to lead compounds such as lead arsenate or lead azide which can cause skin and eye irritation, your employer must provide you with protective work clothing and equipment appropriate for the hazard. If work clothing is provided, it must be provided in a clean and dry condition at least weekly, and daily if your airborne exposure to lead is greater than 200 $\mu g/m^3$. Appropriate protective work clothing and equipment can include coveralls or similar full-body work clothing, gloves, hats, shoes or disposable shoe coverlets, and face shields or vented goggles. Your employer is required to provide all such equipment at no cost to you. In addition, your employer is responsible for providing repairs and replacement as necessary, and also is responsible for the cleaning, laundering or disposal of protective clothing and equipment.

The standard requires that your employer assure that you follow good work practices when you are working in areas where your exposure to lead may exceed the PEL. With respect to protective clothing and equipment, where appropriate, the following procedures should be observed prior to beginning work:

- Change into work clothing and shoe covers in the clean section of the designated changing areas;
- Use work garments of appropriate protective gear, including respirator before entering the work area; and
- Store any clothing not worn under protective clothing in the designated changing area.

Workers should follow these procedures upon leaving the work area:

- HEPA vacuum heavily contaminated protective work clothing while it is still being worn. At no time may lead be removed from protective clothing by any means which result in uncontrolled dispersal of lead into the air;
- Remove shoe covers and leave them in the work area;
- Remove protective clothing and gear in the dirty area of the designated changing area. Remove protective coveralls by carefully rolling down the garment to reduce exposure to dust.
- Remove respirator last; and
- Wash hands and face.

Workers should follow these procedures upon finishing work for the day (in addition to procedures described above):

- Where applicable, place disposal coveralls and shoe covers with the abatement waste;
- Contaminated clothing which is to be cleaned, laundered or disposed of must be placed in closed containers in the change room.
- Clean protective gear, including respirator, according to standard procedures;
- Wash hands and face again.

If showers are available, take a shower and wash hair. If shower facilities are not available at the work site, shower immediately at home and wash hair.

(6) Housekeeping—WAC 296-155-17617.

Your employer must establish a housekeeping program sufficient to maintain all surfaces as free as practicable of accumulations of lead dust. Vacuuming is the preferred method of meeting this requirement, and the use of compressed air to clean floors and other surfaces is generally prohibited unless removal with compressed air is done in con-

junction with ventilation systems designed to contain dispersal of the lead dust. Dry or wet sweeping, shoveling, or brushing may not be used except where vacuuming or other equally effective methods have been tried and do not work. Vacuums must be used equipped with a special filter called a high-efficiency particulate air (HEPA) filter and emptied in a manner which minimizes the reentry of lead into the workplace.

(7) Hygiene facilities and practices—WAC 296-155-17619.

The standard requires that hand washing facilities be provided where occupational exposure to lead occurs. In addition, change areas, showers (where feasible), and lunchrooms or eating areas are to be made available to workers exposed to lead above the PEL. Your employer must assure that except in these facilities, food and beverage is not present or consumed, tobacco products are not present or used, and cosmetics are not applied, where airborne exposures are above the PEL. Change rooms provided by your employer must be equipped with separate storage facilities for your protective clothing and equipment and street clothes to avoid cross-contamination. After showering, no required protective clothing or equipment worn during the shift may be worn home. It is important that contaminated clothing or equipment be removed in change areas and not be worn home or you will extend your exposure and expose your family since lead from your clothing can accumulate in your house, car, etc.

Lunchrooms or eating areas may not be entered with protective clothing or equipment unless surface dust has been removed by vacuuming, downdraft booth, or other cleaning method. Finally, workers exposed above the PEL must wash both their hands and faces prior to eating, drinking, smoking or applying cosmetics.

All of the facilities and hygiene practices just discussed are essential to minimize additional sources of lead absorption from inhalation or ingestion of lead that may accumulate on you, your clothes, or your possessions. Strict compliance with these provisions can virtually eliminate several sources of lead exposure which significantly contribute to excessive lead absorption.

(8) Medical surveillance—WAC 296-155-17621.

The medical surveillance program is part of the standard's comprehensive approach to the prevention of lead-related disease. Its purpose is to supplement the main thrust of the standard which is aimed at minimizing airborne concentrations of lead and sources of ingestion. Only medical surveillance can determine if the other provisions of the standard have affectively protected you as an individual. Compliance with the standard's provision will protect most workers from the adverse effects of lead exposure, but may not be satisfactory to protect individual workers:

- Who have high body burdens of lead acquired over past years,
- Who have additional uncontrolled sources of nonoccupational lead exposure,
- Who exhibit unusual variations in lead absorption rates, or
- Who have specific nonwork related medical conditions which could be aggravated by lead exposure (e.g., renal disease, anemia).

In addition, control systems may fail, or hygiene and respirator programs may be inadequate. Periodic medical surveillance of individual workers will help detect those failures. Medical surveillance will also be important to protect your reproductive ability—regardless of whether you are a man or woman.

All medical surveillance required by the standard must be performed by or under the supervision of a licensed physician. The employer must provide required medical surveillance without cost to employees and at a reasonable time and place. The standard's medical surveillance program has two parts—periodic biological monitoring and medical examinations. Your employer's obligation to offer you medical surveillance is triggered by the results of the air monitoring program. Full medical surveillance must be made available to all employees who are or may be exposed to lead in excess of the action level for more than thirty days a year and whose blood lead level exceeds 40 µg/dl. Initial medical surveillance consisting of blood sampling and analysis for lead and zinc protoporphyrin must be provided to all employees exposed at any time (1 day) above the action level.

Biological monitoring under the standard must be provided at least every two months for the first six months and every six months thereafter until your blood lead level is below 40 µg/dl. A zinc protoporphyrin (ZPP) test is a very useful blood test which measures an adverse metabolic effect of lead on your body and is therefore an indicator of lead toxicity.

If your BLL exceeds 40 µg/dl the monitoring frequency must be increased from every six months to at least every two months and not reduced until two consecutive BLLs indicate a blood lead level below 40 µg/dl. Each time your BLL is determined to be over 40 µg/dl, your employer must notify you of this in writing within five working days of their receipt of the test results. The employer must also inform you that the standard requires temporary medical removal with economic protection when your BLL exceeds 50 µg/dl. (See Discussion of medical removal protection—WAC 296-155-17623.) Anytime your BLL exceeds 50 µg/dl your employer must make available to you within two weeks of receipt of these test results a second follow-up BLL test to confirm your BLL. If the two tests both exceed 50 µg/dl, and you are temporarily removed, then your employer must make successive BLL tests available to you on a monthly basis during the period of your removal.

Medical examinations beyond the initial one must be made available on an annual basis if your blood lead level exceeds 40 µg/dl at any time during the preceding year and you are being exposed above the airborne action level of 30 $\mu g/m^3$ for thirty or more days per year. The initial examination will provide information to establish a baseline to which subsequent data can be compared.

An initial medical examination to consist of blood sampling and analysis for lead and zinc protoporphyrin must also be made available (prior to assignment) for each employee being assigned for the first time to an area where the airborne

concentration of lead equals or exceeds the action level at any time. In addition, a medical examination or consultation must be made available as soon as possible if you notify your employer that you are experiencing signs or symptoms commonly associated with lead poisoning or that you have difficulty breathing while wearing a respirator or during a respirator fit test. You must also be provided a medical examination or consultation if you notify your employer that you desire medical advice concerning the effects of current or past exposure to lead on your ability to procreate a healthy child.

Finally, appropriate follow-up medical examinations or consultations may also be provided for employees who have been temporarily removed from exposure under the medical removal protection provisions of the standard. (See subsection (9), below.)

The standard specifies the minimum content of ((~~pre-assignment~~)) preassignment and annual medical examinations. The content of other types of medical examinations and consultations is left up to the sound discretion of the examining physician. Preassignment and annual medical examinations must include:

- A detailed work history and medical history;
- A thorough physical examination, including an evaluation of your pulmonary status if you will be required to use a respirator;
- A blood pressure measurement; and
- A series of laboratory tests designed to check your blood chemistry and your kidney function.

In addition, at any time upon your request, a laboratory evaluation of male fertility will be made (microscopic examination of a sperm sample), or a pregnancy test will be given.

The standard does not require that you participate in any of the medical procedures, tests, etc. which your employer is required to make available to you. Medical surveillance can, however, play a very important role in protecting your health. You are strongly encouraged, therefore, to participate in a meaningful fashion. The standard contains a multiple physician review mechanism which will give you a chance to have a physician of your choice directly participate in the medical surveillance program. If you are dissatisfied with an examination by a physician chosen by your employer, you can select a second physician to conduct an independent analysis. The two doctors would attempt to resolve any differences of opinion, and select a third physician to resolve any firm dispute. Generally your employer will choose the physician who conducts medical surveillance under the lead standard-unless you and your employer can agree on the choice of a physician or physicians. Some companies and unions have agreed in advance, for example, to use certain independent medical laboratories or panels of physicians. Any of these arrangements are acceptable so long as required medical surveillance is made available to workers.

The standard requires your employer to provide certain information to a physician to aid in their examination of you. This information includes:

- The standard and its appendices,
- A description of your duties as they relate to occupational lead exposure,
- Your exposure level or anticipated exposure level,
- A description of any personal protective equipment you wear,
- Prior blood lead level results, and
- Prior written medical opinions concerning you that the employer has.

After a medical examination or consultation the physician must prepare a written report which must contain:

- The physician's opinion as to whether you have any medical condition which places you at increased risk of material impairment to health from exposure to lead,
- Any recommended special protective measures to be provided to you,
- Any blood lead level determinations, and
- Any recommended limitation on your use of respirator.

This last element must include a determination of whether you can wear a powered air purifying respirator (PAPR) if you are found unable to wear a negative pressure respirator.

The medical surveillance program of the lead standard may at some point in time serve to notify certain workers that they have acquired a disease or other adverse medical condition as a result of occupational lead exposure. If this is true, these workers might have legal rights to compensation from public agencies, their employers, firms that supply hazardous products to their employers, or other persons. Some states have laws, including worker compensation laws, that disallow a worker who learns of a job-related health impairment to sue, unless the worker sues within a short period of time after learning of the impairment. (This period of time may be a matter of months or years.) An attorney can be consulted about these possibilities. It should be stressed that WISHA is in no way trying to either encourage or discourage claims or lawsuits. However, since results of the standard's medical surveillance program can significantly affect the legal remedies of a worker who has acquired a job-related disease or impairment, it is proper for WISHA to make you aware of this.

The medical surveillance section of the standard also contains provisions dealing with chelation. Chelation is the use of certain drugs (administered in pill form or injected into the body) to reduce the amount of lead absorbed in body tissues. Experience accumulated by the medical and scientific communities has largely confirmed the effectiveness of this type of therapy for the treatment of very severe lead poisoning. On the other hand, it has also been established that there can be a long list of extremely harmful side effects associated with the use of chelating agents. The medical community has balanced the advantages and disadvantages resulting from the use of chelating agents in various circumstances and has established when the use of these agents is acceptable. The standard includes these accepted limitations due to a history of abuse of chelation therapy by some lead companies. The most widely used chelating agents are calcium disodium

EDTA, (Ca Na2 EDTA), Calcium Disodium Versenate (Versenate), and d-penicillamine (penicillamine or Cupramine).

The standard prohibits "prophylactic chelation" of any employee by any person the employer retains, supervises or controls. "Prophylactic chelation" is the routine use of chelating or similarly acting drugs to prevent elevated blood levels in workers who are occupationally exposed to lead, or the use of these drugs to routinely lower blood lead levels to predesignated concentrations believed to be "safe." It should be emphasized that where an employer takes a worker who has no symptoms of lead poisoning and has chelation carried out by a physician (either inside or outside of a hospital) solely to reduce the worker's blood lead level, that will generally be considered prophylactic chelation. The use of a hospital and a physician does not mean that prophylactic chelation is not being performed. Routine chelation to prevent increased or reduce current blood lead levels is unacceptable whatever the setting.

The standard allows the use of "therapeutic" or "diagnostic" chelation if administered under the supervision of a licensed physician in a clinical setting with thorough and appropriate medical monitoring. Therapeutic chelation responds to severe lead poisoning where there are marked symptoms. Diagnostic chelation involved giving a patient a dose of the drug then collecting all urine excreted for some period of time as an aid to the diagnosis of lead poisoning.

In cases where the examining physician determines that chelation is appropriate, you must be notified in writing of this fact before such treatment. This will inform you of a potentially harmful treatment, and allow you to obtain a second opinion.

(9) Medical removal protection—WAC 296-155-17623.

Excessive lead absorption subjects you to increased risk of disease. Medical removal protection (MRP) is a means of protecting you when, for whatever reasons, other methods, such as engineering controls, work practices, and respirator, have failed to provide the protection you need. MRP involves the temporary removal of a worker from their regular job to a place of significantly lower exposure without any loss of earnings, seniority, or other employment rights or benefits. The purpose of this program is to cease further lead absorption and allow your body to naturally excrete lead which has previously been absorbed. Temporary medical removal can result from an elevated blood lead level, or a medical opinion. For up to eighteen months, or for as long as the job the employee was removed from lasts, protection is provided as a result of either form of removal. The vast majority of removed workers, however, will return to their former jobs long before this eighteen month period expires.

You may also be removed from exposure even if your blood lead level is below 50 μ/dl if a final medical determination indicates that you temporarily need reduced lead exposure for medical reasons. If the physician who is implementing your employers medical program makes a final written opinion recommending your removal or other special protective measures, your employer must implement the physician's recommendation. If you are removed in this manner, you may only be returned when the doctor indicates that it is safe for you to do so.

The standard does not give specific instructions dealing with what an employer must do with a removed worker. Your job assignment upon removal is a matter for you, your employer and your union (if any) to work out consistent with existing procedures for job assignments. Each removal must be accomplished in a manner consistent with existing collective bargaining relationships. Your employer is given broad discretion to implement temporary removals so long as no attempt is made to override existing agreements. Similarly, a removed worker is provided no right to veto an employer's choice which satisfies the standard.

In most cases, employers will likely transfer removed employees to other jobs with sufficiently low lead exposure. Alternatively, a worker's hours may be reduced so that the time weighted average exposure is reduced, or they may be temporarily laid off if no other alternative is feasible.

In all of these situation, MRP benefits must be provided during the period of removal—i.e., you continue to receive the same earnings, seniority, and other rights and benefits you would have had if you had not been removed. Earnings includes more than just your base wage; it includes overtime, shift differentials, incentives, and other compensation you would have earned if you had not been removed. During the period of removal you must also be provided with appropriate follow-up medical surveillance. If you were removed because your blood lead level was too high, you must be provided with a monthly blood test. If a medical opinion caused your removal, you must be provided medical tests or examinations that the doctor believes to be appropriate. If you do not participate in this follow up medical surveillance, you may lose your eligibility for MRP benefits.

When you are medically eligible to return to your former job, your employer must return you to your "former job status." This means that you are entitled to the position, wages, benefits, etc., you would have had if you had not been removed. If you would still be in your old job if no removal had occurred that is where you go back. If not, you are returned consistent with whatever job assignment discretion your employer would have had if no removal had occurred. MRP only seeks to maintain your rights, not expand them or diminish them.

If you are removed under MRP and you are also eligible for worker compensation or other compensation for lost wages, your employer's MRP benefits obligation is reduced by the amount that you actually receive from these other sources. This is also true if you obtain other employment during the time you are laid off with MRP benefits.

The standard also covers situations where an employer voluntarily removes a worker from exposure to lead due to the effects of lead on the employee's medical condition, even though the standard does not require removal. In these situations MRP benefits must still be provided as though the standard required removal. Finally, it is important to note that in all cases where removal is required, respirator cannot be used as a substitute. Respirator may be used before removal becomes necessary, but not as an alternative to a transfer to a low exposure job, or to a lay-off with MRP benefits.

(10) Employee information and training—WAC 296-155-17625.

Your employer is required to provide an information and training program for all employees exposed to lead above the action level or who may suffer skin or eye irritation from lead compounds such as lead arsenate or lead azide. The program must train these employees regarding the specific hazards associated with their work environment, protective measures which can be taken, including the contents of any compliance plan in effect, the danger of lead to their bodies (including their reproductive systems), and their rights under the standard. All employees must be trained prior to initial assignment to areas where there is a possibility of exposure over the action level.

This training program must also be provided at least annually thereafter unless further exposure above the action level will not occur.

(11) Signs—WAC 296-155-17627.

The standard requires that the following warning sign be posted in work areas where the exposure to lead exceeds the PEL:

DANGER LEAD WORK AREA
MAY DAMAGE FERTILITY OR THE UNBORN CHILD
CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM
DO NOT EAT, DRINK OR SMOKE IN THIS AREA

Prior to June 1, 2016, employers may use the following legend in lieu of that specified above:

WARNING
LEAD WORK AREA
POISON
NO SMOKING OR EATING

((~~These signs are to be posted and maintained in a manner which assures that the legend is readily visible.~~))

(12) Recordkeeping—WAC 296-155-17629.

Your employer is required to keep all records of exposure monitoring for airborne lead. These records must include the name and job classification of employees measured, details of the sampling and analytical techniques, the results of this sampling, and the type of respiratory protection being worn by the person sampled. Such records are to be retained for at least thirty years. Your employer is also required to keep all records of biological monitoring and medical examination results. These records must include the names of the employees, the physician's written opinion, and a copy of the results of the examination. Medical records must be preserved and maintained for the duration of employment plus thirty years. However, if the employee's duration of employment is less than one year, the employer need not retain that employee's medical records beyond the period of employment if they are provided to the employee upon termination of employment.

Recordkeeping is also required if you are temporarily removed from your job under the medical removal protection program. This record must include your name and Social Security number, the date of your removal and return, how the removal was or is being accomplished, and whether or not the reason for the removal was an elevated blood lead level. Your employer is required to keep each medical removal record only for as long as the duration of an employee's employment.

The standard requires that if you request to see or copy environmental monitoring, blood lead level monitoring, or medical removal records, they must be made available to you or to a representative that you authorize. Your union also has access to these records. Medical records other than BLL's must also be provided upon request to you, to your physician or to any other person whom you may specifically designate. Your union does not have access to your personal medical records unless you authorize their access.

(13) Observation of monitoring—WAC 296-155-17631.

When air monitoring for lead is performed at your workplace as required by this standard, your employer must allow you or someone you designate to act as an observer of the monitoring. Observers are entitled to an explanation of the measurement procedure, and to record the results obtained. Since results will not normally be available at the time of the monitoring, observers are entitled to record or receive the results of the monitoring when returned by the laboratory. Your employer is required to provide the observer with any personal protective devices required to be worn by employees working in the area that is being monitored. The employer must require the observer to wear all such equipment and to comply with all other applicable safety and health procedures.

(14) Startup date—WAC 296-155-17635.

Employer obligations under the standard begin as of that date with full implementation of engineering controls as soon as possible but no later than within four months, and all other provisions completed as soon as possible, but no later than within two months from the effective date.

(15) For additional information.

(a) A copy of the standard for lead in construction can be obtained free of charge by calling or writing to the department of labor and industries, Post Office Box 44620, Mailstop 44620, Olympia, Washington 98504-4620: Telephone (360) 956-5527.

(b) Additional information about the standard, its enforcement, and your employer's compliance can be obtained from the nearest office listed in your telephone directory under the state of Washington, department of labor and industries.

AMENDATORY SECTION (Amending WSR 01-11-038, filed 5/9/01, effective 9/1/01)

WAC 296-155-180 Hazard communication. General.

The employer shall develop and maintain a ((~~chemical~~)) hazard communication program as required by WAC ((~~296-800-170~~)) 296-901-140, which will provide information to all employees relative to hazardous chemicals or substances to which they are exposed, or may become exposed, in the course of their employment.

AMENDATORY SECTION (Amending WSR 07-05-062, filed 2/20/07, effective 4/1/07)

WAC 296-155-20301 Definitions. Confined space means a space that:

(1) Is large enough and so configured that an employee can bodily enter and perform assigned work; and

(2) Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry); and

(3) Is not designed for continuous employee occupancy.

"Corrosives" means substances which in contact with living tissue cause destruction of the tissue by chemical action.

"Hazardous atmosphere" means an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (that is, escape unaided from a permit space), injury, or acute illness from one or more of the following causes:

(1) Flammable gas, vapor, or mist in excess of ten percent of its lower flammable limit (LFL);

(2) Airborne combustible dust at a concentration that meets or exceeds its LFL;

Note: This concentration may be approximated as a condition in which the dust obscures vision at a distance of five feet (1.52m) or less.

(3) Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent;

(4) Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in chapter 296-62 WAC, general occupational health standards, or chapter 296-841 WAC, Airborne contaminants, and which could result in employee exposure in excess of its dose or permissible exposure limit;

Note: An atmospheric concentration of any substance that is not capable of causing death, incapacitation, impairment of ability to self-rescue, injury, or acute illness due to its health effects is not covered by this provision.

(5) Any other atmospheric condition that is immediately dangerous to life or health.

Note: For air contaminants for which WISHA has not determined a dose or permissible exposure limit, other sources of information, such as ((~~material~~)) safety data sheets that comply with the ((~~Chemical~~)) Hazard Communication Standard, WAC ((~~296-800-170~~)) 296-901-140, published information, and internal documents can provide guidance in establishing acceptable atmospheric conditions.

"Irritants" means substances which on immediate, prolonged, or repeated contact with normal living tissue will induce a local inflammatory reaction.

"Oxygen deficient atmospheres" means atmospheres at sea level having less than 19.5% oxygen by volume or having a partial pressure of 148 millimeters of mercury or less. This may deviate when working at higher altitudes and should be determined for an individual location. Factors such as acclimatization, physical condition of persons involved, etc., must be considered for such circumstances and conditions. (See chapter 296-62 WAC, Part M, permit-required confined spaces.)

"Toxicants" means substances which have the inherent capacity to produce personal injury or illness to persons by absorption through any body surface.

AMENDATORY SECTION (Amending WSR 86-03-074, filed 1/21/86)

WAC 296-155-250 Definitions applicable to this part. (1) "Approved" for the purpose of this part, means equipment that has been listed or approved by a nationally recognized testing laboratory such as Factory Mutual Engineering Corp., or Underwriters' Laboratories, Inc., federal agencies such as United States Mine Safety and Health Administration or United States Coast Guard, which issue approvals for such equipment, or the department of labor and industries.

(2) "Closed container" means a container so sealed by means of a lid or other device that neither liquid nor vapor will escape from it at ordinary temperatures.

(3) ((~~"Combustible liquid" means any liquid having a flashpoint at or above 100°F (37.8°C). Combustible liquids shall be divided into two classes as follows:~~

~~(a) "Class II liquids" shall include those with flashpoints at or above 100°F (37.8°C) and below 140°F (60°C), except any mixture having components with flashpoints of 200°F (93.3°C) or higher, the volume of which make up 99 percent or more of the total volume of the mixture.~~

~~(b) "Class III liquids" shall include those with flashpoints at or above 140°F (60°C). Class III liquids are subdivided into two subclasses:~~

~~(i) "Class IIIA liquids" shall include those with flashpoints at or above 140°F (60°C) and below 200°F (93.3°C), except any mixture having components with flashpoints of 200°F (93.3°C), or higher, the total volume of which make up 99 percent or more of the total volume of the mixture.~~

~~(ii) "Class IIIB liquids" shall include those with flashpoints at or above 200°F (93.3°C). This section does not cover Class IIIB liquids. Where the term "Class III liquids" is used in this section, it shall mean only Class IIIA liquids.~~

~~(c) When a combustible liquid is heated for use to within 30°F (16.7°C) of its flashpoint, it shall be handled in accordance with the requirements for the next lower class of liquids.~~

~~(4)~~)) "Combustion" means any chemical process that involves oxidation sufficient to produce light or heat.

(((~~(5)~~))) (4) "Fire brigade" means an organized group of employees that are knowledgeable, trained, and skilled in the safe evacuation of employees during emergency situations and in assisting in firefighting operations.

(((~~(6)~~))) (5) "Fire resistance" means so resistant to fire that, for specified time and under conditions of a standard heat intensity, it will not fail structurally and will not permit the side away from the fire to become hotter than a specified temperature. For purposes of this part, fire resistance shall be determined by the Standard Methods of Fire Tests of Building Construction and Materials, NFPA 251-72.

(((~~(7)~~))) (6) "Flammable" means capable of being easily ignited, burning intensely or having a rapid rate of flame spread.

(((~~(8)~~))) (7) "Flammable liquid" means any liquid having a flashpoint at or below ((~~100°F (37.8°C), except any mixture having components with flashpoints of 100°F (37.8°C) or higher, the total of which make up 99 percent or more of the total volume of the mixture. Flammable liquids shall be known as Class I liquids. Class I~~)) 199.4°F (93°C). Flamma-

ble liquids are divided into ((~~three classes~~)) four categories as follows:

(a) ((~~Class IA~~)) Category 1 shall include liquids having flashpoints below ((~~73°F (22.8°C)~~)) 73.4°F (23°C) and having a boiling point at or below ((~~100°F (37.8°C)~~)) 95°F (35°C).

(b) ((~~Class IB~~)) Category 2 shall include liquids having flashpoints below ((~~73°F (22.8°C)~~)) 73.4°F (23°C) and having a boiling point ((~~at or~~)) above ((~~100°F (37.8°C)~~)) 95°F (35°C).

(c) ((~~Class IC~~)) Category 3 shall include liquids having flashpoints at or above ((~~73°F (22.8°C)~~)) 73.4°F (23°C) and at or below 140°F (60°C). When a Category 3 liquid with a flashpoint at or above 100°F (37.8°C) is heated for use to within 30°F (16.7°C) of its flashpoint, it shall be handled in accordance with the requirements for a Category 3 liquid with a flashpoint below 100°F (37.8°C).

(d) Category 4 shall include liquids having flashpoints above 140°F (60°C) and at or below 199.4°F (93°C). When a Category 4 flammable liquid is heated for use to within 30°F (16.7°C) of its flashpoint, it shall be handled in accordance with the requirements for a Category 3 liquid with a flashpoint at or above 100°F (37.8°C).

(e) When liquid with a flashpoint greater than 199.4°F (93°C) is heated for use to within 30°F (16.7°C) of its flashpoint, it shall be handled in accordance with the requirements for a Category 4 flammable liquid.

(((~~9~~))) (8) "Flashpoint" means the minimum temperature at which a liquid gives off vapor within a test vessel in sufficient concentration to form an ignitable mixture with air near the surface of the liquid, and shall be determined as follows:

(a) ((~~For a liquid which has a viscosity of less than 45 SUS at 100°F (37.8°C), does not contain suspended solids, and does not have a tendency to form a surface film while under test, the procedure specified in the Standard Method of Test for Flashpoint by Tag Closed Tester (ASTM D-56-70) shall be used.~~

~~(b) For a liquid which has a viscosity of 45 SUS or more at 100°F (37.8°C), or contains suspended solids, or has a tendency to form a surface film while under test, the Standard Method of Test for Flashpoint by Pensky-Martens Closed Tester (ASTM D-93-71) shall be used, except that the methods specified in Note 1 to section 1.1 of ASTM D-93-71 may be used for the respective materials specified in the note.~~

~~(10)~~)) The flashpoint of liquids having a viscosity less than 45 Saybolt Universal Second(s) at 100°F (37.8°C) and a flashpoint below 175°F (79.4°C) shall be determined in accordance with the Standard Method of Test for Flash Point by the Tag Closed Tester, ASTM D-56-69, or an equivalent method as defined by WAC 296-901-14024, Appendix B-Physical hazard criteria.

(b) The flashpoints of liquids having a viscosity of 45 Saybolt Universal Second(s) or more at 175°F (79.4°C) or higher shall be determined in accordance with the Standard Method of Test for Flash Point by the Pensky Martens Closed Tester, ASTM D-93-69, or an equivalent method as defined by WAC 296-901-14024, Appendix B-Physical hazard criteria.

(9) "Liquified petroleum gases" "LPG" and "LP Gas" mean and include any material which is composed predominantly of any of the following hydrocarbons, or mixtures of them, such as propane, propylene, butane (normal butane or isobutane), and butylenes.

(((~~11~~))) (10) "Portable tank" means a closed container having a liquid capacity more than 60 U.S. gallons, and not intended for fixed installation.

(((~~12~~))) (11) "Safety can" means an approved closed container, of not more than 5 gallons capacity, having a spring-closing lid and spout cover and so designed that it will safely relieve internal pressure when subjected to fire exposure.

(((~~13~~))) (12) "Salamander" means a portable heating device, solid or liquid fueled, which is not vented to the outdoor atmosphere.

(((~~14~~))) (13) "Vapor pressure" means the pressure, measured in pounds per square inch (absolute), exerted by a volatile liquid as determined by the "Standard Method of Test for Vapor Pressure of Petroleum Products (Reid Method)," (ASTM D-323-68).

AMENDATORY SECTION (Amending WSR 01-23-060, filed 11/20/01, effective 12/1/01)

WAC 296-155-260 Fire protection. (1) General requirements.

(a) The employer shall be responsible for development of a fire protection program to be followed throughout all phases of construction and demolition work, and the employer shall provide for firefighting equipment as specified in this part. As fire hazards occur, there shall be no delay in providing necessary equipment.

(b) Access to all available firefighting equipment shall be maintained at all times.

(c) All firefighting equipment, provided by the employer, shall be conspicuously located.

(d) All firefighting equipment shall be periodically inspected by a competent person, and maintained in operating condition. Defective equipment shall be immediately replaced.

(e) As warranted by the project, the employer shall provide a trained and equipped firefighting organization (fire brigade) to assure adequate protection to life.

(2) Water supply.

(a) A temporary or permanent water supply, of sufficient volume, duration, and pressure, required to properly operate firefighting equipment shall be made available as soon as combustible materials accumulate.

(b) Where underground water mains are to be provided, they shall be installed, completed, and made available for use as soon as practicable.

(3) Portable firefighting equipment.

(a) A fire extinguisher, rated not less than 2A, shall be provided for each 3,000 square feet of a combustible building area, or major fraction thereof. Travel distance from any point of the protected area to the nearest fire extinguisher shall not exceed a horizontal distance of 100 feet.

Note: One 55-gallon open drum of water with two fire pails may be substituted for a fire extinguisher having a 2A rating.

(b) A 1/2-inch diameter garden-type hose line, not to exceed 100 feet in length and equipped with a nozzle, may be

substituted for a 2A-rated fire extinguisher, provided it is capable of discharging a minimum of 5 gallons per minute with a minimum hose stream range of 30 feet horizontally. The garden-type hose lines shall be mounted on conventional racks or reels. The number and location of hose racks or reels shall be such that at least one hose stream can be applied to all points in the area.

(c) One or more fire extinguishers, rated not less than 2A, shall be provided on each floor. In multistory buildings, where combustibles are present, at least one fire extinguisher shall be located adjacent to a stairway.

(d) Extinguishers and water drums, subject to freezing, shall be protected from freezing.

(e) A fire extinguisher, rated not less than 10B, shall be provided within 50 feet of wherever more than 5 gallons of flammable ((~~or combustible~~)) liquids or 5 pounds of flammable gas are being used on the jobsite. This requirement does not apply to the integral fuel tanks of motor vehicles.

(f) Carbon tetrachloride and other toxic vaporizing liquid fire extinguishers are prohibited.

(g) Portable fire extinguishers shall be inspected periodically and maintained in accordance with Maintenance and Use of Portable Fire Extinguishers, NFPA No. 10A-1981 and WAC 296-800-300.

(h) Fire extinguishers which have been listed or approved by a nationally recognized testing laboratory, shall be used to meet the requirements of this part. (See Table D-1)

Note: For additional requirements relating to portable fire extinguishers see WAC 296-800-300.

	WATER TYPE				FOAM	CARBON DIOXIDE	DRY CHEMICAL			
							SODIUM OR POTASSIUM BICARBONATE		MULTI-PURPOSE ABC	
										
CLASS A FIRES	YES	YES	YES	YES	YES	NO	NO	NO	YES	YES
CLASS B FIRES	NO	NO	NO	NO	YES	YES	YES	YES	YES	YES
CLASS C FIRES ELECTRICAL EQUIPMENT	NO	NO	NO	NO	NO	YES	YES	YES	YES	YES
CLASS D FIRES COMBUSTIBLE METALS	SPECIAL EXTINGUISHING AGENTS APPROVED BY RECOGNIZED TESTING LABORATORIES									
METHODS OF OPERATION	PULL PIN - SQUEEZE LEVER	TURN UPSIDE DOWN AND BUMP	PULL PIN - SQUEEZE HANDLE	TURN UPSIDE DOWN	TURN UPSIDE DOWN	PULL PIN - SQUEEZE LEVER	PULL PIN - SQUEEZE HANDLE	PULL PIN - SQUEEZE HANDLE	PULL PIN - SQUEEZE HANDLE	PULL PIN - SQUEEZE HANDLE
RANGE	30' - 40'	30' - 40'	30' - 40'	30' - 40'	30' - 40'	5' - 8'	5' - 20'	5' - 20'	5' - 20'	5' - 20'
MAINTENANCE	CHECK AIR PRESSURE GAUGE MONTHLY	WEIGH GAS CARTRIDGE AND WATER IF REQUIRED ANNUALLY	DISCHARGE AND FILL WITH WATER ANNUALLY	DISCHARGE ANNUALLY RECHARGE	DISCHARGE ANNUALLY RECHARGE	WEIGH SEMI ANNUALLY	WEIGH GAS CARTRIDGE CHECK CONDITION OF DRY CHEMICAL ANNUALLY	CHECK PRESSURE GAUGE AND CONDITION OF DRY CHEMICAL ANNUALLY	CHECK PRESSURE GAUGE AND CONDITION OF DRY CHEMICAL ANNUALLY	WEIGH GAS CARTRIDGE CHECK CONDITION OF DRY CHEMICAL ANNUALLY

Note: One hundred feet, or less, of 1-1/2 inch hose, with a nozzle capable of discharging water at 25 gallons or more per minute, may be substituted for a fire extinguisher rated not more than 2A in the designated area provided that the hose line can reach all points in the area.

(i) If fire hose connections are not compatible with local firefighting equipment, the contractor shall provide adapters, or equivalent, to permit connections.

(j) During demolition involving combustible materials, charged hose lines, supplied by hydrants, water tank trucks with pumps, or equivalent, shall be made available.

(4) Fixed firefighting equipment.

(a) Sprinkler protection.

(i) If the facility being constructed includes the installation of automatic sprinkler protection, the installation shall closely follow the construction and be placed in service as soon as applicable laws permit following completion of each story.

(ii) During demolition or alterations, existing automatic sprinkler installations shall be retained in service as long as reasonable. The operation of sprinkler control valves shall be permitted only by properly authorized persons.

Note: Modification of sprinkler systems to permit alterations or additional demolition should be expedited so that the automatic protection may be returned to service as quickly as possible. Sprinkler control valves shall be checked daily at close of work to ascertain that the protection is in service.

(b) Standpipes. In all structures in which standpipes are required, or where standpipes exist in structures being altered, they shall be brought up as soon as applicable laws permit, and shall be maintained as construction progresses in such a manner that they are always ready for fire protection use. The standpipes shall be provided with Siamese fire

department connections on the outside of the structure, at the street level, which shall be conspicuously marked. There shall be at least one standard hose outlet at each floor.

(5) Fire alarm devices.

(a) An alarm system, e.g., telephone system, siren, etc., shall be established by the employer whereby employees on the site and the local fire department can be alerted for an emergency.

(b) The alarm code and reporting instructions shall be conspicuously posted at phones and at employee entrances.

(6) Fire cutoffs.

(a) Fire walls and exit stairways, required for the completed buildings, shall be given construction priority. Fire doors, with automatic closing devices, shall be hung on openings as soon as practical.

(b) Fire cutoffs shall be retained in buildings undergoing alterations or demolition until operations necessitate their removal.

AMENDATORY SECTION (Amending WSR 88-23-054, filed 11/14/88)

WAC 296-155-265 Fire prevention. (1) Ignition hazards.

(a) Electrical wiring and equipment for light, heat, or power purposes shall be installed in compliance with the requirements of Part I of this standard.

(b) Internal combustion engine powered equipment shall be so located that exhausts are well away from combustible materials. When exhausts are piped to outside the building under construction, a clearance of at least 6 inches shall be maintained between such piping and combustible material.

(c) Smoking shall be prohibited at or in the vicinity of operations which constitute a fire hazard, and shall be conspicuously posted: "No smoking or open flame."

(d) Portable battery powered lighting equipment, used in connection with the storage, handling, or use of flammable gases or liquids, shall be of the type approved for the hazardous locations.

(e) The nozzle of air, inert gas, and steam lines or hoses, when used in the cleaning or ventilation of tanks and vessels that contain hazardous concentrations of flammable gases or vapors, shall be bonded to the tank or vessel shell. Bonding devices shall not be attached or detached in hazardous concentrations of flammable gases or vapors.

(f) Workers shall not take open lights or open flames near or in an open sewer manhole, gas main, conduit or other similar place until the absence of explosive or harmful gases has been assured. Open lights or flames shall not be carried into areas and enclosures where flammable vapors or exposed low flash point solvents exist. Only approved and suitable protected lights shall be used.

(2) Temporary buildings.

(a) No temporary building shall be erected where it will adversely affect any means of exit.

(b) Temporary buildings, when located within another building or structure, shall be of either noncombustible construction or of combustible construction having a fire resistance of not less than 1 hour.

(c) Temporary buildings, located other than inside another building and not used for the storage, handling, or use of flammable ((~~or combustible~~)) liquids, flammable gases, explosives, or blasting agents, or similar hazardous occupancies, shall be located at a distance of not less than 10 feet from another building or structure. Groups of temporary buildings, not exceeding 2,000 square feet in aggregate, shall, for the purpose of this part, be considered a single temporary building.

(3) Open yard storage.

(a) Combustible materials shall be piled with due regard to the stability of piles and in no case higher than 20 feet.

(b) Driveways between and around combustible storage piles shall be at least 15 feet wide and maintained free from accumulation of rubbish, equipment, or other articles or materials. Driveways shall be so spaced that a maximum grid system unit of 50 feet by 150 feet is produced.

(c) The entire storage site shall be kept free from accumulation of unnecessary combustible materials. Weeds and grass shall be kept down and a regular procedure provided for the periodic cleanup of the entire area.

(d) When there is a danger of an underground fire, that land shall not be used for combustible or flammable storage.

(e) Method of piling shall be solid wherever possible and in orderly and regular piles. No combustible material shall be stored outdoors within 10 feet of a building or structure.

(f) Portable fire extinguishing equipment, suitable for the fire hazard involved, shall be provided at convenient, conspicuously accessible locations in the yard area. Portable fire extinguishers, rated not less than 2A, shall be placed so that maximum travel distance to the nearest unit shall not exceed 100 feet.

(4) Indoor storage.

(a) Storage shall not obstruct, or adversely affect, means of exit.

(b) All materials shall be stored, handled, and piled with due regard to their fire characteristics.

(c) Noncompatible materials, which may create a fire hazard, shall be segregated by a barrier having a fire resistance of at least 1 hour.

(d) Material shall be piled to minimize the spread of fire internally and to permit convenient access for firefighting. Stable piling shall be maintained at all times. Aisle space shall be maintained to safely accommodate the widest vehicle that may be used within the building for firefighting purposes.

(e) Clearance of at least 36 inches shall be maintained between the top level of the stored material and the sprinkler deflectors.

(f) Clearance shall be maintained around lights and heating units to prevent ignition of combustible materials.

(g) A clearance of 24 inches shall be maintained around the path of travel of fire doors unless a barricade is provided, in which case no clearance is needed. Material shall not be stored within 36 inches of a fire door opening.

AMENDATORY SECTION (Amending WSR 01-17-033, filed 8/8/01, effective 9/1/01)

WAC 296-155-270 Flammable ((~~and combustible~~)) liquids. (1) General requirements.

(a) Only approved containers and portable tanks shall be used for storage and handling of flammable ((~~and combustible~~)) liquids. Approved metal safety cans, or department of transportation approved containers shall be used for the handling and use of flammable liquids in quantities five gallons or less, except that this shall not apply to those flammable liquid materials which are highly viscid (extremely hard to pour), which may be used and handled in original shipping containers. For quantities of one gallon or less, only the original container may be used for storage, use, and handling of flammable liquids.

(b) Flammable ((~~or combustible~~)) liquids shall not be stored in areas used for exits, stairways, or normally used for the safe passage of people.

(c) Flammable ((~~and combustible~~)) liquid containers shall be legibly marked to indicate their contents. Each storage container for flammable ((~~or combustible~~)) liquids, with a capacity of 50 gallons or more, shall have the contents of the container identified by a sign of clearly visible contrasting colors with letters at least 3 inches high, painted on the container at the discharge valve and at the fill point.

(d) Gasoline shall not be used as a solvent or a cleaning agent.

(2) Indoor storage of flammable ((~~and combustible~~)) liquids.

(a) No more than 25 gallons of flammable ((~~or combustible~~)) liquids shall be stored in a room outside of an approved storage cabinet. For storage of liquid petroleum gas, see WAC 296-155-275.

(b) Quantities of flammable ((~~and combustible~~)) liquid in excess of 25 gallons shall be stored in an acceptable or approved cabinet meeting the following requirements:

(i) Acceptable wooden storage cabinets shall be constructed in the following manner, or equivalent: The bottom, sides, and top shall be constructed of an exterior grade of plywood at least 1 inch in thickness, which shall not break down or delaminate under standard fire test conditions. All joints shall be rabbeted and shall be fastened in two directions with flathead wood screws, when more than one door is used, there shall be a rabbeted overlap of not less than 1 inch. Steel hinges shall be mounted in such a manner as to not lose their holding capacity due to loosening or burning out of the screws when subjected to fire. Such cabinets shall be painted inside and out with fire retardant paint.

(ii) Approved metal storage cabinets will be acceptable.

(iii) Cabinets shall be labeled in conspicuous lettering, "Flammable—Keep ((~~fire away~~)) Away from Open Flames."

(c) Not more than 60 gallons of Category 1, 2, or 3 flammable liquids or 120 gallons of ((~~combustible~~)) Category 4 flammable liquids shall be stored in any one storage cabinet. Not more than three such cabinets may be located in a single storage area. Quantities in excess of this shall be stored in an inside storage room.

(d)(i) Inside storage room shall be constructed to meet the required fire-resistive rating for their use. Such construction shall comply with the test specifications set forth in Standard Methods of Fire Test of Building Construction and Material, NFPA 251-1972.

(ii) Where an automatic extinguishing system is provided, the system shall be designed and installed in an approved manner. Openings to other rooms or buildings shall be provided with noncombustible liquid-tight raised sills or ramps at least 4 inches in height, or the floor in the storage area shall be at least 4 inches below the surrounding floor. Openings shall be provided with approved self-closing fire doors. The room shall be liquid-tight where the walls join the floor. A permissible alternate to the sill or ramp is an open-grated trench, inside of the room, which drains to a safe location. Where other portions of the building or other buildings are exposed, windows shall be protected as set forth in the Standard for Fire Doors and Windows, NFPA No. 80-1983, for Class E or F openings. Wood of at least 1-inch nominal thickness may be used for shelving, racks, dunnage, scuffboards, floor overlay and similar installations.

(iii) Materials which will react with water and create a fire hazard shall not be stored in the same room with flammable ((~~or combustible~~)) liquids.

(iv) Storage in inside storage rooms shall comply with Table D-2 following:

TABLE D-2

Fire protection provided	Fire resistance	Maximum size	Total allowable quantities gals./sq. ft./floor area
Yes	2 hrs.	500 sq. ft.	10
No	2 hrs.	500 sq. ft.	4
Yes	1 hr.	150 sq. ft.	5
No	1 hr.	150 sq. ft.	2

Note: Fire protection system shall be sprinkler, water spray, carbon dioxide or other system approved by a nationally recognized testing laboratory for this purpose.

(v) Electrical wiring and equipment located in inside storage rooms shall be approved for Class 1, Division 1, hazardous locations. For definition of Class 1, Division 1, hazardous locations, see WAC 296-155-456.

(vi) Every inside storage room shall be provided with either a gravity or a mechanical exhausting system. Such system shall commence not more than 12 inches above the floor and be designed to provide for a complete change of air within the room at least 6 times per hour. If a mechanical exhausting system is used, it shall be controlled by a switch located outside of the door. The ventilating equipment and any lighting fixtures shall be operated by the same switch. An electric pilot light shall be installed adjacent to the switch if Category 1, 2, or 3 flammable liquids are dispensed within the room. Where gravity ventilation is provided, the fresh air intake, as well as the exhausting outlet from the room, shall be on the exterior of the building in which the room is located.

(vii) In every inside storage room there shall be maintained one clear aisle at least 3 feet wide. Containers over 30 gallons capacity shall not be stacked one upon the other.

(viii) Flammable ((~~and combustible~~)) liquids in excess of that permitted in inside storage rooms shall be stored outside of buildings in accordance with subsection (3) of this section.

(3) Storage outside buildings.

(a) Storage of containers (not more than 60 gallons each) shall not exceed 1,100 gallons in any one pile or area. Piles or groups of containers shall be separated by a 5-foot clearance. Piles or groups of containers shall not be nearer than 20 feet to a building.

(b) Within 200 feet of each pile of containers, there shall be a 12-foot-wide access way to permit approach of fire control apparatus.

(c) The storage area shall be graded in a manner to divert possible spills away from buildings or other exposures, or shall be surrounded by a curb or earth dike at least 12 inches high. When curbs or dikes are used, provisions shall be made for draining off accumulations of ground or rain water, or spills of flammable ((~~or combustible~~)) liquids. Drains shall terminate at a safe location and shall be accessible to operation under fire conditions.

(d) Outdoor portable tank storage.

(i) Portable tanks shall not be nearer than 20 feet from any building. Two or more portable tanks, grouped together, having a combined capacity in excess of 2,200 gallons, shall be separated by a 5-foot-clear area. Individual portable tanks exceeding 1,100 gallons shall be separated by a 5-foot-clear area.

(ii) Within 200 feet of each portable tank, there shall be a 12-foot-wide access way to permit approach of fire control apparatus.

(e) Storage areas shall be kept free of weeds, debris, and other combustible material not necessary to the storage.

(f) Portable tanks, not exceeding 660 gallons, shall be provided with emergency venting and other devices, as required by chapters III and IV of NFPA 30-1972, The Flammable and Combustible Liquids Code.

(g) Portable tanks, in excess of 660 gallons, shall have emergency venting and other devices, as required by chapters II and III of the Flammable and Combustible Liquids Code, NFPA 30-1972.

(4) Fire control for flammable ((~~or combustible~~)) liquid storage.

(a) At least one portable fire extinguisher, having a rating of not less than 20-B units, shall be located outside of, but not more than 10 feet from, the door opening into any room used for storage of more than 60 gallons of flammable ((~~or combustible~~)) liquids.

(b) At least one portable fire extinguisher having a rating of not less than 20-B units shall be located not less than 25 feet, nor more than 75 feet, from any flammable liquid storage area located outside.

(c) When sprinklers are provided, they shall be installed in accordance with the Standard for the Installation of Sprinkler Systems, NFPA 13-1972.

(d) At least one portable fire extinguisher having a rating of not less than 20-B:C units shall be provided on all tank trucks or other vehicles used for transporting and/or dispensing flammable ((~~or combustible~~)) liquids.

Note: For additional requirements relating to portable fire extinguishers see WAC 296-800-300.

(5) Dispensing liquids.

(a) Areas in which flammable ((~~or combustible~~)) liquids are transferred at the same time, in quantities greater than 5 gallons from one tank or container to another tank or container, shall be separated from other operations by 25-feet distance or by construction having a fire-resistance of at least 1 hour. Drainage or other means shall be provided to control spills. Adequate natural or mechanical ventilation shall be provided to maintain the concentration of flammable vapor at or below 10 percent of the lower flammable limit.

(b) Transfer Category 1, 2, or 3 flammable liquids from one container to another shall be done only when containers are electrically interconnected (bonded).

(c) Flammable ((~~or combustible~~)) liquids shall be drawn from or transferred into vessels, containers, or tanks within a building or outside only through a closed piping system, from safety cans, by means of a device drawing through the top, or from a container, or portable tanks, by gravity or pump, through an approved self-closing valve. Transferring by means of air pressure on the container or portable tank is prohibited.

(d) The dispensing units shall be protected against collision damage.

(e) Dispensing devices and nozzles for Category 1, 2, or 3 flammable liquids shall be of an approved type, as required by WAC 296-24-33015.

(6) Handling liquids at point of final use.

(a) Category 1, 2, or 3 flammable liquids shall be kept in closed containers when not actually in use.

(b) Leakage or spillage of flammable ((~~or combustible~~)) liquids shall be disposed of promptly and safely.

(c) Category 1, 2, or 3 flammable liquids shall be used only where there are no open flames or other sources of ignition within 50 feet of the operation, unless conditions warrant greater clearance.

(7) Service and refueling areas.

(a) Flammable ((~~or combustible~~)) liquids shall be stored in approved closed containers, in tanks located underground, or in aboveground portable tanks.

(b) The tank trucks shall comply with the requirements covered in the Standard for Tank Vehicles for Flammable and Combustible Liquids, NFPA No. 385-1977.

(c) The dispensing hose shall be an approved type.

(d) The dispensing nozzle shall be an approved automatic-closing type.

(e) Underground tanks shall not be abandoned.

(f) Clearly identified and easily accessible switch(es) shall be provided at a location remote from dispensing devices to shut off the power to all dispensing devices in the event of an emergency.

(g)(i) Heating equipment of an approved type may be installed in the lubrication or service area where there is no dispensing or transferring of Category 1, 2, or 3 flammable liquids, provided the bottom of the heating unit is at least 18 inches above the floor and is protected from physical damage.

(ii) Heating equipment installed in lubrication or service areas, where Category 1, 2, or 3 flammable liquids are dispensed, shall be of an approved type for garages, and shall be installed at least 8 feet above the floor.

(h) There shall be no smoking or open flames in the areas used for fueling, servicing fuel systems for internal combustion engines, receiving or dispensing of flammable ((~~or combustible~~)) liquids.

(i) Conspicuous and legible signs prohibiting smoking shall be posted.

(j) The motor of any equipment being fueled shall be shut off during the fueling operation.

(k) Each service or fueling area shall be provided with at least one fire extinguisher having a rating of not less than 20BC located so that an extinguisher will be within 75 feet of each pump, dispenser, underground fill pipe opening, and lubrication or service area.

Note: For additional requirements relating to portable fire extinguishers see WAC 296-800-300.

AMENDATORY SECTION (Amending WSR 12-12-060, filed 6/5/12, effective 8/1/12)

WAC 296-304-01001 Definitions. "Additional safety measure" - A component of the tags-plus system that provides an impediment (in addition to the energy-isolating device) to the release of energy or the energization or start-up of the machinery, equipment, or system being serviced. Examples of additional safety measures include, but are not limited to, removing an isolating circuit element; blocking a controlling switch; blocking, blanking, or bleeding lines; removing a valve handle or wiring it in place; opening an extra disconnecting device.

"Affected employee" - An employee who normally operates or uses the machinery, equipment, or system that is going to be serviced under lockout/tags-plus or who is working in the area where servicing is being performed under lockout/tags-plus. An affected employee becomes an authorized employee when the employer assigns the employee to service any machine, equipment, or system under a lockout/tags-plus application.

"Alarm" - A signal or message from a person or device that indicates that there is a fire, medical emergency, or other situation that requires emergency response or evacuation. At some shipyards, this may be called an "incident" or a "call for service."

"Alarm system" - A system that warns employees at the worksite of danger.

"Anchorage" - A secure point to attach lifelines, lanyards, or deceleration devices.

"Authorized employee"

(1) An employee who performs one or more of the following lockout/tags-plus responsibilities:

(a) Executes the lockout/tags-plus procedures;

(b) Installs a lock or tags-plus system on machinery, equipment, or systems; or

(c) Services any machine, equipment, or system under lockout/tags-plus application.

(2) An affected employee becomes an authorized employee when the employer assigns the employee to service any machine, equipment, or system under a lockout/tags-plus application.

"Body belt" - A strap with means to both secure it around the waist and to attach it to a lanyard, lifeline, or deceleration device. Body belts may be used only in fall restraint or positioning device systems and may not be used for fall arrest. Body belts must be at least one and five-eighths inches (4.13 cm) wide.

"Body harness" - Straps to secure around an employee so that fall arrest forces are distributed over at least the thighs, shoulders, chest and pelvis with means to attach it to other components of a personal fall arrest system.

"Capable of being locked out" - An energy-isolating device is capable of being locked out if it has a locking mechanism built into it, or it has a hasp or other means of attachment to which, or through which, a lock can be affixed. Other energy-isolating devices are capable of being locked out if lockout can be achieved without the need to dismantle, rebuild, or replace the energy-isolating device or permanently alter its energy-control capability.

"Class II standpipe system" - A one and one-half inch (3.8 cm) hose system which provides a means for the control or extinguishment of incipient stage fires.

"Cold work" - Work that does not involve riveting, welding, burning, or other fire-producing or spark-producing operations.

"Contract employer" - An employer, such as a painter, joiner, carpenter, or scaffolding subcontractor, who performs work under contract to the host employer or to another employer under contract to the host employer at the host employer's worksite. This excludes employers who provide incidental services that are not directly related to shipyard employment (such as mail delivery or office supply and food vending services).

"Competent person" - A person who can recognize and evaluate employee exposure to hazardous substances or to other unsafe conditions and can specify the necessary protection and precautions necessary to ensure the safety of employees as required by these standards.

"Confined space" - A small compartment with limited access such as a double bottom tank, cofferdam, or other small, confined space that can readily create or aggravate a hazardous exposure.

"Connector" - A device used to connect parts of a personal fall arrest system or parts of a positioning device system together. It may be:

• An independent component of the system (such as a carabiner); or

• An integral component of part of the system (such as a buckle or D-ring sewn into a body belt or body harness or a snaphook spliced or sewn to a lanyard or self-retracting lanyard).

"Dangerous atmosphere" - An atmosphere that may expose employees to the risk of death, incapacitation, injury, acute illness, or impairment of ability to self-rescue (i.e., escape unaided from a confined or enclosed space).

"Deceleration device" - A mechanism, such as a rope grab, rip stitch lanyard, specially woven lanyard, tearing or deforming lanyard, or automatic self-retracting lifeline/lanyard, that serves to dissipate a substantial amount of energy during a fall arrest, or to limit the energy imposed on an employee during fall arrest.

"Deceleration distance" - The additional vertical distance a falling employee travels, excluding lifeline elonga-

tion and free fall distance, before stopping, from the point at which the deceleration device begins to operate. It is measured from the location of an employee's body belt or body harness attachment point at the moment of activation (at the onset of fall arrest forces) of the deceleration device during a fall, to the location of that attachment point after the employee comes to a full stop.

"Designated area" - An area established for hot work after an inspection that is free of fire hazards.

"Director" - The director of the department of labor and industries or a designated representative.

"Drop test" - A method utilizing gauges to ensure the integrity of an oxygen fuel gas burning system. The method requires that the burning torch is installed to one end of the oxygen and fuel gas lines and then the gauges are attached to the other end of the hoses. The manifold or cylinder supply valve is opened and the system is pressurized. The manifold or cylinder supply valve is then closed and the gauges are watched for at least sixty seconds. Any drop in pressure indicates a leak.

"Dummy load" - A device used in place of an antenna to aid in the testing of a radio transmitter that converts transmitted energy into heat to minimize energy radiating outward or reflecting back to its source during testing.

"Emergency operations" - Activities performed by fire response organizations that are related to: Rescue, fire suppression, emergency medical care, and special operations or activities that include responding to the scene of an incident and all activities performed at that scene.

"Employee" - Any person engaged in ship repairing, ship building, or ship breaking or related employment as defined in these standards.

"Employer" - An employer with employees who are employed, in whole or in part, in ship repair, ship building and ship breaking, or related employment as defined in these standards.

"Enclosed space" - A space, other than a confined space, that is enclosed by bulkheads and overhead. It includes cargo holds, tanks, quarters, and machinery and boiler spaces.

"Energy-isolating device" - A mechanical device that, when utilized or activated, physically prevents the release or transmission of energy. Energy-isolating devices include, but are not limited to, manually operated electrical circuit breakers; disconnect switches; line valves; blocks; and any similar device used to block or isolate energy. Control-circuit devices (for example, push buttons, selector switches) are not considered energy isolating devices.

"Equivalent" - Alternative designs, materials, or methods to protect against a hazard which the employer can demonstrate will provide an equal or greater degree of safety for employees than the method or item specified in the standard.

"Fire hazard" - A condition or material that may start or contribute to the spread of fire.

"Fire protection" - Methods of providing fire prevention, response, detection, control, extinguishment, and engineering.

"Fire response" - The activity taken by the employer at the time of an emergency incident involving a fire at the worksite, including fire suppression activities carried out by internal or external resources or a combination of both, or total or partial employee evacuation of the area exposed to the fire.

"Fire response employee" - A shipyard employee who carries out the duties and responsibilities of shipyard firefighting in accordance with the fire safety plan.

"Fire response organization" - An organized group knowledgeable, trained, and skilled in shipyard firefighting operations that responds to shipyard fire emergencies, including: Fire brigades, shipyard fire departments, private or contractual fire departments, and municipal fire departments.

"Fire suppression" - The activities involved in controlling and extinguishing fires.

"Fire watch" - The activity of observing and responding to the fire hazards associated with hot work in shipyard employment and the employees designated to do so.

"Fixed extinguishing system" - A permanently installed fire protection system that either extinguishes or controls fire occurring in the space it protects.

"Flammable liquid" - Means any liquid having a flashpoint at or below ((~~100~~)) 199.4°F (((~~37.8~~)) 93°C)((~~, except any mixture having components with flashpoints of 100°F (37.8°C) or higher, the total of which make up ninety-nine percent or more of the total volume of the mixture~~)). Flammable liquids are divided into four categories as follows:

(a) Category 1 shall include liquids having flashpoints below 73.4°F (23°C) and having a boiling point at or below 95°F (35°C).

(b) Category 2 shall include liquids having flashpoints below 73.4°F (23°C) and having a boiling point above 95°F (35°C).

(c) Category 3 shall include liquids having flashpoints at or above 73.4°F (23°C) and at or below 140°F (60°C). When a Category 3 liquid with a flashpoint at or above 100°F (37.8°C) is heated for use to within 30°F (16.7°C) of its flashpoint, it shall be handled in accordance with the requirements for a Category 3 liquid with a flashpoint below 100°F (37.8°C).

(d) Category 4 shall include liquids having flashpoints above 140°F (60°C) and at or below 199.4°F (93°C). When a Category 4 flammable liquid is heated for use to within 30°F (16.7°C) of its flashpoint, it shall be handled in accordance with the requirements for a Category 3 liquid with a flashpoint at or above 100°F (37.8°C).

(e) When liquid with a flashpoint greater than 199.4°F (93°C) is heated for use to within 30°F (16.7°C) of its flashpoint, it shall be handled in accordance with the requirements for a Category 4 flammable liquid.

"Free fall" - To fall before a personal fall arrest system begins to apply force to arrest the fall.

"Free fall distance" - The vertical displacement of the fall arrest attachment point on the employee's body harness between onset of the fall and just before the system begins to apply force to arrest the fall. This distance excludes deceleration distance, and lifeline/lanyard elongation, but includes any deceleration device slide distance or self-retracting lifeline/lanyard extension before the device operates and fall arrest forces occur.

"Gangway" - A ramp-like or stair-like means to board or leave a vessel including accommodation ladders, gangplanks and brows.

"Hazardous energy" - Any energy source, including mechanical (for example, power transmission apparatus, counterbalances, springs, pressure, gravity), pneumatic, hydraulic, electrical, chemical, and thermal (for example, high or low temperature) energies, that could cause injury to employees.

"Hazardous substance" - A substance likely to cause injury, illness or disease, or otherwise harm an employee because it is explosive, flammable, poisonous, corrosive, oxidizing, irritating, or otherwise harmful.

"Health care professional" - A physician or any other health care professional whose legally permitted scope of practice allows the provider to independently provide, or be delegated the responsibility to provide, some or all of the advice or consultation this subpart requires.

"Hose systems" - Fire protection systems consisting of a water supply, approved fire hose, and a means to control the flow of water at the output end of the hose.

"Host employer" - An employer who is in charge of coordinating work or who hires other employers to perform work at a multiemployer workplace.

"Hot work" - Riveting, welding, burning or other fire or spark producing operations.

"Incident management system" - A system that defines the roles and responsibilities to be assumed by personnel and the operating procedures to be used in the management and direction of emergency operations; the system is also referred to as an "incident command system (ICS)."

"Incipient stage fire" - A fire, in the initial or beginning stage, which can be controlled or extinguished by portable fire extinguishers, Class II standpipe or small hose systems without the need for protective clothing or breathing apparatus.

"Inerting" - The displacement of the atmosphere in a permit space by noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible. This procedure produces an IDLH oxygen-deficient atmosphere.

"Interior structural firefighting operations" - The physical activity of fire response, rescue, or both involving a fire beyond the incipient stage inside of buildings, enclosed structures, vessels, and vessel sections.

"Isolated location" - An area in which employees are working alone or with little assistance from others due to the type, time, or location of their work. Such locations include remote locations or other work areas where employees are not in close proximity to others.

"Lanyard" - A flexible line of rope, wire rope, or strap which generally has a connector at each end for connecting the body belt or body harness to a deceleration device, lifeline, or anchorage.

"Lifeline" - A component consisting of a flexible line to connect to an anchorage at one end to hang vertically (vertical lifeline), or to connect to anchorages at both ends to stretch horizontally (horizontal lifeline), and which serves as a means for connecting other components of a personal fall arrest system to the anchorage.

"Lock" - A device that utilizes a positive means, either a key or combination lock, to hold an energy isolating device in a "safe" position that prevents the release of energy and the start-up or energization of the machinery, equipment, or system to be serviced.

"Lockout" - The placement of a lock on an energy-isolating device in accordance with an established procedure, thereby ensuring that the energy-isolating device and the equipment being controlled cannot be operated until the lock is removed.

"Lockout/tags-plus coordinator" - An employee whom the employer designates to coordinate and oversee all lockout and tags-plus applications on vessels or vessel sections and at landside work areas when employees are performing multiple servicing operations on the same machinery, equipment, or systems at the same time, and when employees are servicing multiple machinery, equipment, or systems on the same vessel or vessel section at the same time. The lockout/tags-plus coordinator also maintains the lockout/tags-plus log.

"Lockout/tags-plus materials and hardware" - Locks, chains, wedges, blanks, key blocks, adapter pins, self-locking fasteners, or other hardware used for isolating, blocking, or securing machinery, equipment, or systems to prevent the release of energy or the start-up or energization of machinery, equipment, or systems to be serviced.

"Lower levels" - Those areas or surfaces to which an employee can fall. Such areas or surfaces include but are not limited to ground levels, floors, ramps, tanks, materials, water, excavations, pits, vessels, structures, or portions thereof.

"Motor vehicle" - Any motor-driven vehicle operated by an employee that is used to transport employees, material, or property. For the purposes of this subpart, motor vehicles include passenger cars, light trucks, vans, motorcycles, all-terrain vehicles, small utility trucks, powered industrial trucks, and other similar vehicles. Motor vehicles do not include boats, or vehicles operated exclusively on a rail or rails.

"Motor vehicle safety equipment" - Systems and devices integral to or installed on a motor vehicle for the purpose of effecting the safe operation of the vehicle, and consisting of such systems or devices as safety belts, airbags, headlights, tail lights, emergency/hazard lights, windshield wipers, defogging or defrosting devices, brakes, horns, mirrors, windshields and other windows, and locks.

"Multiemployer workplace" - A workplace where there is a host employer and at least one contract employer.

"Normal production operations" - The use of machinery or equipment, including, but not limited to, punch presses, bending presses, shears, lathes, keel press rollers, and automated burning machines, to perform a shipyard-employment production process.

"Personal alert safety system (PASS)" - A device that sounds a loud signal if the wearer becomes immobilized or is motionless for thirty seconds or more.

"Personal fall arrest system" - A system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, body harness and may include a lan-

yard, a deceleration device, a lifeline, or a suitable combination.

"Physical isolation" - The elimination of a fire hazard by removing the hazard from the work area (at least thirty-five feet for combustibles), by covering or shielding the hazard with a fire-resistant material, or physically preventing the hazard from entering the work area.

"Physically isolated" - Positive isolation of the supply from the distribution piping of a fixed extinguishing system. Examples of ways to physically isolate include: Removing a spool piece and installing a blank flange; providing a double block and bleed valve system; or completely disconnecting valves and piping from all cylinders or other pressure vessels containing extinguishing agents.

"Portable toilet" - A nonsewered portable facility for collecting and containing urine and feces. A portable toilet may be either flushable or nonflushable. For purposes of this section, portable toilets do not include privies.

"Portable unfired pressure vessel" - A pressure container or vessel used aboard ship, other than the ship's equipment, containing liquids or gases under pressure. This does not include pressure vessels built to Department of Transportation regulations under 49 C.F.R. Part 178, Subparts C and H.

"Positioning device system" - A body belt or body harness system rigged to allow an employee to be supported at an elevated vertical surface, such as a wall or window, and to be able to work with both hands free while leaning.

"Potable water" - Water that meets the standards for drinking purposes of the state or local authority having jurisdiction, or water that meets the quality standards prescribed by the U.S. Environmental Protection Agency's National Primary Water Regulations (40 C.F.R. part 141).

"Powder actuated fastening tool" - A tool or machine that drives a stud, pin, or fastener by means of an explosive charge.

"Protected space" - Any space into which a fixed extinguishing system can discharge.

"Proximity firefighting" - Specialized firefighting operations that require specialized thermal protection and may include the activities of rescue, fire suppression, and property conservation at incidents involving fires producing very high levels of conductive, convective, and radiant heat such as aircraft fires, bulk flammable gas fires, and bulk flammable liquid fires. Proximity firefighting operations usually are exterior operations but may be combined with structural firefighting operations. Proximity firefighting is not entry firefighting.

"Qualified instructor" - A person with specific knowledge, training, and experience in fire response or fire watch activities to cover the material found in WAC 296-304-01019 (2) or (3).

"Qualified person" - A person who has successfully demonstrated the ability to solve or resolve problems related to the subject matter and work by possessing a recognized degree or certificate of professional standing or by extensive knowledge, training, and experience.

"Readily accessible/available" - Capable of being reached quickly enough to ensure, for example, that emergency medical services and first-aid intervention are appropriate or that employees can reach sanitation facilities in time to meet their health and personal needs.

"Related employment" - Any employment related to or performed in conjunction with ship repairing, ship building or ship breaking work, including, but not limited to, inspecting, testing, and serving as a watchman.

"Rescue" - Locating endangered persons at an emergency incident, removing those persons from danger, treating the injured, and transporting the injured to an appropriate health care facility.

"Restraint (tether) line" - A line from an anchorage, or between anchorages, to which the employee is secured so as to prevent the employee from walking or falling off an elevated work surface.

Note: A restraint line is not necessarily designed to withstand forces resulting from a fall.

"Rope grab" - A deceleration device that travels on a lifeline and automatically, by friction, engages the lifeline and locks to arrest the fall of an employee. A rope grab usually uses the principle of inertial locking, cam/level locking or both.

"Sanitation facilities" - Facilities, including supplies, maintained for employee personal and health needs such as potable drinking water, toilet facilities, hand-washing and hand-drying facilities, showers (including quick-drenching or flushing) and changing rooms, eating and drinking areas, first-aid stations, and on-site medical-service areas. Sanitation supplies include soap, waterless cleaning agents, single-use drinking cups, drinking water containers, toilet paper, and towels.

"Serviceable condition" - The state or ability of supplies or goods, or of a tool, machine, vehicle, or other device, to be used or to operate in the manner prescribed by the manufacturer.

"Servicing" - Workplace activities that involve the construction, installation, adjustment, inspection, modification, testing, or repair of machinery, equipment, or systems. Servicing also includes maintaining machines, equipment, or systems when performing these activities would expose the employee to harm from the start-up or energization of the system being serviced, or the release of hazardous energy.

"Sewered toilet" - A fixture maintained for the purpose of urination and defecation that is connected to a sanitary sewer, septic tank, holding tank (bilge), or on-site sewage-disposal treatment facility, and that is flushed with water.

"Shall" or **"must" -** Mandatory.

"Shield" - To install a covering, protective layer, or other effective measure on or around steam hoses or temporary steam-piping systems, including metal fittings and couplings, to protect employees from contacting hot surfaces or elements.

"Ship breaking" - Breaking down a vessel's structure to scrap the vessel, including the removal of gear, equipment or any component part of a vessel.

"Ship building" - Construction of a vessel, including the installation of machinery and equipment.

"Ship repairing" - Repair of a vessel including, but not limited to, alterations, conversions, installations, cleaning, painting, and maintenance.

"Shipyard firefighting" - The activity of rescue, fire suppression, and property conservation involving buildings, enclosed structures, vehicles, vessels, aircraft, or similar properties involved in a fire or emergency situation.

"Short bight" - A loop created in a line or rope that is used to tie back or fasten objects such as hoses, wiring, and fittings.

"Small hose system" - A system of hoses ranging in diameter from 5/8" (1.6 cm) up to 1 1/2" (3.8 cm) which is for the use of employees and which provides a means for the control and extinguishment of incipient stage fires.

"Standpipe" - A fixed fire protection system consisting of piping and hose connections used to supply water to approved hose lines or sprinkler systems. The hose may or may not be connected to the system.

"Tag" - A prominent warning device that includes a means of attachment that can be securely fastened to an energy-isolating device in accordance with an established procedure to indicate that the energy-isolating device and the equipment being controlled must not be operated until the tag is removed by an authorized employee.

"Tags-plus system" - A system to control hazardous energy that consists of an energy-isolating device with a tag affixed to it, and at least one additional safety measure.

"Verification of isolation" - The means necessary to detect the presence of hazardous energy, which may involve the use of a test instrument (for example, a voltmeter), and, for other than electric shock protection, a visual inspection, or a deliberate attempt to start-up the machinery, equipment, or system.

"Vermin" - Insects, birds, and other animals, such as rodents, that may create safety and health hazards for employees.

"Vessel" - Every watercraft for use as a means of transportation on water, including special purpose floating structures not primarily designed for or used as a means of transportation on water.

"Vessel section" - A subassembly, module, or other component of a vessel being built or repaired.

"Walkway" - Any surface, whether vertical, slanted, or horizontal, on which employees walk, including areas that employees pass through, to perform their job tasks. Walkways include, but are not limited to, access ways, designated walkways, aisles, exits, gangways, ladders, ramps, stairs, steps, passageways, and scaffolding. If an area is, or could be, used to gain access to other locations, it is to be considered a walkway.

"Work area" - A specific area, such as a machine shop, engineering space, or fabrication area, where one or more employees are performing job tasks.

"Working surface" - Any surface where work is occurring, or areas where tools, materials, and equipment are being staged for performing work.

"Worksite" - A general work location where one or more employees are performing work, such as a shipyard, pier, barge, vessel, or vessel section.

AMENDATORY SECTION (Amending WSR 07-05-062, filed 2/20/07, effective 4/1/07)

WAC 296-304-01009 Precautions for hot work. (1) **General requirements.**

(a) **Designated areas.** The employer may designate areas for hot work in sites such as vessels, vessel sections, fabricating shops, and subassembly areas that are free of fire hazards.

(b) **Nondesignated areas.**

(i) Before authorizing hot work in a nondesignated area, the employer must visually inspect the area where hot work is to be performed, including adjacent spaces, to ensure the area is free of fire hazards, unless a marine chemist's certificate or shipyard competent person's log is used for authorization.

(ii) The employer shall authorize employees to perform hot work only in areas that are free of fire hazards, or that have been controlled by physical isolation, fire watches, or other positive means.

Note: The requirements of (b) of this subsection apply to all hot work operations in shipyard employment except those covered by WAC 296-304-02007.

(2) **Specific requirements.**

(a) **Maintaining fire hazard-free conditions.** The employer must keep all hot work areas free of new hazards that may cause or contribute to the spread of fire. Unexpected energizing and energy release are covered by WAC 296-304-120. Exposure to toxic and hazardous substances is covered in chapter 296-841 WAC, Airborne contaminants; chapter 296-802 WAC, Employee medical and exposure records; and WAC ((~~296-800-170~~)) 296-901-140, ((~~Employer chemical~~)) Hazard communication((~~—Introduction~~)).

(b) **Fuel gas and oxygen supply lines and torches.** The employer must make sure that:

(i) No unattended fuel gas and oxygen hose lines or torches are in confined spaces;

(ii) No unattended charged fuel gas and oxygen hose lines or torches are in enclosed spaces for more than fifteen minutes;

(iii) All fuel gas and oxygen hose lines are disconnected at the supply manifold at the end of each shift; and

(iv) All disconnected fuel gas and oxygen hose lines are rolled back to the supply manifold or to open air to disconnect the torch; or extended fuel gas and oxygen hose lines are not reconnected at the supply manifold unless the lines are given a positive means of identification when they were first connected and the lines are tested using a drop test or other positive means to ensure the integrity of fuel gas and oxygen burning system.

AMENDATORY SECTION (Amending WSR 12-12-060, filed 6/5/12, effective 8/1/12)

WAC 296-304-06013 Hazardous materials. "Hazardous material" - A material with one or more of the following characteristics:

• Has a flash point below 140°F, closed cup, or is subject to spontaneous heating;

• Has a threshold limit value below 500 p.p.m. in the case of a gas or vapor, below 500 mg./m.3 for fumes, and below 25 m.p.p.c.f. in case of a dust;

• Has a single dose oral LD50 below 500 mg./kg.;

• Is subject to polymerization with the release of large amounts of energy;

• Is a strong oxidizing or reducing agent;

• Causes first degree burns to skin in short time exposure, or is systematically toxic by skin contact; or

• In the course of normal operations, may produce dusts, gases, fumes, vapors, mists, or smokes that have one or more of the above characteristics.

(1) No chemical product, such as a solvent or preservative; no structural material, such as cadmium or zinc coated steel, or plastic material; and no process material, such as welding filler metal; which is a hazardous material may be used until the employer has ascertained the potential fire, toxic, or reactivity hazards which are likely to be encountered in the handling, application, or utilization of such a material.

(2) In order to ascertain the hazards, as required by subsection (1) of this section, the employer shall obtain the following items of information which are applicable to a specific product or material to be used:

(a) The name, address, and telephone number of the source of the information specified in this section preferably those of the manufacturer of the product or material.

(b) The trade name and synonyms for a mixture of chemicals, a basic structural material, or for a process material; and the chemical name and synonyms, chemical family, and formula for a single chemical.

(c) Chemical names of hazardous ingredients, including, but not limited to, those in mixtures, such as those in: (i) Paints, preservatives, and solvents; (ii) alloys, metallic coatings, filler metals and their coatings or core fluxes; and (iii) other liquids, solids, or gases (e.g., abrasive materials).

(d) An indication of the percentage, by weight or volume, which each ingredient of a mixture bears to the whole mixture, and of the threshold limit value of each ingredient, in appropriate units.

(e) Physical data about a single chemical or a mixture of chemicals, including boiling point, in degrees Fahrenheit; vapor pressure, in millimeters of mercury; vapor density of gas or vapor (air=1); solubility in water, in percent by weight; specific gravity of material (water=1); percentage volatile, by volume, at 70°F.; evaporation rate for liquids (either butyl acetate or ether may be taken as 1); and appearance and odor.

(f) Fire and explosion hazard data about a single chemical or a mixture of chemicals, including flashpoint, in degrees Fahrenheit; flammable limits, in percent by volume in air; suitable extinguishing media or agents; special firefighting procedures; and unusual fire and explosion hazard information.

(g) Health hazard data, including threshold limit value, in appropriate units, for a single hazardous chemical or for the individual hazardous ingredients of a mixture as appropriate, effects of overexposure; and emergency and first-aid procedures.

(h) Reactivity data, including stability, incompatibility, hazardous decomposition products, and hazardous polymerization.

(i) Procedures to be followed and precautions to be taken in cleaning up and disposing of materials leaked or spilled.

(j) Special protection information, including use of personal protective equipment, such as respirators, eye protection, and protective clothing, and of ventilation, such as local exhaust, general, special, or other types.

(k) Special precautionary information about handling and storing.

(l) Any other general precautionary information.

(3) The pertinent information required by subsection (2) of this section shall be recorded either on United States Department of Labor Form LSB 00S-4, Material Safety Data Sheet, or on an essentially similar form which has been approved by the department of labor and industries. Copies of Form LSB 00S-4 may be obtained at any of the following regional offices of the occupational safety and health administration:

(a) Pacific region. (Arizona, California, Hawaii, and Nevada.)

10353 Federal Building, 450 Golden Gate Avenue, Box 36017, San Francisco, Calif. 94102.

(b) Region X, OSHA, (Alaska, Washington, Idaho, and Oregon), ((~~1111 3rd Ave. Suite 715~~)) 300 Fifth Avenue, Suite 1280, Seattle, Washington ((~~98101~~)) 98104-2397.

A completed ((~~MSDS~~)) SDS form shall be preserved and available for inspection for each hazardous chemical on the worksite.

(4) The employer shall instruct employees who will be exposed to the hazardous materials as to the nature of the hazards and the means of avoiding them.

(5) The employer shall provide all necessary controls, and the employees shall be protected by suitable personal protective equipment against the hazards identified under subsection (1) of this section and those hazards for which specific precautions are required in WAC 296-304-020 through 296-304-04013.

(6) The employer shall provide adequate washing facilities for employees engaged in the application of paints or coatings or in other operations where contaminants can, by ingestion or absorption, be detrimental to the health of the employees. The employer shall encourage good personal hygiene practices by informing the employees of the need for removing surface contaminants by thorough washing of hands and face prior to eating or smoking.

(7) The employer shall not permit eating or smoking in areas undergoing surface preparation or preservation or where shiprepairing, shipbuilding, or shipbreaking operations produce atmospheric contamination.

(8) The employer shall not permit employees to work in the immediate vicinity of uncovered garbage and shall ensure that employees working beneath or on the outboard side of a vessel are not subject to contamination by drainage or waste from overboard discharges.

(9) Requirements of WAC ((~~296-800-170~~)) 296-901-140, ((~~Chemical~~)) Hazard communication ((~~program~~)), will apply to shiprepairing, shipbuilding, and shipbreaking when potential hazards of chemicals and communicating information concerning hazards and appropriate protective equipment is applicable to an operation.

AMENDATORY SECTION (Amending WSR 12-12-060, filed 6/5/12, effective 8/1/12)

WAC 296-304-06017 Retention of DOT markings, placards, and labels. (1) Any employer who receives a package of hazardous material that is required to be marked, labeled, or placarded in accordance with the U.S. Department of Transportation Hazardous Materials Regulations (49 C.F.R. parts 171 through 180) shall retain those markings, labels, and placards on the package until the packaging is sufficiently cleaned of residue and purged of vapors to remove any potential hazards.

(2) Any employer who receives a freight container, rail freight car, motor vehicle, or transport vehicle that is required to be marked or placarded in accordance with the U.S. Department of Transportation Hazardous Materials Regulations shall retain those markings and placards on the freight container, rail freight car, motor vehicle, or transport vehicle until the hazardous materials are sufficiently removed to prevent any potential hazards.

(3) The employer shall maintain markings, placards, and labels in a manner that ensures that they are readily visible.

(4) For nonbulk packages that will not be reshipped, the requirements of this section are met if a label or other acceptable marking is affixed in accordance with ((~~chapter 296-839 WAC, Content and distribution of material safety data sheets (MSDSs) and label information~~)) WAC 296-901-14012, Labels and other forms of warning and WAC 296-901-14014, Safety data sheets.

(5) For the purposes of this section, the term "hazardous material" and any other terms not defined in this section have the same definition as specified in the U.S. Department of Transportation Hazardous Materials Regulations.

AMENDATORY SECTION (Amending WSR 02-16-047, filed 8/1/02, effective 10/1/02)

WAC 296-800-15030 Make sure emergency washing facilities are functional and readily accessible. You must:

• Provide an emergency shower:

– When there is potential for major portions of an employee's body to contact corrosives, strong irritants, or toxic chemicals.

– That delivers water to cascade over the user's entire body at a minimum rate of 20 gallons (75 liters) per minute for fifteen minutes or more.

• Provide an emergency eyewash:

– When there is potential for an employee's eyes to be exposed to corrosives, strong irritants, or toxic chemicals.

– That irrigates and flushes both eyes simultaneously while the user holds their eyes open.

– With an on-off valve that activates in one second or less and remains on without user assistance until intentionally turned off.

– That delivers at least 0.4 gallons (1.5 liters) of water per minute for fifteen minutes or more.

Note: Chemicals that require emergency washing facilities:

• You can determine whether chemicals in your workplace require emergency washing facilities by looking at the ((~~material~~)) safety data sheet (((~~MSDS~~))) (SDS) or similar documents. The ((~~MSDS~~)) SDS contains information about first-aid requirements and emergency flushing of skin or eyes.

• For chemicals developed in the workplace, the following resources provide information about first-aid requirements:

– NIOSH Pocket Guide to Chemical Hazards

*DHHS (NIOSH) Publication No. 97-140

*http://www.cdc.gov/niosh/npg/ggdstart.html

– Threshold Limit Values for Chemical Substances and Physical Agents American Conference of Governmental Industrial Hygienists (ACGIH)

You must:

• Make sure emergency washing facilities:

– Are located so that it takes no more than ten seconds to reach.

– Are kept free of obstacles blocking their use.

– Function correctly.

– Provide the quality and quantity of water that is satisfactory for emergency washing purposes.

Note:

• If water in emergency washing facilities is allowed to freeze, they will not function correctly. Precautions need to be taken to prevent this from happening.

• The travel distance to an emergency washing facility should be no more than fifty feet (15.25 meters).

• For further information on the design, installation, and maintenance of emergency washing facilities, see American National Standards Institute (ANSI) publication Z358.1 - 1998, *Emergency Eyewash and Shower Equipment.* Emergency washing facilities that are designed to meet ANSI Z358.1 - 1998 also meet the requirements of this standard. The ANSI standard can be obtained from the American National Standards Institute, 1430 Broadway, New York, New York 10018.

Reference:

• Training in the location and use of your emergency washing facilities is required under the ((~~employer chemical~~)) hazard communication rule, WAC ((~~296-800-170~~)) 296-901-140, and the accident prevention program rule, WAC 296-800-140.

• All emergency washing facilities using "not fit for drinking" (nonpotable) water must have signs stating the water is "not fit for drinking." See WAC 296-800-23010.

AMENDATORY SECTION (Amending WSR 14-03-013, filed 1/7/14, effective 2/10/14)

WAC 296-800-16055 Make sure your employees use appropriate head protection. You must:

(1) Make sure employees wear appropriate protective helmets.

• Where employees are exposed to hazards that could cause a head injury. Examples of this type of hazard include:

– Flying or propelled objects.

– Falling objects or materials.

• Where employees are working around or under scaffolds or other overhead structures.

(2) Head protection must comply with any of the following consensus standards:

(a) American National Standards Institute (ANSI) Z89.1-2009, "American National Standard for Industrial Head Protection";

(b) American National Standards Institute (ANSI) Z89.1-2003, "American National Standard for Industrial Head Protection";

(c) American National Standards Institute (ANSI) Z89.1-1997, "American National Standard for Personnel Protection—Protective Headwear for Industrial Workers—Requirements."

– You may use protective helmets that do not meet these ANSI standards if you can demonstrate that they are equally effective as those constructed in accordance with the above ANSIs.

(3) Make sure employees working near exposed electrical conductors that could contact their head wear a protective helmet designed (that meet the above ANSI standards) to reduce electrical shock hazard.

• Caps with metal buttons or metal visors must **not** be worn around electrical hazards.

(4) Make sure employees working around machinery or in locations that present a hair-catching or fire hazard wear caps or head coverings that completely cover their hair.

• Employees must wear a hair net that controls all loose ends when:

– Hair is as long as the radius of pressure rolls with exposed in-running nip points.

– Hair is twice as long as the circumference of exposed revolving shafts or tools in fixed machines.

• Employees must wear a hair covering of solid material when:

– The employee is exposed to an ignition source and may run into an area containing ((~~class 1~~)) category 1 or 2 flammable liquids, such as ether, benzene, or category 3 flammable liquids with a flashpoint between 100°F (37.8°C), or combustible atmospheres if their hair is on fire.

AMENDATORY SECTION (Amending WSR 12-24-071, filed 12/4/12, effective 1/4/13)

WAC 296-800-370 Definitions.

Abatement action plans

Refers to your written plans for correcting a WISHA violation.

Abatement date

The date on the citation when you must comply with specific safety and health standards listed on the citation and notice of assessment or the corrective notice of redetermination.

Acceptable

As used in **Electrical, WAC 296-800-280** means an installation or equipment is acceptable to the director of labor and industries, and approved:

• If it is accepted, or certified, or listed, or labeled, or otherwise determined to be safe by a nationally recognized testing laboratory; or

• With respect to an installation or equipment of a kind which no nationally recognized testing laboratory accepts, certifies, lists, labels, or determines to be safe, if it is inspected or tested by another federal agency, or by a state, municipal, or other local authority responsible for enforcing occupational safety provisions of the National Electrical Code, and found in compliance with the provisions of the National Electrical Code as applied in this section;

OR

• With respect to custom-made equipment or related installations which are designed, fabricated for, and intended for use by a particular customer, if it is determined to be safe for its intended use by its manufacturer on the basis of test data which the employer keeps and makes available for inspection to the director and his/her authorized representatives. Refer to federal regulation 29 C.F.R. 1910.7 for definition of nationally recognized testing laboratory.

Accepted

As used in Electrical, WAC 296-800-280 means an installation is accepted if it has been inspected and found by a nationally recognized testing laboratory to conform to specified plans or to procedures of applicable codes.

Access

As used in ((~~material~~)) safety data sheets ((~~(MSDSs)~~)) (SDSs) as exposure records, WAC ((~~296-800-180~~)) 296-901-14014 means the right and opportunity to examine and copy exposure records.

Affected employees

As used in WISHA appeals, penalties and other procedural rules, WAC 296-800-350 means employees exposed to hazards identified as violations in a citation.

Analysis using exposure or medical records

• An analysis using exposure records or medical records can be any collection of data or a statistical study. It can be based on either:

– Partial or complete information from individual employee exposure or medical records or

– Information collected from health insurance claim records

• The analysis is not final until it has been:

– Reported to the employer or

– Completed by the person responsible for the analysis

ANSI

This is an acronym for the American National Standards Institute.

Approved means:

• Approved by the director of the department of labor and industries or their authorized representative, or by an organization that is specifically named in a rule, such as Underwriters' Laboratories (UL), Mine Safety and Health Administration (MSHA), or the National Institute for Occupational Safety and Health (NIOSH).

• As used in Electrical, WAC 296-800-280 means acceptable to the authority enforcing this section. The authority enforcing this section is the director of labor and industries. The definition of acceptable indicates what is acceptable to the director and therefore approved.

Assistant director

The assistant director for the WISHA services division at the department of labor and industries or his/her designated representative.

ASTM

This is an acronym for American Society for Testing and Materials.

Attachment plug or plug

As used in the basic electrical rules, WAC 296-800-280 means the attachment at the end of a flexible cord or cable that is part of a piece of electrical equipment. When it is inserted into an outlet or receptacle, it connects the conductors supplying electrical power from the outlet to the flexible cable.

Bare conductor

A conductor that does not have any covering or insulation.

Bathroom

A room maintained within or on the premises of any place of employment, containing toilets that flush for use by employees.

Biological agents

Organisms or their by-products.

Board

As used in WISHA appeals, penalties and other procedural rules, WAC 296-800-350 means the board of industrial insurance appeals.

Ceiling

An exposure limit that must not be exceeded during any part of the employee's workday. The ceiling must be determined over the shortest time period feasible and should not exceed fifteen minutes.

Certification

As used in WISHA appeals, penalties and other procedural rules, WAC 296-800-350 means refers to an employer's written statement describing when and how a citation violation was corrected.

C.F.R.

This is an acronym for Code of Federal Regulations.

Chemical

Any element, chemical compound, or mixture of elements and/or compounds.

Chemical agents (airborne or contact)

A chemical agent is any of the following:

• Airborne chemical agent which is any of the following:

– Dust - Solid particles suspended in air, that are created by actions such as:

• Handling.

• Drilling.

• Crushing.

• Grinding.

• Rapid impact.

• Detonation.

• Decrepitation of organic or inorganic materials such as rock, ore, metal, coal, wood, and grain.

– Fume - Solid particles suspended in air, that are created by condensation from the gaseous state.

– Gas - A normally formless fluid, such as air, which can be changed to the liquid or solid state by the effect of increased pressure or decreased temperature or both.

– Mist - Liquid droplets suspended in air. Mist is created by:

• Condensation from the gaseous to the liquid state;

OR

• Converting a liquid into a dispersed state with actions such as splashing, foaming, spraying or atomizing.

– Vapor - The gaseous form of a substance that is normally in the solid or liquid state.

• Contact chemical agent which is any of the following:

– Corrosive - A substance that, upon contact, causes destruction of living tissue by chemical action, including acids with a pH of 2.5 or below or caustics with a pH of 11.0 or above.

– Irritant - A substance that will induce a local inflammatory reaction upon immediate, prolonged, or repeated contact with normal living tissue.

– Toxicant - A substance that has the inherent capacity to produce personal injury or illness to individuals by absorption through any body surface.

Chemical manufacturer

An employer with a workplace where one or more chemicals are produced for use or distribution.

Chemical name

The scientific designation of a chemical in accordance with one of the following:

• The nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC)

• The Chemical Abstracts Service (CAS) rules of nomenclature

• A name which will clearly identify the chemical for the purpose of conducting a hazard evaluation.

Circuit breaker

• Is a device used to manually open or close a circuit. This device will also open the circuit automatically and without damage to the breaker when a predetermined overcurrent is applied. (600 volts nominal or less)

• Is a switching device capable of making, carrying, and breaking currents under normal circuit conditions, and also making, carrying for a specified time, and breaking currents under specified abnormal circuit conditions, such as those of short circuit. (Over 600 volts nominal)

Citation

Refers to the citation and notice issued to an employer for any violation of WISHA safety and health rules. A citation and notice may be referred to as a citation and notice of assessment but is more commonly referred to as a citation.

((~~**Combustible liquid**~~

~~A combustible liquid has a flashpoint of at least 100°F (37.8°C) and below 200°F (93.3°C). Mixtures with at least 99% of their components having flashpoints of 200°F (93.3°C) or higher are not considered combustible liquids.~~))

Commercial account

As used in ((~~Employer Chemical~~)) Hazard communication, WAC ((~~296-800-170~~)) 296-901-140 means an arrangement in which a retail distributor sells hazardous chemical(s) to an employer, generally in large quantities over time, and/or at costs that are below the regular retail price.

Common name

As used in ((~~Employer Chemical~~)) Hazard communication, WAC ((~~296-800-170~~)) 296-901-140 means any designation or identification such as:

• Code name

• Code number

• Trade name

• Brand name

• Generic name used to identify a chemical other than by its chemical name.

Compressed gas

A gas or mixture of gases that, when in a container, has an absolute pressure exceeding:

• 40 psi at 70°F (21.1°C)

OR

• 104 psi at 130°F (54.4°C) regardless of the pressure at 70°F (21.1°C)

Compressed gas can also mean a liquid with a vapor pressure that exceeds 40 psi at 100°F (37.8°C)

Conductor

A wire that transfers electric power.

Container

As used in ((~~Employer Chemical~~)) Hazard communication, WAC ((~~296-800-170~~)) 296-901-140 means any container, except for pipes or piping systems, that contains a hazardous chemical. It can be any of the following:

• Bag
• Barrel
• Bottle
• Box
• Can
• Cylinder
• Drum
• Reaction vessel
• Storage tank

Correction date

The date by which a violation must be corrected. Final orders or extensions that give additional time to make corrections establish correction dates. A correction date established by an order of the board of industrial insurance appeals remains in effect during any court appeal unless the court suspends the date.

Corrective notice

Refers to a notice changing a citation and is issued by the department after a citation has been appealed.

Corrosive

A substance that, upon contact, causes destruction of living tissue by chemical action, including acids with a pH of 2.5 or below or caustics with a pH of 11.0 or above.

Covered conductor

A conductor that is covered by something else besides electrical insulation.

Damp location

As used in basic electrical rules, WAC 296-800-280 means partially protected areas that are exposed to moderate moisture. Outdoor examples include roofed open porches and marquees. Interior examples include basements and barns.

Department

Those portions of the department of labor and industries responsible for enforcing the Washington Industrial Safety Act (WISHA).

Designated representative

• Any individual or organization to which an employee gives written authorization.

• A recognized or certified collective bargaining agent without regard to written authorization.

• The legal representative of a deceased or legally incapacitated employee.

Director

The director means the director of the department of labor and industries or their designee.

Distributor

A business, other than a chemical manufacturer or importer, that supplies hazardous chemicals to other distributors or to employers.

Documentation

As used in WISHA appeals, penalties and other procedural rules, WAC 296-800-350 means material that you submit to prove that a correction is completed. Documentation includes, but is not limited to, photographs, receipts for materials and/or labor.

Dry location

As used in basic electrical rules, WAC 296-800-280 means areas not normally subjected to damp or wet conditions. Dry locations may become temporarily damp or wet, such as when constructing a building.

Dust

Solid particles suspended in air that are created by actions such as:

• Handling.
• Drilling.
• Crushing.
• Grinding.
• Rapid impact.
• Detonation.
• Decrepitation of organic or inorganic materials such as rock, ore, metal, coal, wood, and grain.

Emergency washing facilities

Emergency washing facilities are emergency showers, eyewashes, eye/face washes, hand-held drench hoses, or other similar units.

Electrical outlets

Places on an electric circuit where power is supplied to equipment through receptacles, sockets, and outlets for attachment plugs.

Employee

Based on chapter 49.17 RCW, the term employee and other terms of like meaning, unless the context of the provision containing such term indicates otherwise, means an employee of an employer who is employed in the business of his or her employer whether by way of manual labor or otherwise and every person in this state who is engaged in the employment of or who is working under an independent contract the essence of which is personal labor for an employer under this standard whether by way of manual labor or otherwise.

Employee exposure record

As used in ((~~material~~)) safety data sheets ((~~(MSDSs)~~)) (SDSs) as exposure records, WAC ((~~296-800-180~~)) 296-901-14014 means a record containing any of the following kinds of information:

• Environmental (workplace) monitoring or measuring of a toxic substance or harmful physical agent, including personal, area, grab, wipe, or other form of sampling, as well as related collection and analytical methodologies, calculations, and other background data relevant to interpretation of the results obtained;

• Biological monitoring results which directly assess the absorption of a toxic substance or harmful physical agent by body systems (e.g., the level of a chemical in the blood, urine, breath, hair, fingernails, etc.) but not including results which assess the biological effect of a substance or agent or which assess an employee's use of alcohol or drugs;

• ((~~Material~~)) Safety data sheets indicating that the material may pose a hazard to human health;

OR

• In the absence of the above, a chemical inventory or any other record which reveals where and when used and the identity (e.g., chemical, common or trade name) of a toxic substance or harmful physical agent.

Employer

Based on chapter 49.17 RCW, an employer is any person, firm, corporation, partnership, business trust, legal representative, or other business entity which engages in any business, industry, profession, or activity in this state and employs one or more employees or who contracts with one or more persons, the essence of which is the personal labor of such person or persons and includes the state, counties, cities, and all municipal corporations, public corporations, political subdivisions of the state, and charitable organizations: Provided, That any persons, partnership, or business entity not having employees, and who is covered by the Industrial Insurance Act must be considered both an employer and an employee.

Exit

Provides a way of travel out of the workplace.

Exit route

A continuous and unobstructed path of exit travel from any point within a workplace to safety outside.

Explosive

A chemical that causes a sudden, almost instant release of pressure, gas, and heat when exposed to a sudden shock, pressure, or high temperature.

Exposed live parts

Electrical parts that are:

• Not suitably guarded, isolated, or insulated

AND

• Capable of being accidentally touched or approached closer than a safe distance.

Exposed wiring methods

Involve working with electrical wires that are attached to surfaces or behind panels designed to allow access to the wires.

Exposure or exposed

As used in ((~~employer chemical~~)) Hazard communication, WAC ((~~296-800-170~~)) 296-901-140 and ((~~material~~)) safety data sheets (((~~MSDSs~~))) (SDSs) as exposure records, WAC ((~~296-800-180~~)) 296-901-14014. An employee has been, or may have possibly been, subjected to a hazardous chemical, toxic substance or harmful physical agent while working. An employee could have been exposed to hazardous chemicals, toxic substances, or harmful physical agents in any of the following ways:

• Inhalation

• Ingestion

• Skin contact

• Absorption

• Related means.

The terms exposure and exposed only cover workplace exposure involving a toxic substance or harmful physical agent in the workplace different from typical nonoccupational situations in the way it is:

• Used

• Handled

• Stored

• Generated

• Present

Exposure record

See definition for employee exposure record.

Extension ladder

A portable ladder with 2 or more sections and is not self-supporting. The 2 or more sections travel in guides or brackets that let you change the length. The size of a portable ladder is determined by adding together the length of each section.

Failure-to-abate

Any violation(s) resulting from not complying with an abatement date.

Final order

Any of the following (unless an employer or other party files a timely appeal):

• Citation and notice;

• Corrective notice;

• Decision and order from the board of industrial insurance appeals;

• Denial of petition for review from the board of industrial insurance appeals; or

• Decision from a Washington State superior court, court of appeals, or the state supreme court.

Final order date

The date a final order is issued.

First aid

The extent of treatment you would expect from a person trained in basic first aid, using supplies from a first-aid kit.

Tests, such as X rays, must not be confused with treatment.

Flammable

A chemical covered by one of the following categories:

• Aerosol flammable means ((~~an aerosol that, when tested by the method described in 16 C.F.R. 1500.45 yields either a flame projection more than 18 inches at full valve opening or a flashback (a flame extending back to the valve) at any degree of valve opening~~)) a flammable aerosol as defined by WAC 296-901-14024, Appendix B—Physical hazard criteria;

• Gas, flammable means:

– A gas that, at temperature and pressure of the surrounding area, forms a flammable mixture with air at a concentration of 13% by volume or less or

– A gas that, at temperature and pressure of the surrounding area, forms a range of flammable mixtures with air wider than 12% by volume, regardless of the lower limit.

• Liquid, flammable means any liquid having a flashpoint at or below ((~~100°F (37.8°C), except any mixture having components with flashpoints of 100°F (37.8°C) or higher, the total of which make up 99% or more of the total volume~~

~~of the mixture~~)) 199.4°F (93°C). Flammable liquids are divided into four categories as follows:

(a) Category 1 shall include liquids having flashpoints below 73.4°F (23°C) and having a boiling point at or below 95°F (35°C).

(b) Category 2 shall include liquids having flashpoints below 73.4°F (23°C) and having a boiling point above 95°F (35°C).

(c) Category 3 shall include liquids having flashpoints at or above 73.4°F (23°C) and at or below 140°F (60°C). When a Category 3 liquid with a flashpoint at or above 100°F (37.8°C) is heated for use to within 30°F (16.7°C) of its flashpoint, it shall be handled in accordance with the requirements for a Category 3 liquid with a flashpoint below 100°F (37.8°C).

(d) Category 4 shall include liquids having flashpoints above 140°F (60°C) and at or below 199.4°F (93°C). When a Category 4 flammable liquid is heated for use to within 30°F (16.7°C) of its flashpoint, it shall be handled in accordance with the requirements for a Category 3 liquid with a flashpoint at or above 100°F (37.8°C).

(e) When liquid with a flashpoint greater than 199.4°F (93°C) is heated for use to within 30°F (16.7°C) of its flashpoint, it shall be handled in accordance with the requirements for a Category 4 flammable liquid.

• Solid, flammable means a solid, other than a blasting agent or explosive as defined in 29 C.F.R. 1910.109(a), that is likely to cause fire through friction, moisture absorption, spontaneous chemical change, or retained heat from manufacturing or processing, or which can be ignited readily. Solid, inflammable also means that when the substance is ignited, it burns so powerfully and persistently that it creates a serious hazard. A chemical must be considered to be a flammable solid if, when tested by the method described in 16 C.F.R. 1500.44, it ignites and burns with a self-sustained flame at a rate greater than one-tenth of an inch per second along its major axis.

Flashpoint

• The minimum temperature at which a liquid gives off a vapor ((~~in sufficient concentration to ignite when tested by any of the following measurement methods:~~

~~– Tagliabue closed tester: (See American National Standard Method of Test for Flash Point by Tag Closed Tester, Z11.24-1979 (ASTM D 56-79)) for liquids with a viscosity of less than 45 Saybolt Universal Seconds (SUS) at 100°F (37.8°C), that do not contain suspended solids and do not have a tendency to form a surface film under test; or~~

~~– Pensky-Martens closed tester: (See American National Standard Method of Test for Flash Point by Pensky-Martens Closed Tester, Z11.7-1979 (ASTM D 93-79)) for liquids with a viscosity equal to or greater than 45 SUS at 100°F (37.8°C), or that contain suspended solids, or that have a tendency to form a surface film under test; or~~

~~– Setaflash closed tester: (See American National Standard Method of Test for Flash Point by Setaflash Closed Tester (ASTM D 3278-78).)~~

~~**Note:** Organic peroxides, which undergo auto accelerating thermal decomposition, are excluded from any of the flashpoint measurement methods specified above.~~))

within a test vessel in sufficient concentration to form an ignitable mixture with air near the surface of the liquid and shall be determined as follows:

– The flashpoint of liquids having a viscosity less than 45 Saybolt Universal Second(s) at 100°F (37.8°C) and a flashpoint below 175°F (79.4°C) shall be determined in accordance with the Standard Method of Test for Flash Point by the Tag Closed Tester, ASTM D-56-69, or an equivalent method as defined by WAC 296-901-14024, Appendix B—Physical hazard criteria.

Flexible cords and cables

Typically used to connect electrical equipment to an outlet or receptacle. These cords can have an attachment plug to connect to a power source or can be permanently wired into the power source. Flexible cords, extension cords, cables and electrical cords are all examples of flexible cord.

Floor hole

An opening in any floor, platform, pavement, or yard that measures at least one inch but less than 12 inches at its smallest dimension and through which materials and tools (but not people) can fall.

Examples of floor holes are:

• Belt holes
• Pipe openings
• Slot openings

Floor opening

An opening in any floor, platform, pavement, or yard that measures at least 12 inches in its smallest dimension and through which a person can fall.

Examples of floor openings are:

• Hatchways
• Stair or ladder openings
• Pits
• Large manholes

The following are NOT considered floor openings:

• Openings occupied by elevators
• Dumbwaiters
• Conveyors
• Machinery
• Containers

Foreseeable emergency

As used in ((~~Employer Chemical~~)) Hazard communication, WAC ((~~296-800-170~~)) 296-901-140 means any potential event that could result in an uncontrolled release of a hazardous chemical into the workplace. Examples of foreseeable emergencies include equipment failure, rupture of containers, or failure of control equipment.

Fume

Solid particles suspended in air that are created by condensation from the gaseous state.

Gas

A normally formless fluid, such as air, which can be changed to the liquid or solid state by the effect of increased pressure or decreased temperature or both.

Ground

As used in Electrical, WAC 296-800-280, a connection between an electrical circuit or equipment and the earth or other conducting body besides the earth. This connection can be intentional or accidental.

Grounded

A connection has been made between an electrical circuit or equipment and the earth or another conducting body besides the earth.

Grounded conductor

A system or circuit conductor that is intentionally grounded.

Ground-fault circuit-interrupter

A device whose function is to interrupt the electric circuit to the load when a fault current to ground exceeds some predetermined value that is less than that required to operate the overcurrent protective device of the supply circuit.

Grounding conductor

Is used to connect equipment or the grounded circuit of a wiring system to a grounding electrode or electrodes.

Grounding conductor, equipment

A conductor used to connect noncurrent-carrying metal parts of equipment, raceways, and other enclosures to the system grounded conductor and/or the grounding electrode conductor at the service equipment or at the source of a separately derived system.

Guarded

Covered, shielded, fenced, enclosed, or otherwise protected by means of suitable covers, casings, barriers, rails, screens, mats, or platforms to remove the likelihood of being accidentally touched or approached closer than a safe distance.

Hand-held drench hoses

Hand-held drench hoses are single-headed emergency washing devices connected to a flexible hose that can be used to irrigate and flush the face or other body parts.

Handrail

A single bar or pipe supported on brackets from a wall or partition to provide a continuous handhold for persons using a stair.

Harmful physical agent

Any physical stress such as noise, vibration, repetitive motion, heat, cold, ionizing and nonionizing radiation, and hypo- or hyperbaric pressure which:

• Is listed in the latest edition of the National Institute for Occupational Safety and Health (NIOSH) *Registry of Toxic Effects of Chemical Substances* (RTECS); or

• Has shown positive evidence of an acute or chronic health hazard in testing conducted by, or known to, the employer;

OR

• Is the subject of a ((~~material~~)) safety data sheet kept by or known to the employer showing that the material may pose a hazard to human health.

Hazard

Any condition, potential or inherent, which can cause injury, death, or occupational disease.

Hazard warning

As used in ((~~Employer Chemical~~)) Hazard communication, WAC ((~~296-800-170~~)) 296-901-140 can be a combination of words, pictures, symbols, or combination appearing on a label or other appropriate form of warning which shows the specific physical and health hazard(s), including target organ effects, of the chemical(s) in the container(s).

Note: See definition for physical hazard and health hazard to determine which hazards must be covered.

Hazardous chemical

Any chemical that is a physical or health hazard.

Health hazard

A chemical, mixture, biological agent, or physical agent that may cause health effects in short- or long-term exposed employees. Based on statistically significant evidence from at least one study conducted using established scientific principles. Health hazards include:

• Carcinogens
• Toxic or highly toxic agents
• Reproductive toxins
• Irritants
• Corrosives
• Sensitizers
• Hepatotoxins (liver toxins)
• Nephrotoxins (kidney toxins)
• Neurotoxins (nervous system toxins)
• Substances that act on the hematopoietic system (blood or blood-forming system)
• Substances that can damage the lungs, skin, eyes, or mucous membranes
• Hot or cold conditions.

Hospitalization

To be admitted to a hospital or an equivalent medical facility on an emergent in-patient basis requiring an overnight stay.

Identity

As used in ((~~Employer Chemical~~)) Hazard communication, WAC ((~~296-800-170~~)) 296-901-140 means any chemical or common name listed on the ((~~material~~)) safety data sheet ((~~(MSDS)~~)) (SDS) for the specific chemical. Each identity used must allow cross-references among the:

• Required list of hazardous chemicals
• Chemical label
• MSDSs

Imminent danger violation

Any violation(s) resulting from conditions or practices in any place of employment, which are such that a danger exists which could reasonably be expected to cause death or serious physical harm, immediately or before such danger can be eliminated through the enforcement procedures otherwise provided by the Washington Industrial Safety and Health Act.

Importer

The first business within the Customs Territory of the USA that:

• Receives hazardous chemicals produced in other countries

AND

• Supplies them to distributors or employers within the USA

Insulated

A conductor has been completely covered by a material that is recognized as electrical insulation and is thick enough based on:

• The amount of voltage involved

AND

• The type of covering material

Interim waiver

An order granted by the department allowing an employer to vary from WISHA requirements until the department decides to grant a permanent or temporary waiver.

Irritant

A substance that will induce a local inflammatory reaction upon immediate, prolonged, or repeated contact with normal living tissue.

Ladder

Consists of 2 side rails joined at regular intervals by crosspieces called steps, rungs, or cleats. These steps are used to climb up or down.

Listed

Equipment is listed if it:

• Is listed in a publication by a nationally recognized laboratory (such as UL, underwriters laboratory) that inspects the production of that type of equipment,

AND

• States the equipment meets nationally recognized standards or has been tested and found safe to use in a specific manner.

((~~**Material safety data sheet (MSDS)**~~

~~Written, printed, or electronic information (on paper, microfiche, or on-screen) that informs manufacturers, distributors, employers or employees about a hazardous chemical, its hazards, and protective measures as required by material safety data sheet and label preparation, chapter 296-839 WAC.~~))

Medical treatment

Treatment provided by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does not include first-aid treatment even if provided by a physician or registered professional personnel.

Mist

Liquid droplets suspended in air. Mist is created by:

• Condensation from the gaseous to the liquid state;

OR

• Converting a liquid into a dispersed state with actions such as splashing, foaming, spraying or atomizing.

Mixture

As used in ((~~Employer Chemical~~)) Hazard communication, WAC ((~~296-800-170~~)) 296-901-140, any combination of 2 or more chemicals (if that combination did not result from a chemical reaction).

Movable equipment

As used in WAC 296-800-35052, a hand-held or nonhand-held machine or device;

• That is powered or nonpowered;

AND

• Can be moved within or between worksites

Must

Must means mandatory.

NEMA

These initials stand for National Electrical Manufacturing Association.

NFPA

This is an acronym for National Fire Protection Association.

Nose

The portion of the stair tread that projects over the face of the riser below it.

Occupational Safety and Health Administration (OSHA)

Created in 1970 when the U.S. Congress passed the Occupational Safety and Health Act, the Occupational Safety and Health Administration (OSHA) provides safety on the job for workers. OSHA oversees state plans (such as WISHA in Washington) that have elected to administer the safety and health program for their state. OSHA requires WISHA rules to be at least as effective as OSHA rules.

Office work environment

An indoor or enclosed occupied space where clerical work, administration, or business is carried out.

In addition, it includes:

• Other workplace spaces controlled by the employer and used by office workers, such as cafeterias, meeting rooms, and washrooms.

• Office areas of manufacturing and production facilities, not including process areas.

• Office areas of businesses such as food and beverage establishments, agricultural operations, construction, commercial trade, services, etc.

Open riser

A stair step with an air space between treads has an open riser.

Organic peroxide

This is an organic compound containing the bivalent-0-0-structure. It may be considered a structural derivative of hydrogen peroxide if one or both of the hydrogen atoms has been replaced by an organic radical.

Outlet

See definition for electrical outlets.

Oxidizer

A chemical other than a blasting agent or explosive as defined in WAC 296-52-60130 or C.F.R. 1910.109(a), that starts or promotes combustion in other materials, causing fire either of itself or through the release of oxygen or other gases.

Permissible exposure limits (PELs)

Permissible exposure limits (PELs) are employee exposures to toxic substances or harmful physical agents that must not be exceeded. PELs are specified in applicable WISHA rules.

Person

Based on chapter 49.17 RCW, one or more individuals, partnerships, associations, corporations, business trusts, legal representatives, or any organized group of persons.

Personal eyewash units

Personal eyewash units are portable, supplementary units that support plumbed units or self-contained units, or both, by delivering immediate flushing for less than fifteen minutes.

Personal service room

Used for activities not directly connected with a business' production or service function such as:

• First aid
• Medical services
• Dressing
• Showering

• Bathrooms
• Washing
• Eating

Personnel

See the definition for employees.

Physical hazard

((~~As used in Employer Chemical Hazard Communication, WAC 296-800-170 means a chemical that has scientifically valid evidence to show it is one of the following:~~
~~• Combustible liquid~~
~~• Compressed gas~~
~~• Explosive~~
~~• Flammable~~
~~• Organic peroxide~~
~~• Oxidizer~~
~~• Pyrophoric~~
~~• Unstable (reactive)~~
~~• Water reactive~~)) Means a chemical that is classified as posing one of the following hazardous effects: Explosive; flammable (gases, aerosols, liquids, or solids); oxidizer (liquid, solid or gas); self-reactive; pyrophoric (liquid or solid); self-heating; organic peroxide; corrosive to metal; gas under pressure; or in contact with water emits flammable gas. WAC 296-901-14024, Appendix B—Physical hazard criteria.

Platform

Platform means an extended step or landing that breaks a continuous run of stairs.

Plug

See definition for attachment plug.

Potable water

Water that is suitable for drinking by the public and meets the requirements of chapter 246-290 or 246-291 WAC.

Predictable and regular basis

Employee functions such as, but not limited to, inspection, service, repair and maintenance which are performed

• At least once every 2 weeks

OR

• 4 man-hours or more during any sequential 4-week period (to calculate man-hours multiply the number of employees by the number of hours during a 4-week period).

Produce

As used in ((~~Employer Chemical~~)) Hazard communication, WAC ((~~296-800-170~~)) 296-901-140, any one of the following:

• Manufacture
• Process
• Formulate
• Blend
• Extract
• Generate
• Emit
• Repackage

Purchaser

As used in ((~~Employer Chemical~~)) Hazard communication, WAC ((~~296-800-170~~)) 296-901-140, an employer who buys one or more hazardous chemicals to use in their workplace.

Pyrophoric

A chemical is pyrophoric if it will ignite spontaneously in the air when the temperature is 130°F (54.4°C) or below.

Qualified person

A person who has successfully demonstrated the ability to solve problems relating to the subject matter, work, or project, either by:

• Possession of a recognized degree, certificate, or professional standing;

OR

• Extensive knowledge, training and experience.

Railing or standard railing

A vertical barrier erected along exposed edges of a floor opening, wall opening, ramp, platform, or runway to prevent falls of persons.

Reassume jurisdiction

The department has decided to take back its control over a citation and notice being appealed.

Receptacle or receptacle outlet

As used in basic electrical rules, WAC 296-800-280 means outlets that accept a plug to supply electric power to equipment through a cord or cable.

Record

A record is any item, collection, or grouping of information. Examples include:

• Paper document
• Microfiche
• Microfilm
• X-ray film
• Computer record

Repeat violation

A violation is a repeat violation if the employer has been cited one or more times previously for a substantially similar hazard.

Refuge area

• A protected space along an exit route that is separated from other spaces inside the building by a barrier with at least a one-hour fire resistance rating;

OR

• A floor in a building with an automatic sprinkler system that has at least two spaces that are separated by smoke-resistant partitions. See WAC 296-24-607 for requirements for automatic sprinkler systems.

Responsible party

As used in ((~~employer chemical~~)) Hazard communication, WAC ((~~296-800-170~~)) 296-901-140. Someone who can provide appropriate information about the hazardous chemical and emergency procedures.

Rise

The vertical distance from the top of a tread to the top of the next higher tread.

Riser

The vertical part of the step at the back of a tread that rises to the front of the tread above.

Rungs

Rungs are the cross pieces on ladders that are used to climb up and down the ladder.

Runway

An elevated walkway above the surrounding floor or ground level. Examples of runways are footwalks along shafting or walkways between buildings.

Safety data sheet (SDS)

Written, printed, or electronic information (on paper, microfiche, or on-screen) that informs manufacturers, distributors, employers or employees about a hazardous chemical, its hazards, and protective measures as required by safety data sheet and label preparation, WAC 296-901-140.

Safety factor

The term safety factor means the ratio of when something will break versus the actual working stress or safe load when it is used.

Self-lighting or self-luminous

A light source that:

• Is illuminated by a self-contained power source other than batteries;

AND

• Operates independently from external power sources.

Serious violation

Serious violation must be deemed to exist in a workplace if there is a substantial probability that death or serious physical harm could result from a condition which exists, or from one or more practices, means, methods, operations, or processes which have been adopted or are in use in such workplace, unless the employer did not, and could not with the exercise of reasonable diligence, know of the presence of the violation.

Short-term exposure limit (STEL)

An exposure limit, averaged over a short time period (usually measured for 15 minutes) that must not be exceeded during any part of an employee's workday.

Should

Should means recommended.

Single ladder

A type of portable ladder with one section.

It is distinguished by all of the following:

• It has one section

• It cannot support itself

• Its length cannot be adjusted

Smoking

A person is smoking if they are:

• Lighting up

• Inhaling

• Exhaling

• Carrying a pipe, cigar or cigarette of any kind that is burning

Specific chemical identity

This term applies to chemical substances. It can mean the:

• Chemical name

• Chemical Abstracts Service (CAS) registry number

• Any other information that reveals the precise chemical designation of the substance.

Stair railing

A vertical barrier attached to a stairway with an open side to prevent falls. The top surface of the stair railing is used as a handrail

Stairs or stairway

A series of steps and landings:

– Leading from one level or floor to another((,))

– Leading to platforms, pits, boiler rooms, crossovers, or around machinery, tanks, and other equipment

– Used more or less continuously or routinely by employees, or only occasionally by specific individuals((.))

– With three or more risers

Standard safeguard

Safety devices that prevent hazards by their attachment to:

• Machinery

• Appliances

• Tools

• Buildings

• Equipment

These safeguards must be constructed of:

• Metal

• Wood

• Other suitable materials

The department makes the final determination about whether a safeguard is sufficient for its use.

Step ladder

A portable ladder with:

• Flat steps

• A hinge at the top allowing the ladder to fold out and support itself

• Its length that cannot be adjusted.

Time weighted average (TWA_8)

An exposure limit, averaged over 8 hours, that must not be exceeded during an employee's work shift.

Toeboard

A barrier at floor level along exposed edges of a floor opening, wall opening, platform, runway, or ramp, to prevent falls of materials.

Toxic chemical

As used in first aid, WAC 296-800-150, is a chemical that produces serious injury or illness when absorbed through any body surface.

Toxic substance

Any chemical substance or biological agent, such as bacteria, virus, and fungus, which is any of the following:

• Listed in the latest edition of the National Institute for Occupational Safety and Health (NIOSH) *Registry of Toxic Effects of Chemical Substances* (RTECS)

• Shows positive evidence of an acute or chronic health hazard in testing conducted by, or known to, the employer

• The subject of a ((~~material~~)) safety data sheet kept by or known to the employer showing the material may pose a hazard to human health.

Toxicant

A substance that has the inherent capacity to produce personal injury or illness to individuals by absorption through any body surface.

Trade secret

Any confidential:

• Formula

• Pattern

• Process

• Device

• Information

• Collection of information

The trade secret is used in an employer's business and gives an opportunity to gain an advantage over competitors who do not know or use it.

See WAC ((~~296-62-053~~)) 296-901-14018 for requirements dealing with trade secrets.

Tread

As used in stairs and stair railings, WAC 296-800-250 means the horizontal part of the stair step.

Tread run

As used in stairs and stair railings, WAC 296-800-250 means the distance from the front of one stair tread to the front of an adjacent tread.

Tread width

The distance from front to rear of the same tread including the nose, if used.

UL (Underwriters' Laboratories, Inc.)

You will find these initials on electrical cords and equipment. The initials mean the cord or equipment meets the standards set by the Underwriters' Laboratories, Inc.

Unstable (reactive)

As used in ((~~employer chemical~~)) Hazard communication, WAC ((~~296-800-170~~)) 296-901-140. An unstable or reactive chemical is one that in its pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shocks, pressure or temperature.

Use

As used in ((~~employer chemical~~)) Hazard communication, WAC ((~~296-800-170~~)) 296-901-140, means to:

- Package
- Handle
- React
- Emit
- Extract
- Generate as a by-product
- Transfer.

Vapor

The gaseous form of a substance that is normally in the solid or liquid state.

Voltage of a circuit

The greatest effective potential difference between any two conductors or between a conductor and ground.

Voltage to ground

The voltage between a conductor and the point or conductor of the grounded circuit. For undergrounded circuits, it is the greatest voltage between the conductor and any other conductor of the circuit.

Voltage, nominal

Nominal voltage is a value assigned to a circuit or system to designate its voltage class (120/240, 480Y/277, 600, etc.). The actual circuit voltage can vary from the value if it is within a range that permits the equipment to continue operating in a satisfactory manner.

WAC

This is an acronym for **Washington Administrative Code,** which are rules developed to address state law.

Water-reactive

As used in ((~~Employer Chemical~~)) Hazard communication, WAC ((~~296-800-170~~)) 296-901-140, a water-reactive chemical reacts with water to release a gas that is either flammable or presents a health hazard.

Watertight

Constructed so that moisture will not enter the enclosure or container.

Weatherproof

Constructed or protected so that exposure to the weather will not interfere with successful operation. Rainproof, raintight, or watertight equipment can fulfill the requirements for weatherproof where varying weather conditions other than wetness, such as snow, ice, dust, or temperature extremes, are not a factor.

Wet location

As used in basic electrical rules, WAC 296-800-280 means:

- Underground installations or in concrete slabs or masonry that are in direct contact with the earth
- Locations that can be saturated by water or other liquids
- Unprotected locations exposed to the weather (like vehicle washing areas)

WISHA

This is an acronym for the Washington Industrial Safety and Health Act.

Work area

As used in ((~~employer chemical~~)) Hazard communication, WAC ((~~296-800-170~~)) 296-901-140, a room or defined space in a workplace where hazardous chemicals are produced or used, and where employees are present.

Working days

Means a calendar day, except Saturdays, Sundays, and legal holidays. Legal holidays include:

– New Year's Day - January 1
– Martin Luther King, Jr. Day
– Presidents' Day
– Memorial Day
– Independence Day - July 4
– Labor Day
– Veterans' Day - November 11
– Thanksgiving Day
– The day after Thanksgiving Day; and
– Christmas Day - December 25

The number of working days must be calculated by not counting the first working day and counting the last working day.

Worker

See the definition for employee.

Workplace

- The term workplace means:

– Any plant, yard, premises, room, or other place where an employee or employees are employed for the performance of labor or service over which the employer has the right of access or control, and includes, but is not limited to, all workplaces covered by industrial insurance under Title 51 RCW, as now or hereafter amended.

– As used in ((~~Employer Chemical~~)) Hazard communication, WAC ((~~296-800-170~~)) 296-901-140 means an establishment, job site, or project, at one geographical location containing one or more work areas.

You

See definition of employer.

Your representative

Your representative is the person selected to act in your behalf.

AMENDATORY SECTION (Amending WSR 04-10-026, filed 4/27/04, effective 8/1/04)

WAC 296-802-100 Scope. The purpose of this chapter is to provide employees and their designated representatives the right to access relevant medical and exposure records. It also describes the procedures WISHA will follow when accessing confidential medical information.

This chapter applies to:

• All employers who make, maintain, contract for, or have access to records relating to employee exposure to toxic substances or harmful physical agents, whether or not they are required by specific occupational safety and health rules. These records include:

– Employee medical records.

– Employee exposure records.

– Analyses of employee medical or exposure records.

IMPORTANT:

• The requirements of this chapter do not affect any other legal and ethical obligations the employer has to keep employee medical information confidential.

Exemption: Agricultural operations covered by chapter 296-307 WAC, Safety standards for agriculture, are exempt from the requirements of this chapter.

Reference: • Requirements for ((~~material~~)) safety data sheets are found in WAC ((~~296-800-180, Material safety data sheets (MSDSs) as exposure records~~)) 296-901-14014, Safety data sheets.

• Additional information about accessing medical information can be found in chapter 70.02 RCW, Medical record—Health care information access and disclosure.

AMENDATORY SECTION (Amending WSR 04-10-026, filed 4/27/04, effective 8/1/04)

WAC 296-802-40015 Provide employee exposure records.

You must:

• Provide requested exposure records that show the type and amount of toxic substances or harmful physical agents to which the employee is or has been exposed, for an employee's current or transfer work assignment.

– In the absence of records specific to the employee, exposure records of other employees with the same job duties or related working conditions will be used to the extent necessary to respond to the request.

• Provide a designated representative, who does not have specific employee consent, access to employee exposure records only when a reasonable written request is made that includes the following:

– The records requested.

– The occupational health need for accessing these records.

Note: Trade secret information may be withheld from exposure records. See ((~~chapter 296-816 WAC, Protecting trade secrets~~)) WAC 296-901-14018, Trade secrets, for more information.

AMENDATORY SECTION (Amending WSR 04-10-026, filed 4/27/04, effective 8/1/04)

WAC 296-802-900 Definitions.

Access

The right and opportunity to examine and copy an employee record.

Analysis using exposure or medical records

• Any collection of data or a statistical study based on either:

– Information from individual employee exposure or medical records;

OR

– Information collected from health insurance claim records.

Designated representative

• Any individual or organization to which an employee gives written authorization.

• A recognized or certified collective bargaining agent without regard to written employee authorization.

• The legal representative of a deceased or legally incapacitated employee.

Employee exposure record

Means a record containing any of the following kinds of information:

• Environmental (workplace) monitoring or measuring of a toxic substance or harmful physical agent, including personal, area, grab, wipe, or other form of sampling, as well as related collection and analytical methodologies, calculations, and other background data relevant to interpretation of the results obtained.

• Biological monitoring results which directly assess the absorption of a toxic substance or harmful physical agent by body systems (such as the level of a chemical in the blood, urine, breath, hair, or fingernails) but not including results which assess the biological effect of a substance or agent or which assess an employee's use of alcohol or drugs.

• ((~~Material~~)) Safety data sheets indicating that the material may pose a hazard to human health;

OR

• In the absence of the above:

– A chemical inventory or any other record that reveals where and when used and the identity (e.g., chemical, common or trade name) of a toxic substance or harmful physical agent.

– Exposure records of other employees with past or present job duties or related working conditions.

Employee medical record

A record concerning the health status of an employee which is made or maintained by a physician, nurse, or other health care personnel, or technician, including:

• Medical and employment questionnaires or histories (including job description and occupational exposures).

• The results of medical examinations (preemployment, preassignment, periodic, or episodic) and laboratory tests (including chest and other X-ray examinations taken for purposes of establishing a baseline or detecting occupational illness, and all biological monitoring not defined as an "employee exposure record").

• Medical opinions, diagnoses, progress notes, and recommendations.

• First-aid records.

• Descriptions of treatments and prescriptions.

• Employee medical complaints.

An employee medical record does **not** include any of these types of medical information:

• Physical specimens (for example, blood or urine samples), which are routinely discarded as a part of normal medical practice.

• Records concerning health insurance claims if maintained separately from the employer's medical program and its records, and not accessible to the employer by employee name or other direct personal identifier, such as Social Security number or payroll number.

• Records created solely in preparation for litigation that are privileged from discovery under applicable rules of procedure or evidence.

• Records concerning voluntary employee assistance programs, such as alcohol, drug abuse, or personal counseling programs, if maintained separately from the employer's medical program and records.

Exposure or exposed

The contact an employee has with a toxic substance, harmful physical agent or oxygen deficient condition. Exposure can occur through various routes, such as inhalation, ingestion, skin contact, or skin absorption.

First aid

Any of the following are considered first aid:

• Using a nonprescription medication at nonprescription strength.

• Administering tetanus immunizations. Other immunizations, such as Hepatitis B vaccine or rabies vaccine, are considered medical treatment.

• Cleaning, flushing or soaking wounds on the surface of the skin.

• Using wound coverings such as bandages, Band-Aids™, or gauze pads.

• Using butterfly bandages or Steri-Strips™.

• Using hot or cold therapy.

• Using any nonrigid means of support, such as elastic bandages, wraps, or nonrigid back belts.

• Using temporary immobilization devices, such as splints, slings, neck collars, or back boards, while transporting an accident victim.

• Drilling a fingernail or toenail to relieve pressure.

• Draining fluid from a blister.

• Using eye patches.

• Removing foreign bodies from the eye using only irrigation or a cotton swab.

• Removing splinters or foreign material from areas other than the eye by irrigation, tweezers, cotton swabs or other simple means.

• Using finger guards.

• Using massages.

• Drinking fluids for relief of heat stress.

Harmful physical agent

Any physical stress such as noise, vibration, repetitive motion, heat, cold, ionizing and nonionizing radiation, and hypo- or hyperbaric pressure which:

• Is listed in the latest edition of the National Institute for Occupational Safety and Health (NIOSH) *Registry of Toxic Effects of Chemical Substances* (RTECS);

OR

• Has shown positive evidence of an acute or chronic health hazard in testing conducted by, or known to, the employer;

OR

• Is the subject of a ((~~material~~)) safety data sheet kept by or known to the employer showing that the material may pose a hazard to human health.

Health professional

A physician, occupational health nurse, industrial hygienist, toxicologist, or epidemiologist, who provides medical or other occupational health services to exposed employees.

Record

Any item, collection, or grouping of information. Examples include:

• Paper document.

• Microfiche.

• Microfilm.

• X-ray film.

• Computer record.

Specific chemical identity

Any other information that reveals the precise chemical designation of the substance, such as:

• Chemical name;

OR

• Chemical abstracts service (CAS) registry number.

Specific written authorization

A written authorization containing at least the following:

• The name and signature of the employee authorizing the release of medical information.

• The date of the written authorization.

• The name of the individual or organization that is authorized to release the medical information.

• The name of the designated representative (individual or organization) that is authorized to receive the information.

• A general description of the medical information that is authorized to be released.

• A general description of the purpose for the release of the medical information.

• A date or condition upon which the written authorization will expire.

Toxic substance

Any chemical substance or biological agent, such as bacteria, virus, and fungus, which is any of the following:

• Listed in the latest edition of the National Institute for Occupational Safety and Health (NIOSH) *Registry of Toxic Effects of Chemical Substances* (RTECS).

• Shows positive evidence of an acute or chronic health hazard in testing conducted by, or known to, the employer.

• The subject of a ((~~material~~)) safety data sheet kept by or known to the employer showing the material may pose a hazard to human health.

Trade secrets

Any confidential information that is used in an employer's business and gives an opportunity to gain an

advantage over competitors who do not know or use it. It can be a:

- Formula.
- Pattern.
- Process.
- Device.
- Information.
- Collection of information.

AMENDATORY SECTION (Amending WSR 07-05-062, filed 2/20/07, effective 4/1/07)

WAC 296-809-800 Definitions.

Acceptable entry conditions:

The conditions that must exist in a permit-required confined space to allow safe entry and work.

Attendant:

An individual stationed outside one or more permit-required confined spaces to monitor the entrants.

Blanking or blinding:

The absolute closure of a pipe, line, or duct by fastening a solid plate (such as a spectacle blind or a skillet blind) that completely covers the bore. It is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.

Confined space:

A space that is **all** of the following:

– Large enough and arranged so an employee could fully enter the space and work.

– Has limited or restricted entry or exit. Examples of spaces with limited or restricted entry are tanks, vessels, silos, storage bins, hoppers, vaults, excavations, and pits.

– Not primarily designed for human occupancy.

Double block and bleed:

The closure of a line, duct, or pipe by closing and locking or tagging two in-line valves and by opening and locking or tagging a drain or vent valve in the line between the two closed valves.

Emergency:

Any occurrence (including any failure of hazard control or monitoring equipment) or event internal or external to the permit-required confined space that could endanger authorized entrants.

Engulfment:

The surrounding capture of a person by a liquid or finely divided (flowable) solid substance that can be inhaled to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, or crushing.

Enter (entry):

The action by which a person passes through an opening into a permit-required confined space and includes work activities in that space. Entry is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.

Note: If the opening is large enough for the worker to fully enter the space, a permit is required even for partial body entry. Permits are not required for partial body entry where the opening is not large enough for full entry, although other rules such as chapter 296-803 WAC, lockout-tagout, and chapter 296-841 WAC, Airborne contaminants, may apply.

Entrant:

An employee who is authorized by the employer to enter a permit-required confined space.

Entry permit (permit):

The written or printed document that is provided by you to allow and control entry into a permit-required confined space and that contains the information required in WAC 296-809-500, Permit entry procedures.

Entry supervisor:

The person (such as the employer, crew leader, or crew chief) responsible for:

– Determining if acceptable entry conditions are present at a permit-required confined space where entry is planned;

– Authorizing entry and overseeing entry operations; and

– Terminating entry as required.

Hazardous atmosphere:

An atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (that is, escape unaided from a permit-required confined space), injury, or acute illness caused by one or more of the following:

– Flammable gas, vapor, or mist in excess of ten percent of its lower flammable limit (LFL).

– Airborne combustible dust at a concentration that meets or exceeds its LFL.

Note: This concentration may be approximated as a condition in which the dust obscures vision at a distance of five feet (1.52 m) or less.

– Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent.

– Atmospheric concentration of any substance which may exceed a permissible exposure limit. For additional information about atmospheric concentration, see chapter 296-62 WAC, Parts F, G, and I, General occupational health standards and chapter 296-841 WAC, Airborne contaminants.

Note: An airborne concentration of a substance that is not capable of causing death, incapacitation, impairment of ability to self-rescue, injury, or acute illness due to its health effects is not covered by this definition.

– Any other atmospheric condition that is immediately dangerous to life or health.

Note: You can find guidance on establishing acceptable atmospheric conditions for air contaminants, which have no WISHA-determined doses or permissible exposure limits using other sources of information, such as:

– ((~~Material~~)) Safety data sheets required by WAC ((~~296-800-170, Employer chemical hazard communication~~)) 296-901-14014, Safety data sheets.

– Published information.

– Internal documents.

Hot work permit:

A written authorization to perform operations, for example, riveting, welding, cutting, burning, and heating, that can provide a source of ignition.

Immediately dangerous to life or health (IDLH):

Any of the following conditions:

– An immediate or delayed threat to life.

– Anything that would cause irreversible adverse health effects.

– Anything that would interfere with an individual's ability to escape unaided from a permit-required confined space.

Note: Some materials - hydrogen fluoride gas and cadmium vapor, for example - may produce immediate transient effects that, even if severe, may pass without medical attention, but are followed by sudden, possibly fatal collapse twelve to seventy-two hours after exposure. The victim "feels normal" after recovery from transient effects until collapse. Such materials in hazardous quantities are considered to be "immediately" dangerous to life or health (IDLH).

Inerting:

The displacement of the atmosphere in a permit-required confined space by a noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible.

Note: This procedure produces an IDLH oxygen-deficient atmosphere.

Isolation:

The process by which a permit-required confined space is removed from service and completely protected against the release of energy and material into the space by such means as: Blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; a double block and bleed system; lockout or tagout of all sources of energy; or blocking or disconnecting all mechanical linkages.

Line breaking:

The intentional opening of a pipe, line, or duct that is or has been carrying flammable, corrosive, or toxic material, an inert gas, or any fluid at a volume, pressure, or temperature capable of causing injury.

Nonpermit confined space:

A confined space that does NOT contain actual hazards or potential hazards capable of causing death or serious physical harm.

Oxygen deficient atmosphere:

An atmosphere containing less than 19.5 percent oxygen by volume.

Oxygen enriched atmosphere:

An atmosphere containing more than 23.5 percent oxygen by volume.

Permit-required confined space or permit space:

A confined space that has one or more of the following characteristics capable of causing death or serious physical harm:

– Contains or has a potential to contain a hazardous atmosphere.

– Contains a material with the potential for engulfing someone who enters.

– Has an internal configuration that could allow someone entering to be trapped or asphyxiated by inwardly converging walls or by a floor, which slopes downward and tapers to a smaller cross section.

– Contains any physical hazard. This includes any recognized health or safety hazards including engulfment in solid or liquid material, electrical shock, or moving parts.

– Contains any other recognized serious safety or health hazard that could either:

– Impair the ability to self-rescue; or

– Result in a situation that presents an immediate danger to life or health.

Permit-required confined space program:

An overall program for:

– Controlling and appropriately protecting employees from permit-required confined space hazards; and

– Regulating employee entry into permit-required confined spaces.

Prohibited condition:

Any condition in a permit-required confined space that is not allowed by the permit during the authorized entry period.

Rescue service:

The personnel designated to rescue employees from permit-required confined spaces.

Retrieval system:

The equipment used for nonentry rescue of persons from permit-required confined spaces, such as a retrieval line, full-body harness or wristlets, and a lifting device or anchor.

Testing:

The process of identifying and evaluating the hazards that entrants may be exposed to in a permit-required confined space. Testing includes specifying the tests that are to be performed in the permit-required confined space.

Note: Testing allows employers to devise and implement adequate controls to protect entrants during entry, and to determine if acceptable entry conditions are present.

AMENDATORY SECTION (Amending WSR 06-01-073, filed 12/20/05, effective 3/1/06)

WAC 296-811-600 Definitions.

Buddy-breathing device

An equipment accessory for self-contained breathing apparatus (SCBA) that permits a second person (a "buddy") to share the air supply used by the SCBA wearer.

Extinguisher classification

The letter classification given an extinguisher to designate the class or classes of fires on which that extinguisher will be effective. For example, use a Class A extinguisher on a Class A fire. See also fire classifications.

Portable fire extinguishers are classified for use on certain classes of fires and are rated within that class for relative extinguishing effectiveness at a temperature of plus 70°F by nationally recognized testing laboratories. This is based upon fire classifications and fire extinguishment potentials as determined by fire tests.

Note: The classification and rating system described in this section is used by Underwriters' Laboratories, Inc., and Underwriters' Laboratories of Canada, and is based on extinguishing preplanned fires of determined size and description as follows:

Extinguisher Class	Fire Test for Classification and Rating
Class A	Wood and excelsior fires excluding deep-seated conditions.
Class B	Two-inch depth gasoline fires in square pans.
Class C	No fire test. Agent must be a nonconductor of electricity.

Extinguisher Class	Fire Test for Classification and Rating
Class D	Special tests on specific combustible metal fires.

Extinguisher rating (see also "extinguisher classification")

The numerical rating, such as 2A, given to an extinguisher that indicates the extinguishing potential of the unit based on standardized tests developed by Underwriters' Laboratories, Inc.

Fire brigade

An organized group of employees whose primary employment is other than firefighting but who are knowledgeable, trained, and skilled in specialized firefighting operations based on site-specific hazards present at a single commercial facility or facilities under the same management.

Fire classifications

Fires are classified based on the types of burning materials:

Fire Class	Types of Burning Materials
Class A	Fires involving ordinary combustible materials such as paper, wood, cloth, and some rubber and plastic materials.
Class B	Fires involving flammable ((~~or combustible~~)) liquids, flammable gases, greases, and similar materials, and some rubber and plastic materials.
Class C	Fires involving energized (live) electrical equipment where it is important that the extinguishing agent not conduct electricity. (When electrical equipment is de-energized, it is safe to use an extinguisher for Class A or B fires on it, since electricity is not an issue then.)
Class D	Fire involving combustible metals such as magnesium, titanium, zirconium, sodium, lithium, and potassium.

Incipient fire stage

A fire in the beginning stage that can be controlled or put out by portable fire extinguishers, or small hose systems, without the need for protective clothing or breathing apparatus.

Inspection

A visual check of fire protection systems and equipment to ensure they are in place, charged, and ready for use if there is a fire.

Interior structural firefighting

The physical activity of suppressing fire, rescuing people, or both, inside buildings or enclosed structures involved in a fire that is past the incipient stage.

Maintenance

Servicing fire protection equipment and systems to ensure they will perform as expected if there is a fire. Maintenance differs from inspection in that maintenance requires checking internal fittings, devices, and agent supplies, as well as correcting deficiencies found.

Self-contained breathing apparatus (SCBA)

Self-contained breathing apparatus (SCBA) in which the air pressure in the breathing zone is higher than that of the immediate environment during both inhaling and exhaling.

AMENDATORY SECTION (Amending WSR 07-03-163, filed 1/24/07, effective 4/1/07)

WAC 296-824-70005 Follow the appropriate postemergency response requirements.

Important:

• Postemergency response is the stage of the emergency response where the immediate threat from the release has been stabilized or eliminated, and cleanup of the site has started.

• When cleanup is done by the employees who were part of the initial emergency response, the employees are not covered by this section (however, training, PPE and other requirements in WAC 296-824-20005 through 296-824-60015 apply to these employees).

You must:

(1) Follow Table 10 to determine which requirements apply to your postemergency response activities.

(2) Maintain clean-up equipment as specified in Table 10.

Table 10
Rules that Apply to Postemergency Response Activities

When postemergency response cleanup is performed by employees who were not part of the initial emergency response and:	The following rules or requirements apply:
It is necessary to remove hazardous substances, health hazards and contaminated materials (example: Soil) from the site	Chapter 296-843 WAC, Hazardous waste operations.
Cleanup is done on plant property using plant or workplace employees **AND** It is not necessary to remove hazardous substances, health hazards and contaminated materials from the site.	For training: • WAC 296-24-567(1), Employee emergency action plans • Chapter 296-842 WAC, Respirators • WAC ((~~296-800-170, Employer chemical~~)) 296-901-140, Hazard communication

Table 10 Rules that Apply to Postemergency Response Activities	
When postemergency response cleanup is performed by employees who were not part of the initial emergency response and:	**The following rules or requirements apply:**
	• Other appropriate training requirements relevant to personal protective equipment (PPE) and decontamination For equipment: • Make sure that all equipment used for clean-up work is serviced and inspected before use.

AMENDATORY SECTION (Amending WSR 07-05-062, filed 2/20/07, effective 4/1/07)

WAC 296-824-800 Definitions. The following definitions are specific to this chapter:

Annually

Any twelve-month cycle.

Buddy system

A system of organizing employees (who enter or stand by danger areas) into work groups, so each employee can be observed by at least one other member of the group. The purpose of this system is to provide rapid assistance to employees in an emergency.

Clean-up operation(s)

An operation where hazardous substances are removed, contained, incinerated, neutralized, stabilized, cleared up or, in any other manner, processed or handled with the goal of making the site safer for people or the environment.

Danger area

Areas where conditions pose a serious danger to employees, such as areas where:

• Immediately dangerous to life or health (IDLH) conditions could exist

OR

• High levels of exposure to toxic substances could exist

OR

• There is a potential for exceeding the lower explosive limit (LEL), also known as the lower flammability limit (LFL), of a substance.

Decontamination

Removing hazardous substances from employees and their equipment so potential adverse health effects will not occur.

Emergency response

An organized response to an anticipated release of a hazardous substance that is, or could become an uncontrolled release.

Emergency response plan

A written plan that requires coordination between emergency response participants, and contains procedures, criteria, and other information that will be applied to emergency response operations. Each employer's plan should be compatible with local and state plans.

Engineering controls

Methods of controlling employee exposures by modifying the source or reducing the quantity of contaminants.

Hazardous materials team (HAZMAT team)

A group of employees who are expected to perform responses to releases, or possible releases, of hazardous substances for the purpose of control and stabilization. As a result of their duties, HAZMAT team members may have close contact with hazardous substances.

Note: A HAZMAT team may be a separate component of a fire brigade or fire department.

Hazardous substance

Any of the following substances that could adversely affect an exposed employee's health or safety:

• Substances defined under section 101(14) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) or "Superfund" Act (visit: *http://www.epa.gov*)

• Biological or other disease-causing agents released that could reasonably be expected to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions (including malfunctions in reproduction) or physical deformations in a person or their offspring when the person:

– Is directly exposed to the agent in the environment

– Directly ingests, inhales, or assimilates the agent from the environment

– Indirectly ingests the agent through a food chain

• Substances listed by the United States Department of Transportation as hazardous materials under Title 49 (Transportation) in the Code of Federal Regulations (C.F.R.), Part 172, section 101 and appendices (visit: *http://www.nara.gov* and search for "List of C.F.R. subjects")

• Hazardous wastes as defined in this chapter.

Hazardous waste

A substance designated by chapter 173-303 WAC, Dangerous waste regulations, department of ecology, as a dangerous waste or an extremely hazardous waste and any waste fitting the definition of "health hazard" in this chapter.

Note: For department of ecology regulations, visit: *http://www.ecy.wa.gov*

Health hazard

((~~A chemical, a mixture of chemicals, or a pathogen for which there is statistically significant evidence, based on at least one study conducted according to established scientific principles, that acute or chronic health effects may occur in exposed employees.~~

~~The term "health hazard" includes stress due to temperature extremes and chemicals that are:~~

~~• Carcinogens~~

~~• Toxic or highly toxic agents~~

~~• Reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, or neurotoxins~~

~~• Agents acting on the hematopoietic system agents that damage lungs, skin, eyes, or mucous membranes. (Detailed definitions of these chemical terms can be found in the Safety and health core rules, WAC 296-800-170, chemical hazard communication.)~~))) Means a chemical that is classified as posing one of the following hazardous effects: Acute toxicity (any route of exposure); skin corrosion or irritation; serious eye damage or eye irritation; respiratory or skin sensitization; germ cell mutagenicity; carcinogenity; reproductive toxicity; specific target organ toxicity (single or repeated exposure); aspiration hazard. The criteria for determining whether a chemical is classified as a health hazard are detailed in Appendix A of the Hazard Communication Standard WAC 296-901-140 and 296-901-14006 (definition of "simple asphyxiant").

Incident command system (ICS)

An organized approach to control and manage operations at an emergency response incident.

Incidental release

A release that can be safely controlled at the time of the release and does not have the potential to become an uncontrolled release.

Note:

Example of a situation that results in an incidental release:

A tanker truck is receiving a load of hazardous liquid when a leak occurs. The driver knows the only hazard from the liquid is minor skin irritation. The employer has trained the driver on procedures and provided equipment to use for a release of this quantity. The driver puts on skin protection and stops the leak. A spill kit is used to contain, absorb, and pick up the spilled material for disposal.

Immediately dangerous to life or health (IDLH)

Any atmospheric condition that would:

• Cause an immediate threat to life

OR

• Cause permanent or delayed adverse health effects

OR

• Interfere with an employee's ability to escape

Limited action

Action necessary to:

• Secure an operation during emergency responses((;))

OR

• Prevent an incident from increasing in severity.

Examples include shutting down processes and closing emergency valves.

Lines of authority

A preestablished ranking of individuals, qualified to assume a commanding role during an emergency response, noted in an emergency response plan and implemented during a response. This is most important when responders from multiple employers could participate in an emergency response.

Lower explosive limit (LEL)

See lower flammable limit (LFL).

Lower flammable limit (LFL)

The lowest concentration of a material that will propagate a flame. The LFL is usually expressed as a percent (by volume) of the material in air (or other oxidant).

Must

Must means mandatory.

Permissible exposure limit (PEL)

Means the established time-weighted-average (TWA) concentration or ceiling concentration of a contaminant that must not be exceeded. The exposure, inhalation, or dermal permissible limit specified in chapter 296-841 WAC, Airborne contaminants.

Personal protective equipment (PPE)

Protective items designed to be worn by the user to protect them against airborne, skin contact and other hazards. This includes items such as respiratory protection, protective suits, gloves, eye protection, etc.

Postemergency response

The stage of the emergency response where the immediate threat from the release has been stabilized or eliminated, and cleanup of the site has started.

Published exposure level

Exposure limits published in "*National Institute for Occupational Safety and Health* (*NIOSH*) *Recommendations for Occupational Safety and Health*" (DHHS publication #92-100, 1992).

If an exposure limit is not published by NIOSH, then "published exposure level" means the exposure limits published by the American Conference of Governmental Industrial Hygienists (ACGIH) in "*TLVs and BEIs-Threshold Limit Values for Chemical Substances and Physical Agents*" (1999 edition).

Note: Additional exposure levels published by recognized organizations such as the American Industrial Hygiene Association are not required to be observed by this rule; however, they may be a useful resource when a hazardous substance is not covered by NIOSH and ACGIH publications.

Release

A spill, leak, or other type of hazardous substance discharge.

Uncontrolled release

A release where significant safety and health risks could be created. Releases of hazardous substances that are either incidental or could not create a safety or health hazard (i.e., fire, explosion or chemical exposure) are not considered to be uncontrolled releases.

Examples of conditions that could create a significant safety and health risk:

• Large-quantity releases

• Small releases that could be highly toxic

• Potentially contaminated individuals arriving at hospitals

• Airborne exposures that could exceed a WISHA permissible exposure limit or a published exposure limit and employees are not adequately trained or equipped to control the release.

Example of an uncontrolled release:

A forklift driver knocks over a container of a solvent-based liquid, releasing the contents onto the warehouse floor. The driver has been trained to recognize the vapor is flammable and moderately toxic when inhaled. The driver has not been trained or provided appropriate equipment to address this type of spill. In this situation, it is not safe for the driver to attempt a response. The driver needs to notify someone of the release so an emergency response can be initiated.

Workplace

• A fixed facility

OR

• A temporary location (such as a traffic corridor)

OR

• Locations where employees respond to emergencies.

You

The employer. For a complete definition of "employer" see Safety and health core rules, chapter 296-800 WAC.

AMENDATORY SECTION (Amending WSR 10-15-106, filed 7/20/10, effective 9/1/10)

WAC 296-828-100 Scope. This chapter applies to the laboratory use of hazardous chemicals. To determine if this chapter applies to your workplace, use Table 1.

((

Table 1
Chapter Application

Are "Hazardous Chemicals" used? — YES / NO

Definition:
Hazardous chemicals are any chemicals that have been shown (in at least one scientific study) to cause acute or chronic health effects in exposed employees. 296-839 WAC contains information that can be used to determine if a chemical is considered hazardous for this rule

Are the hazardous chemicals used in "laboratory scale operations"? — YES / NO

Note:
Laboratory scale operations use containers that have been designed to be easily and safely handled by one person for reactions, transfers and other handling of the hazardous chemicals.

Laboratory scale operations **are not**

- Capable of producing commercial quantities of materials
- Part of a production process or simulate a production process
- Part of a quality control process that directs how a process operates.
- A simulation of a production process such as a pilot plant

*If any one of your answers brought you here, the Laboratory Standard **does not apply**, but other WISHA rules still apply*

Are multiple chemicals or multiple procedures used? — YES / NO

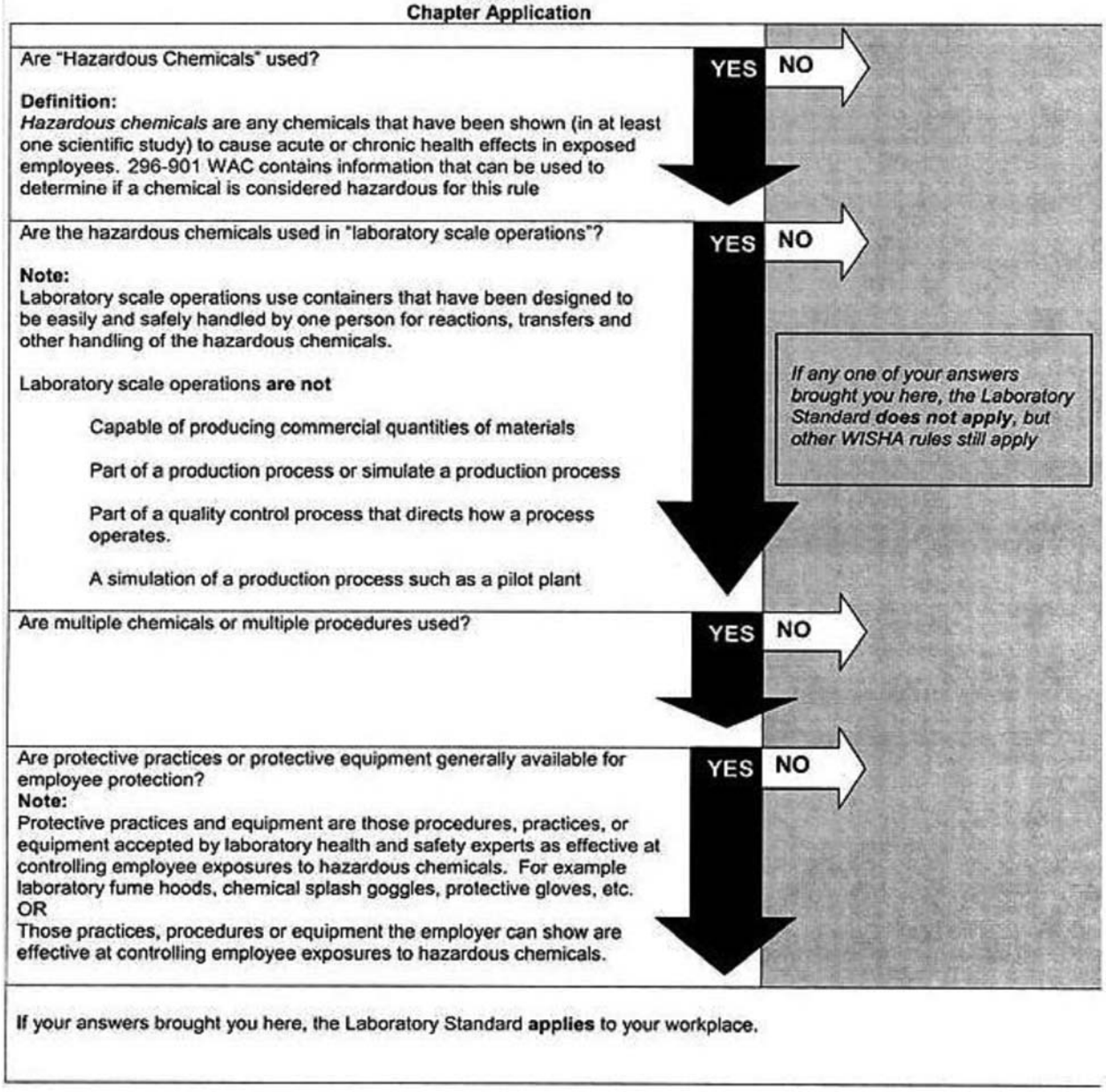
Are protective practices or protective equipment generally available for employee protection? — YES / NO

Note:
Protective practices and equipment are those procedures, practices, or equipment accepted by laboratory health and safety experts as effective at controlling employee exposures to hazardous chemicals. For example laboratory fume hoods, chemical splash goggles, protective gloves, etc.
OR
Those practices, procedures or equipment the employer can show are effective at controlling employee exposures to hazardous chemicals.

If your answers brought you here, the Laboratory Standard **applies** to your workplace.

))

Table 1
Chapter Application



IMPORTANT:

• When your laboratory operation is covered by this chapter, and you use any of the substances in Table 2, the following applies with the exception of formaldehyde use in histology, pathology, and anatomy laboratories. In histology, pathology, and anatomy laboratories you must follow the requirements in chapter 296-856 WAC, Formaldehyde. This chapter applies to all other formaldehyde laboratory uses as defined in Table 1:

– The exposure limits and any requirement protecting employees from skin and eye contact in the rules listed in Table 2 will still apply.

– Where the action level (or where no action level exists, the permissible exposure limit) is exceeded for a substance listed in Table 2, the exposure evaluation and medical surveillance requirements in the substance rule will still apply.

– You are not required to meet other requirements of the substance rule.

• To get the permissible exposure limits (PELs) for hazardous chemicals used in your laboratory, see chapter 296-841 WAC, Airborne contaminants.

Table 2
WISHA Regulated Hazardous Chemicals

Acrylonitrile
Arsenic (inorganic)
Asbestos

Benzene
Butadiene
Cadmium
Coke ovens
Cotton dust
1, 2-Dibromo-3-chloropropane
Ethylene oxide
Formaldehyde
Lead
Methylene chloride
Methylenedianiline
Vinyl chloride
Ionizing radiation
4-Nitrobiphenyl
Alpha-Naphthylamine
4,4' Methylene bis (2 - chloroaniline)
Methyl chloromethyl ether
3,3'-Dichlorobenzidine (and its salts)
Bis-Chloromethyl ether
Beta-Naphthylamine benzidine
4-Aminodiphenyl
Ethyleneimine
Beta-Propiolactone
2-Acetylaminofluorene
4-Dimethylaminoazobenzene
N-Nitrosodimethylamine

AMENDATORY SECTION (Amending WSR 06-02-060, filed 1/3/06, effective 4/1/06)

WAC 296-828-200 Using hazardous chemicals in laboratories. Your responsibility:

To protect employees from laboratory use of hazardous chemicals.

WAC 296-828-20005

Chemical hygiene plan.

WAC 296-828-20010

Exposure evaluation.

WAC 296-828-20015

Training.

WAC 296-828-20020

Labeling and ((~~material~~)) safety data sheets (((~~MSDSs~~))) (SDSs).

WAC 296-828-20025

Chemicals produced in laboratories.

WAC 296-828-20030

Medical evaluations.

AMENDATORY SECTION (Amending WSR 07-03-163, filed 1/24/07, effective 4/1/07)

WAC 296-828-20015 Training.

You must:

• Inform employees about the presence of hazardous chemicals at the following times:

– At the time of initial assignment to a work area where hazardous chemicals are present.

– Prior to situations involving a new exposure to hazardous chemicals.

• Train employees on all of the following:

– Methods and observations for detecting the presence or release of hazardous substances. Examples of these methods and observations may include:

■ Monitoring conducted by you.

■ Continuous monitoring devices.

■ Visual appearance or odor of hazardous chemicals when being released.

– The physical and health hazards of chemicals in the work area.

– The procedures and measures employees can use to protect themselves from hazardous substances. Examples of these include:

■ Appropriate work practices.

■ Emergency procedures.

■ Personal protective equipment.

• Provide refresher training to fit your needs.

• Provide information to employees on all of the following:

– The contents of this chapter and where to find a copy.

– Permissible exposure limits found in chapter 296-841 WAC, Respiratory hazards.

– Any recommended exposure levels for compounds without an exposure limit in the WISHA rules. Examples include:

■ The PELs found in the National Institute for Occupational Safety and Health (NIOSH) NIOSH Pocket Guide to Chemical Hazards 2004; or

■ The American Conference of Governmental Industrial Hygienists (ACGIH®) Documentation of the Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs), 7th Ed.

– Signs and symptoms associated with exposures to hazardous chemicals used in the laboratory.

– Where to find a copy of:

■ Your chemical hygiene plan.

■ ((~~Material~~)) Safety data sheets (((~~MSDSs~~))) (SDSs), including those received from the chemical suppliers.

■ Reference material on the hazards, safe handling, storage, and disposal of hazardous chemicals found in the laboratory.

AMENDATORY SECTION (Amending WSR 06-02-060, filed 1/3/06, effective 4/1/06)

WAC 296-828-20020 Labeling and ((~~material~~)) safety data sheets (((~~MSDSs~~))) (SDSs).

You must:

• Make sure labels on incoming containers are not removed or defaced.

• Keep and make available to employees any ((~~MSDS~~)) SDS received with an incoming container of hazardous chemicals.

AMENDATORY SECTION (Amending WSR 06-02-060, filed 1/3/06, effective 4/1/06)

WAC 296-828-20025 Chemicals produced in laboratories.

You must:

Follow Table 3 for chemical substances produced in your laboratory.

Table 3
Lab Produced Chemical Substance Requirements

If	Then
The chemical is a hazardous chemical	Follow all appropriate requirements of this chapter
A chemical by-product is produced and its composition is unknown	Assume it is a hazardous chemical AND Follow your chemical hygiene plan to protect employees
You produce chemicals in your laboratory for users outside the laboratory	Follow ((~~chapter 296-839 WAC, MSDS and label preparation~~)) WAC 296-901-14014, Safety data sheets and WAC 296-901-14012, Labels and other forms of warning

AMENDATORY SECTION (Amending WSR 07-03-163, filed 1/24/07, effective 4/1/07)

WAC 296-828-300 Definitions.

Action level

An airborne concentration of a hazardous substance that is calculated as an 8-hour time-weighted average, and initiates certain requirements to be followed such as exposure monitoring or medical surveillance.

Carcinogens see "select carcinogen"

Chemical hygiene officer

An employee designated by the employer who is qualified by training or experience to provide technical guidance in the development and implementation of the chemical hygiene plan. This definition is not intended to place limitations on the designated employee's position description or job classification within the employer's organization.

Chemical hygiene plan

A written program developed and implemented by the employer that establishes procedures, equipment, personal protective equipment, and work practices to protect employees from the health hazards of the chemicals used in the laboratory.

Container

Any container, except for pipes or piping systems that contains a hazardous substance. For example it can be any of the following:

• Barrel.
• Bottle.
• Can.
• Cylinder.
• Drum.
• Reaction vessel.
• Storage tank.

Day

Any part of a calendar day.

Designated representative

Any one of the following:

• Any individual or organization to which an employee gives written authorization.

• A recognized or certified collective bargaining agent without regard to written employee authorization.

• The legal representative of a deceased or legally incapacitated employee.

Emergency

Any event that could or does result in the unexpected, significant release of a hazardous substance. Examples of emergencies include equipment failure, container rupture, or control equipment failure.

Exposure

The contact an employee has with a hazardous substance, whether or not protection is provided by respirators or other personal protective equipment (PPE). Exposure can occur through various routes of entry such as inhalation, ingestion, skin contact, or skin absorption.

Hazardous chemical

((~~A chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. The term "health hazard" includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic systems, and agents which damage the lungs, skin, eyes, or mucous membranes.~~)) Means any chemical which is classified as health hazard or simple asphyxiant in accordance with the Hazard Communication Standard, WAC 296-901-140.

Health hazard

Means a chemical that is classified as posing one of the following hazardous effects: Explosive; flammable (gases, aerosols, liquids, or solids); oxidizer (liquid, solid, or gas); self-reactive; pyrophoric (gas, liquid, or solid); self-heating; organic peroxide; corrosive to metal; gas under pressure; in contact with water emits flammable gas; or combustible dust. The criteria for determining whether a chemical is classified as a physical hazard are in Appendix B of the Hazard Communication Standard, WAC 296-901-14024 and 296-901-14006 (definitions of "combustible dust" and "pyrophoric gas").

Laboratory

A facility where the "laboratory use of hazardous substances" takes place. A workplace where relatively small

amounts of hazardous substances are used on a nonproduction basis.

Laboratory-type hood

A device located in a laboratory, enclosure on five sides with a moveable sash or fixed partial enclosed on the remaining side; constructed and maintained to draw air from the laboratory and to prevent or minimize the escape of air contaminants into the laboratory; and allows chemical manipulations to be conducted in the enclosure without insertion of any portion of the employee's body other than hands and arms.

Note: Walk-in hoods with adjustable sashes meet the above definition provided that the sashes are adjusted during use so that the airflow and the exhaust of air contaminants are not compromised and employees do not work inside the enclosure during the release of airborne hazardous substances.

Laboratory scale

Work with substances in which the containers used for reactions, transfers and other handling of the substances are designed to be easily and safely manipulated by one person. "Laboratory scale" **does not** include workplaces producing commercial quantities of materials.

Laboratory use

The handling or use of hazardous substances that includes **all** the following:

– Chemical manipulations conducted on a "laboratory scale."

– Multiple chemical procedures or chemicals are used.

– The procedures are not part of a production process, nor in any way simulate a production process.

– "Protective laboratory practices and equipment" are available and are commonly used to minimize the potential for employee exposures to hazardous substances.

Licensed health care professional (LHCP)

An individual whose legally permitted scope of practice allows him or her to provide some or all of the health care services required for medical evaluations.

((~~**Material safety data sheet (MSDS)**~~

~~Written, printed, or electronic information (on paper, microfiche, or on-screen) that informs manufacturers, distributors, employers or employees about a hazardous substance, its hazards, and protective measures as required by material safety data sheet and label preparation, chapter 296-839 WAC.~~))

Mutagen

Means chemicals that cause permanent changes in the amount or structure of the genetic material in a cell. Chemicals classified as mutagens in accordance with the Hazard Communication Standard, WAC 296-901-140 must be considered mutagens for purposes of this section.

Permissible exposure limits (PELs)

PELs are employee exposures to toxic substances or harmful physical agents that must not be exceeded. PELs are also specified in WISHA rules found in other chapters.

Physical hazard

((~~As used in Employer chemical hazard communication, WAC 296-800-170 means a chemical that has scientifically valid evidence to show it is one of the following:~~

~~• Combustible liquid.~~

~~• Compressed gas.~~

~~• Explosive.~~

~~• Flammable.~~

~~• Organic peroxide.~~

~~• Oxidizer.~~

~~• Pyrophoric.~~

~~• Unstable (reactive).~~

~~• Water reactive.~~)) Means a chemical that is classified as posing one of the following hazardous effects: Explosive; flammable (gases, aerosols, liquids, or solids); oxidizer (liquid, solid, or gas); self-reactive; pyrophoric (gas, liquid, or solid); self-heating; organic peroxide; corrosive to metal; gas under pressure; in contact with water emits flammable gas; or combustible dust. The criteria for determining whether a chemical is classified as a physical hazard are in Appendix B of the Hazard Communication Standard, WAC 296-901-14024 and 296-901-14006 (definitions of "combustible dust" and "pyrophoric gas").

Protective laboratory practices and equipment

Laboratory procedures, practices, and equipment accepted by laboratory health and safety experts as effective, that can be shown to be effective, in minimizing the potential for employee exposure to hazardous substances.

Reproductive toxin

((~~Chemicals that affect reproductive capabilities including chromosomal damage (mutations) and effects on fetuses (teratogenesis).~~)) Mean chemicals that affect the reproductive capabilities including adverse effects on sexual function and fertility in adult males and females, as well as adverse effects on the development of the offspring. Chemicals classified as reproductive toxins in accordance with the Hazard Communication Standard, WAC 296-901-140 shall be considered reproductive toxins for purposes of this section.

Safety data sheet (SDS)

Written, printed, or electronic information (on paper, microfiche, or on-screen) that informs manufacturers, distributors, employers or employees about a hazardous substance, its hazards, and protective measures as required by safety data sheet and label preparation, WAC 296-901-14012 and 296-901-14014.

Select carcinogen

Any substance meeting one of the following criteria:

– Regulated by WISHA as a carcinogen.

– Listed in the "known to be carcinogens" category in the latest edition of the Annual Report on Carcinogens by the National Toxicity Program (NTP).

– Listed in Group I (carcinogenic to humans) in the latest editions of the International Agency for Research on Cancer (IARC) Monographs.

– Listed in either group 2A or 2B by IARC **or** in the category "reasonably anticipated to be carcinogens" by the NTP, and causes statistically significant tumor incidence in experimental animals in accordance with any of the following criteria:

■ After an inhalation exposure of six to seven hours a day; five days a week; for a significant portion of a lifetime to dosages of less than 10 mg/m^3; **or**

■ After repeated skin application of less than 300 mg/kg of body weight per week; **or**

■ After oral dosages of less than 50 mg/kg of body weight per day.

Time-weighted average (TWA_8)

An exposure limit averaged over an 8-hour period that must not be exceeded during an employee's workday.

AMENDATORY SECTION (Amending WSR 02-15-102, filed 7/17/02, effective 10/1/02)

WAC 296-835-11015 Take additional precautions if you recirculate ventilation system exhaust air into the workplace.

IMPORTANT:

This section applies if exhaust air from dipping or coating operations that use flammable liquids, or liquids with flashpoints greater than 199.4°F (93°C) is recirculated back into the work environment.

You must:

• Only recirculate air that contains no substance at a concentration that could pose a health or safety hazard to employees.

• Make sure any exhaust system that recirculates air into the workplace:

– Passes the air through a device that removes contaminants

– Sounds an alarm and automatically shuts down the dip tank operation, if the vapor concentration of any substance in the exhaust air exceeds twenty-five percent of its LFL

– Monitors the concentration of vapor from flammable ((~~or combustible~~)) liquids or liquids with flashpoints greater than 199.4°F (93°C) with approved equipment.

Note:
• The LFL concentration in the air must be determined after the air passes through the air-cleaning device and before the air reenters the workspace.
• Most substances will pose a health hazard at a concentration far below twenty-five percent of its LFL.

AMENDATORY SECTION (Amending WSR 02-15-102, filed 7/17/02, effective 10/1/02)

WAC 296-835-120 Additional requirements for dip tanks using flammable ((~~or combustible~~)) liquids or liquids with flashpoints greater than 199.4°F (93°C). Summary.

IMPORTANT:

This section applies to:

• Flammable ((~~and combustible~~)) liquids (((~~flashpoint below 200°F)~~

~~• Liquids that have a flashpoint of 200°F~~)) or liquids with flashpoints greater than 199.4°F (93.3°C) or higher if you:

– Heat the liquid

– Dip a heated object in the tank

Reference: Store flammable ((~~and combustible~~)) liquids ((~~as required by Flammable and combustible liquids,~~)) or liquids with a flashpoint greater than 199.4°F (93°C) in accordance with WAC 296-24-330, in the general safety and health standards.

Your responsibility:

Safeguard employees working with dip tanks containing flammable ((~~or combustible~~)) liquids or liquids with a flashpoint greater than 199.4°F (93°C).

You must:

CONSTRUCTION

Include additional safeguards when constructing dip tanks

WAC 296-835-12005

Provide overflow pipes

WAC 296-835-12010

Provide bottom drains

WAC 296-835-12015

FIRE PROTECTION

Provide fire protection in the vapor area

WAC 296-835-12020

Provide additional fire protection for large dip tanks

WAC 296-835-12025

ELECTRICAL WIRING AND EQUIPMENT AND SOURCES OF IGNITION

Prevent static electricity sparks or arcs when adding liquids to a dip tank

WAC 296-835-12035

Control ignition sources in the vapor area and adjacent area

WAC 296-835-12040

Provide safe wiring and electrical equipment where the liquid can drip or splash

WAC 296-835-12045

HOUSEKEEPING

Keep the area around dip tanks clear of combustible material and properly dispose of waste

WAC 296-835-12050

HEATING LIQUID

Make sure heating the liquid in your dip tanks does not cause a fire

WAC 296-835-12055

HEAT DRYING

Make sure a heating system used for drying objects does not cause a fire

WAC 296-835-12060

CONVEYORS

Make sure the conveyor system for dip tanks is safe

WAC 296-835-12065.

AMENDATORY SECTION (Amending WSR 02-15-102, filed 7/17/02, effective 10/1/02)

WAC 296-835-12020 Provide fire protection in the vapor area.

You must:

• Provide a manual fire extinguisher near the tank that is suitable for putting out fires involving flammable ((~~and combustible liquid fires~~)) liquids and liquids with flashpoints greater than 199.4°F (93°C).

AMENDATORY SECTION (Amending WSR 02-15-102, filed 7/17/02, effective 10/1/02)

WAC 296-835-13005 Meet specific requirements if you use a hardening or tempering tank.

You must:

(1) Provide an automatic fire extinguishing system or an automatic dip tank cover for any hardening and tempering

tank that uses flammable ((~~or combustible~~)) liquids or liquids with flashpoints greater than 199.4°F (93°C) and:

– Holds five hundred gallons (1893 L) or more of liquid

OR

– Has twenty-five square feet (2.37 m^2) or more of liquid surface area.

(2) Prevent fires.

• Make sure hardening and tempering tanks are:

– **Not** located on or near combustible flooring.

– Located as far away as practical from furnaces.

– Equipped with noncombustible hoods and vents (or equally effective devices) for venting to the outside.

• Treat vent ducts as flues and keep them away from combustible material, particularly roofs.

(3) Make sure air under pressure is not used to:

• Fill the tank

OR

• Agitate the liquid in the tank.

(4) Equip each tank with an alarm that will sound when the temperature is within 50°F (10°C) of the liquid's flashpoint (alarm set point).

(5) Make sure a limit switch shuts down conveyors supplying work to the tank when the temperature reaches the alarm setpoint, if operationally practical.

(6) Have a circulating cooling system if the temperature of the liquid can exceed the alarm set point.

Note: The bottom drain of the tank may be combined with the oil circulating system if the requirements for bottom drains in WAC 296-835-12015 are satisfied.

AMENDATORY SECTION (Amending WSR 02-15-102, filed 7/17/02, effective 10/1/02)

WAC 296-835-140 Definitions. ACGIH: American Conference of Governmental Industrial Hygienists.

Adjacent area: Any area within twenty feet (6.1 m) of a vapor area that is not separated from the vapor area by tight partitions.

ANSI: American National Standards Institute.

Approved: Approved or listed by a nationally recognized testing laboratory. Refer to federal regulation 29 C.F.R. 1910.7, for definition of nationally recognized testing laboratory.

Autoignition temperature: The minimum temperature required to cause self-sustained combustion without any other source of heat.

((~~**Combustible liquid:** A liquid having a flashpoint of at least 100°F (37.8°C) and below 200°F (93.3°C). Mixtures with at least ninety-nine percent of their components having flashpoints of 200°F (93.3°C) or higher are not considered combustible liquids.~~))

Detearing: A process for removing excess wet coating material from the bottom edge of a dipped or coated object or material by passing it through an electrostatic field.

Dip tank: A container holding a liquid other than plain water that is used for dipping or coating. An object may be immersed (or partially immersed) in a dip tank or it may be suspended in a vapor coming from the tank.

Flammable liquid: Any liquid having a flashpoint at or below ((~~100~~)) 199.4°F (((~~37.8~~)) 93°C)((~~, except any mixture having components with flashpoints of 100°F (37.8°C) or higher, the total of which make up ninety-nine percent or more of the total volume of the mixture~~)). Flammable liquids are divided into four categories as follows:

(a) Category 1 shall include liquids having flashpoints below 73.4°F (23°C) and having a boiling point at or below 95°F (35°C).

(b) Category 2 shall include liquids having flashpoints below 73.4°F (23°C) and having a boiling point above 95°F (35°C).

(c) Category 3 shall include liquids having flashpoints at or above 73.4°F (23°C) and at or below 140°F (60°C). When a Category 3 liquid with a flashpoint at or above 100°F (37.8°C) is heated for use to within 30°F (16.7°C) of its flashpoint, it shall be handled in accordance with the requirements for a Category 3 liquid with a flashpoint below 100°F (37.8°C).

(d) Category 4 shall include liquids having flashpoints above 140°F (60°C) and at or below 199.4°F (93°C). When a Category 4 flammable liquid is heated for use to within 30°F (16.7°C) of its flashpoint, it shall be handled in accordance with the requirements for a Category 3 liquid with a flashpoint at or above 100°F (37.8°C).

(e) When liquid with a flashpoint greater than 199.4°F (93°C) is heated for use to within 30°F (16.7°C) of its flashpoint, it shall be handled in accordance with the requirements for a Category 4 flammable liquid.

Flashpoint: Means the minimum temperature at which a liquid gives off a vapor ((~~in~~)) within a test vessel in sufficient concentration to ((~~ignite when tested by any of the measurement methods described in the definition of flashpoint in the safety and health core rules, WAC 296-800-370.~~)) form an ignitable mixture with air near the surface of the liquid, and shall be determined as follows:

(a) The flashpoint of liquids having a viscosity less than 45 Saybolt universal second(s) at 100°F (37.8°C) and a flashpoint below 175°F (79.4°C) shall be determined in accordance with the Standard Method of Test for Flashpoint by the Tag Closed Tester, ASTM D-56-69 (incorporated by reference; WAC 296-901-14024, Appendix B—Physical hazard criteria).

(b) The flashpoints of liquids having a viscosity of 45 Saybolt universal second(s) or more at 175°F (79.4°C) or higher shall be determined in accordance with the Standard Method of Test for Flashpoint by the Pensky Martens Closed Tester, ASTM D-93-69 (incorporated by reference; WAC 296-901-14024, Appendix B—Physical hazard criteria).

Lower flammable limit: The lowest concentration of a material that will propagate a flame. The LFL is usually expressed as a percent by volume of the material in air (or other oxidant).

NFPA: National Fire Protection Association.

Vapor area: Any area in the vicinity of dip tanks, their drain boards or associated drying, conveying, or other equipment where the vapor concentration could exceed twenty-five percent of the lower flammable limit (LFL) for the liquid in the tank.

You: Means the employer. See the definition of employer in the safety and health core rules, WAC 296-800-370.

AMENDATORY SECTION (Amending WSR 07-05-062, filed 2/20/07, effective 4/1/07)

WAC 296-841-100 Scope. This chapter applies when your employees are, or could be, exposed to an airborne hazard.

• The following are examples of airborne contaminants that may become airborne hazards in some workplaces:

– Chemicals listed in Table 3, Permissible Exposure Limits (PELs) for Airborne Contaminants

– Any substance:

■ Listed in the latest edition of the NIOSH Registry of Toxic Effects of Chemical Substances

■ For which positive evidence of an acute or chronic health hazard exists through tests conducted by, or known to, the employer

■ That may pose a hazard to human health as stated on a ((~~material~~)) safety data sheet (((~~MSDS~~))) (SDS) kept by, or known to, the employer

– Biological agents such as harmful bacteria, viruses or fungi

■ Examples include TB aerosols and anthrax

– Pesticides

– Chemicals used as crowd control agents, such as pepper spray

– Chemicals present at clandestine drug labs.

• Airborne contaminants exist in a variety of physical forms such as dusts, fibers, fogs, fumes, mists, gases, smoke, sprays, vapors, or aerosols.

Definition:

Exposed or exposure:

The contact an employee has with a toxic substance, harmful physical agent or oxygen-deficient condition, whether or not protection is provided by respirators or other personal protective equipment (PPE). Exposure can occur through various routes of entry, such as inhalation, ingestion, skin contact, or skin absorption.

AMENDATORY SECTION (Amending WSR 07-05-062, filed 2/20/07, effective 4/1/07)

WAC 296-841-20003 Employee protective measures. Protect employees from potentially hazardous exposure while you perform your exposure evaluation, using all available resources to determine adequate protective measures.

Note: • Resources include product labels, ((~~material~~)) safety data sheets (((~~MSDSs~~))) (SDSs), manufacturer recommendations, and industry protocols.

AMENDATORY SECTION (Amending WSR 07-05-062, filed 2/20/07, effective 4/1/07)

WAC 296-841-20005 Exposure evaluations. (1) Conduct an exposure evaluation to determine or reasonably estimate whether an employee is or could be exposed to either of the following:

– An airborne contaminant above a permissible exposure limit (PEL) listed in Table 3;

OR

– Other airborne hazards, such as biological hazards.

Note: • When evaluating air contaminants, keep in mind that oxygen deficient conditions may also occur due to:

– Processes such as fermentation, decomposition of organic matter, or combustion of fossil fuels

– Displacement by another gas such as nitrogen or carbon dioxide

• Rules for specific substances may contain additional requirements for determining employee exposure

• Samples from a representative group of employees may be used for other employees performing the same work activities, when the duration and level of exposure are similar.

(2) Conclude that an atmosphere is immediately dangerous to life or health (IDLH) when you cannot determine or reasonably estimate employee exposure.

(3) Do all the following when you perform your evaluation:

(a) Determine the form of the airborne contaminant, such as dust, mist, gas, or biological agent.

(b) Make sure you don't use the amount of protection provided to employees by respirators as a factor in determining whether employees are exposed to an airborne hazard.

(c) Make sure any air monitoring results used to determine employee exposures are based on personal air samples taken from, or representative of, the employee's breathing zone.

■ You may use area sampling to screen for the presence of an airborne contaminant; however, results from area sampling can't be used if they don't adequately represent exposure of affected employees.

(d) Include potential emergency and rescue situations that may occur, such as equipment or power failures, uncontrolled chemical reactions, fire, explosion, or human error.

(e) Include workplace conditions such as work processes, types of material, exposure control methods, work practices, and environmental conditions.

(f) Address extended work periods. For work shifts longer than eight hours, evaluate the continuous eight-hour portion of the shift expected to have the highest average exposure concentration.

(4) Use either of the following types of documentation to conclusively demonstrate that employee exposure cannot meet or exceed any PEL for the airborne contaminant during any reasonably anticipated conditions:

– Personal air samples that represent an employee's usual or worst-case exposure during the entire shift.

OR

– Specific information about products, materials, or activities that provides for an estimate of the level of employee exposure such as ((~~material~~)) safety data sheets (((~~MSDSs~~))) (SDSs), observations, previous air sampling results, other measurements, calculations, or pesticide labels.

Note: • You should use methods of sampling and analysis that have been validated by the laboratory performing the analysis.

(5) Use the following formula to evaluate employee exposure to two or more substances that have additive health effects:

$$E_m = \frac{C_1}{L_1} + \frac{C_2}{L_2} + \ldots + \frac{C_n}{L_n}$$

The symbol	Is the . . .
E	Equivalent exposure for the mixture. **When the value of E is greater than 1, an airborne hazard is present.**
C	Concentration of a specific airborne contaminant.
L	TWA_8, STEL, or ceiling limit for that airborne contaminant, from Table 3, Permissible Exposure Limits (PELs) for Airborne Contaminants.

Note: • When results from your exposure evaluation indicate an airborne hazard, follow requirements in WAC 296-841-20010 through 296-841-20020 of this chapter.
• When changes occur that increase the level of exposure to an airborne hazard, you may need to conduct a new exposure evaluation to make sure exposure controls and other protective measures are sufficient.

AMENDATORY SECTION (Amending WSR 07-05-062, filed 2/20/07, effective 4/1/07)

WAC 296-841-300 Definitions.

Breathing zone

The space around and in front of an employee's nose and mouth, forming a hemisphere with a six to nine inch radius.

Ceiling limit

See Permissible exposure limits (PELs).

Dust

Solid particles suspended in air. Dusts are generated by handling, drilling, crushing, grinding, rapid impact, detonation, or decrepitation of organic or inorganic materials such as rock, ore, metal, coal, wood, grain, etc.

Exposed or exposure

The contact an employee has with a toxic substance, harmful physical agent or oxygen deficient condition, whether or not protection is provided by respirators or other personal protective equipment (PPE). Exposure can occur through various routes of entry, such as inhalation, ingestion, skin contact, or skin absorption.

Fume

Solid particles suspended in air, generated by condensation from the gaseous state, generally after volatilization from molten metals, etc.

Gas

A normally formless fluid which can be changed to the liquid or solid state by the effect of increased pressure or decreased temperature or both.

General exhaust ventilation

The general movement of air out of an area or permit-required confined space by mechanical or natural means.

Immediately dangerous to life or health (IDLH)

An atmospheric condition that would:

• Cause an immediate threat to life

or

• Cause permanent or delayed adverse health effects

or

• Interfere with an employee's ability to escape

Mist

Liquid droplets suspended in air, generated by condensation from the gaseous to the liquid state or by breaking up a liquid into a dispersed state, such as by splashing, foaming, spraying or atomizing.

Nuisance dust (or inert dust)

Dusts that, when inhaled, have little adverse effect on the lungs **and** do not produce significant organic disease or toxic effect when exposures are kept under reasonable control.

The biological reaction to these dusts in lung tissue has the following characteristics:

• The architecture of the air spaces remains intact

• Scar tissue (collagen) isn't formed to a significant extent

• The tissue reaction is potentially reversible

Oxygen deficient

An atmosphere with an oxygen content below 19.5% by volume.

Permissible exposure limits (PEL)

The amount of an airborne chemical, toxic substance, or other harmful agent that must not be exceeded during any part of the workday.

An airborne chemical or toxic substance can have 3 PEL values:

• TWA_8. This is an 8-hour, time-weighted average limit.

• Short-term exposure limit (STEL). This is typically a 15-minute, time-weighted average limit.

• Ceiling limit (C). This is an instantaneous limit.

Short-term exposure limit (STEL)

See Permissible exposure limits (PELs).

Temper

To condition air for a specific work environment by changing its temperature or moisture content.

Time weighted average (TWA_8)

See Permissible exposure limits (PELs).

Toxic substance

Any chemical substance or biological agent, such as bacteria, virus, and fungus, which is any of the following:

• Listed in the latest edition of the National Institute for Occupational Safety and Health (NIOSH) Registry of Toxic Effects of Chemical Substances (RTECS)

• Shows positive evidence of an acute or chronic health hazard in testing conducted by, or known to, the employer.

• The subject of a ((~~material~~)) safety data sheet kept by or known to the employer showing the material may pose a hazard to human health.

Vapor

The gaseous form of a substance that is normally in the solid or liquid state.

Ventilation

Providing, circulating or exhausting air into or out of an area or space.

AMENDATORY SECTION (Amending WSR 09-15-145, filed 7/21/09, effective 9/1/09)

WAC 296-842-12005 Develop and maintain a written program.

Exemption: This section does **NOT** apply to respirator use that is voluntary. See WAC 296-842-11005 for voluntary use program requirements.

(1) Develop a complete worksite-specific written respiratory protection program that includes the applicable elements listed in Table 3. The program shall cover each employee required by this section to use a respirator.

Note: Pay for respirators, medical evaluations, fit testing, training, maintenance, travel costs, and wages.

(2) Keep your program current and effective by evaluating it and making corrections. Do ALL of the following:

(a) Make sure procedures and program specifications are followed and appropriate.

(b) Make sure selected respirators continue to be effective in protecting employees. For example, if changes in work area conditions, level of employee exposure, or employee physical stress have occurred, you need to reevaluate your respirator selection.

(c) Have supervisors periodically monitor employee respirator use to make sure employees are using them properly.

(d) Regularly ask employees required to use respirators about their views concerning program effectiveness and whether they have problems with:

– Respirator fit during use

– Any effects of respirator use on work performance

– Respirators being appropriate for the hazards encountered

– Proper use under current worksite conditions

– Proper maintenance.

(e) When developing your written program include applicable elements listed in Table 3.

Table 3

Required Elements for Required-Use Respirator Programs
• Selection: – Procedures for respirator selection – A list specifying the appropriate respirator for each respiratory hazard in your workplace – Procedures for issuing the proper type of respirator, if appropriate
• Medical evaluation provisions
• Fit-test provisions and procedures, if tight-fitting respirators are selected
• Training provisions that address: – Respiratory hazards encountered during: ■ Routine activities ■ Infrequent activities, for example, bimonthly cleaning of equipment ■ Reasonably foreseeable emergencies, for example, rescue, spill response, or escape situations – Proper use of respirators, for example, how to put on or remove respirators, and use limitations. **Note:** You do NOT need to repeat training on respiratory hazards if employees have been trained on this in compliance with other rules such as WAC ((~~296-800-170, employer chemical~~)) 296-901-140, Hazard communication ((~~in the DOSH safety and health core rules~~)).
• Respirator use procedures for: – Routine activities – Infrequent activities – Reasonably foreseeable emergencies
• Maintenance: – Procedures and schedules for respirator maintenance covering: ■ Cleaning and disinfecting ■ Storage ■ Inspection and repair ■ When to discard respirators – A cartridge or canister change schedule **IF** air-purifying respirators are selected for use against gas or vapor contaminants AND an end-of-service-life-indicator (ESLI) is not available. In addition, provide: ■ The data and other information you relied on to calculate change schedule values (for example, highest contaminant concentration estimates, duration of employee respirator use, expected maximum humidity levels, user breathing rates, and safety factors)

Required Elements for Required-Use Respirator Programs
• Procedures to ensure a safe air quantity and quality **IF** atmosphere-supplying respirators (air-line or SCBA) are selected
• Procedures for evaluating program effectiveness on a regular basis

AMENDATORY SECTION (Amending WSR 04-02-053, filed 1/5/04, effective 5/1/04)

WAC 296-843-17005 Control employee exposure to site health and safety hazards.

You must:

• Use feasible controls, selected based on monitoring and other available information, to protect employee exposure above permissible exposure limits (PELs) or other published exposure levels.

– Examples of controls include:

■ Installing pressurized cabs or control booths on equipment.

■ Using remotely operated material handling equipment.

■ Removing all nonessential employees when opening drums.

■ Wetting down dusty operations.

■ Positioning employees upwind of possible hazards.

• Evaluate new technologies and other control measures before using them on a large scale.

• Use any reasonable combination of controls and personal protective equipment (PPE) to reduce and maintain employee exposure at or below the PELs, published exposure levels, or dose levels when controls are not:

– Feasible;

OR

– Effective.

• Make sure PPE is NOT used as a replacement control.

– PPE should be used only as a supplement to controls.

Note: For those hazardous substances without PELs or published exposure levels, use other published literature and ((~~material~~)) safety data sheets (((~~MSDSs~~))) (SDSs) to help decide what level of protection is appropriate. For more information about ((~~MSDSs~~)) SDSs, see WAC ((~~296-800-180 in the *Safety and Health Core Rules* book~~)) 296-901-14014, Safety date sheets.

You must:

• Use employee rotation to reduce exposure below ionizing radiation PELs or dose limits, when that is the **only** feasible means of protecting employees.

AMENDATORY SECTION (Amending WSR 04-02-053, filed 1/5/04, effective 5/1/04)

WAC 296-843-20020 Training for postemergency response.

You must:

• Provide workers who participate only in limited postemergency response clean-up operations with a minimum of eight hours of training, when these conditions are met:

– Cleanup is at a site that is a hazardous waste operation only because of an emergency response.

– Clean-up work is directly supervised by someone who has completed at least forty hours of training in hazardous waste operations as required in this chapter.

– Written documentation is maintained at the work site supporting less than twenty-four hours of training.

– The work:

■ Is performed in an area that has been monitored and fully characterized by a qualified person as an area where employee exposure cannot exceed PELs or other published exposure levels.

■ Does not require using respiratory protection.

■ Does not require entry into permit-required confined spaces.

■ Involves minimal health risks from skin exposure and absorption that are effectively controlled by PPE.

– Workers have received training in your emergency response plan and hazard communication program.

Reference: For additional information, see WAC 296-843-160, Emergency response, and WAC ((~~296-800-170, Employer chemical~~)) 296-901-140, Hazard communication.

You must:

• Make sure workers complete any other safety and health training needed to perform assigned clean-up tasks in a safe and healthful manner.

– Training may include topics such as the following:

■ Safety hazards and controls.

■ The content and availability of the site-specific health and safety plan.

■ Decontamination procedures.

■ Operating procedures related to assigned clean-up tasks.

■ PPE use and limitations.

■ Hands-on exercises for PPE and decontamination.

■ Information about heat stress and hypothermia.

• Make sure workers have been trained within the last twelve months.

AMENDATORY SECTION (Amending WSR 04-02-053, filed 1/5/04, effective 5/1/04)

WAC 296-843-300 Definitions.

Buddy system

A system of organizing employees into work groups so that each employee is assigned to observe another employee in the same work group. The purpose of this system is to provide rapid assistance to employees in the event of an emergency.

Clean-up operation

An operation where hazardous substances are removed, contained, incinerated, neutralized, stabilized, cleared up, or in any other manner processed or handled with the goal of making the site safer for people or the environment.

Contamination reduction zone

The buffer zone between the exclusion and the clean zone.

Decontamination

The removal of hazardous substances from employees and equipment, to the extent necessary, to avoid foreseeable adverse health effects.

Emergency response or responding to emergencies

An organized response to an anticipated release of a hazardous substance that is, or could become, an uncontrolled release.

Exclusion zone

A controlled area at a site, where contamination occurs, that is a risk to human health or the environment.

Exposure or exposed

Employee contact with a toxic substance, harmful physical agent, or oxygen deficient condition. Exposure can occur through various routes of entry, such as inhalation, ingestion, skin contact, or skin absorption.

Facility

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, storage container, motor vehicle, rolling stock, or aircraft;

OR

Any site or area where a hazardous substance has been deposited, stored, disposed of, placed, or otherwise located (not including any boat, ship or barge).

Hazardous substance

Any of the following substances that could adversely affect an exposed employee's health or safety:

• Substances defined under section 101(14) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) or "Superfund" Act (found at: http://www.epa.gov).

• Biological or other disease-causing agents released that could reasonably be expected to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions, including malfunctions in reproduction, or physical deformations in a person or their offspring when the person:

– Is directly exposed to the agent in the environment.

– Directly ingests, inhales, or assimilates the agent from the environment.

– Indirectly ingests the agent through a food chain.

• Substances listed by the United States Department of Transportation as hazardous materials under Title 49 (Transportation) in the Code of Federal Regulations (C.F.R.), Part 172, section 101 and appendices (found at: http://www.nara.gov, search for "List of C.F.R. subjects").

• Hazardous wastes as defined in this chapter.

Hazardous waste

Any substance designated by the department of ecology as a dangerous or extremely hazardous waste by chapter 173-303 WAC, Dangerous waste regulations.

Hazardous waste site

A hazardous waste site is any facility or location within the scope of this chapter.

Hazardous materials team (HAZMAT team)

A group of employees who are expected to perform responses to releases, or possible releases, of hazardous substances for the purpose of control and stabilization. As a result of their duties, HAZMAT team members may have close contact with hazardous substances.

Health hazard

((~~A chemical, mixture, biological agent, or physical agent that may cause health effects in short- or long-term exposed employees based on statistically significant evidence from at least one study conducted using established scientific principles. Health hazards include:~~

~~• Carcinogens.~~

~~• Toxic or highly toxic agents.~~

~~• Reproductive toxins.~~

~~• Irritants.~~

~~• Corrosives.~~

~~• Sensitizers.~~

~~• Hepatotoxins (liver toxins).~~

~~• Nephrotoxins (kidney toxins).~~

~~• Neurotoxins (nervous system toxins).~~

~~• Substances that act on the hematopoietic system (blood or blood-forming system).~~

~~• Substances that can damage the lungs, skin, eyes, or mucous membranes.~~

~~• Hot or cold conditions.~~)) Means a chemical or a pathogen where acute or chronic health effects may occur in exposed employees. It also includes stress due to temperature extremes. The term health hazard includes chemicals that are classified in accordance with the Hazard Communication Standard, WAC 296-901-140, as posing one of the following hazardous effects: Acute toxicity (any route of exposure); skin corrosion or irritation; serious eye damage or eye irritation; respiratory or skin sensitization; germ cell mutagenicity; carcinogenicity; reproductive toxicity; specific target organ toxicity (single or repeated exposure); aspiration toxicity or simple asphyxiant. (See WAC 296-901-14022, Appendix A—Health hazard criteria (mandatory) for the criteria for determining whether a chemical is classified as a health hazard.)

IDLH or immediately dangerous to life or health

Any atmospheric condition that would:

• Cause an immediate threat to life;

OR

• Cause permanent or delayed adverse health effects;

OR

• Interfere with an employee's ability to escape.

Incidental release

A release that can be safely controlled at the time of the release and does not have the potential to become an uncontrolled release.

An example of a situation that results in an incidental release:

A tanker truck is receiving a load of hazardous liquid when a leak occurs. The driver knows the only hazard from the liquid is minor skin irritation. The employer has trained the driver on procedures and provided equipment to use for a release of this quantity. The driver puts on skin protection and stops the leak. A spill kit is used to contain, absorb, and pick up the spilled material for disposal.

((~~**Material safety data sheet (MSDS)**~~

~~Written, printed, or electronic information (on paper, microfiche, or on-screen) that informs manufacturers, distributors, employers or employees about a hazardous chemical,~~

~~its hazards and protective measures as required by chapter 296-839 WAC, Content and distribution of material safety data sheets (MSDSs) and label information.~~))

Oxygen deficiency

An atmosphere where the percentage of oxygen by volume is less than 19.5%.

Permissible exposure limit (PEL)

Permissible exposure limits (PELs) are employee exposures to toxic substances or harmful physical agents that must not be exceeded. PELs are specified in applicable WISHA rules.

Published exposure level

Exposure limits published in "*National Institute for Occupational Safety and Health (NIOSH) Recommendations for Occupational Safety and Health*" (DHHS publication #92-100, 1992).

If an exposure limit is not published by NIOSH, then "published exposure level" means the exposure limits published by the American Conference of Governmental Industrial Hygienists (ACGIH) in "*TLVs and BEIs-Threshold Limit Values for Chemical Substances and Physical Agents*" (1999 edition).

Postemergency response

The stage of the emergency response where the immediate threat from the release has been stabilized or eliminated, and cleanup of the site has started. For more information, see the definition for "emergency response."

Safety data sheet (SDS)

Written, printed, or electronic information (on paper, microfiche, or on-screen) that informs manufacturers, distributors, employers or employees about a hazardous chemical, its hazards and protective measures as required by WAC 296-901-14014, Safety data sheets.

Site safety and health supervisor (or official)

The individual present at a hazardous waste site who is responsible to the employer and has the authority and knowledge necessary to establish the site-specific health and safety plan and verify compliance with applicable safety and health requirements.

Site work zones

Zones established at a hazardous waste site before cleanup work begins to control work on the site and access to the site. The work zones are: Exclusion zone, contamination reduction zone, and clean zone.

Uncontrolled hazardous waste site

An area where an accumulation of hazardous substances creates a threat to the health and safety of individuals or the environment or both. Examples include: Former municipal, county, or state landfills, locations where illegal or poorly managed waste disposal has taken place, or property of generators or former generators of hazardous substance waste (surface impoundments, landfills, dumps, and tank or drum farms).

Uncontrolled release

A release where significant safety and health risks could be created. Releases of hazardous substances that are either incidental or couldn't create a safety or health hazard (i.e., fire, explosion, or chemical exposure) aren't considered to be uncontrolled releases.

Examples of conditions that could create a significant safety and health risk:

• Large-quantity releases.

• Small releases that could be highly toxic.

• Potentially contaminated individuals arriving at hospitals.

• Airborne exposures that could exceed a WISHA permissible exposure limit or a published exposure limit and employees aren't adequately trained or equipped to control the release.

Example of an uncontrolled release:

A forklift driver knocks over a container of a solvent-based liquid, releasing the contents onto the warehouse floor. The driver has been trained to recognize the vapor is flammable and moderately toxic when inhaled. The driver hasn't been trained or provided appropriate equipment to address this type of spill. In this situation, it isn't safe for the driver to attempt a response. The driver needs to notify someone of the release so an emergency response can be initiated.

AMENDATORY SECTION (Amending WSR 05-01-173, filed 12/21/04, effective 5/1/05)

WAC 296-848-20010 Preventive practices.

You must:

(1) Effectively communicate the hazards of inorganic arsenic by doing both of the following:

• Keep container labels free of statements that contradict or detract from the labels' hazard warning.

Note: You may use labels required by other laws, rules, or ordinances in addition to, or in combination with, labels required by this section.

You must:

• ((~~Make sure shipping containers, storage containers, and products containing inorganic arsenic are labeled, tagged, or marked with this warning~~)) Prior to June 1, 2015, in lieu of the labeling requirements in WAC 296-848-3007, employers may apply precautionary labels to all shipping and storage containers of inorganic arsenic, and to all products containing inorganic arsenic, bearing the following legend:

Danger Contains Inorganic Arsenic Cancer Hazard Harmful if Inhaled or Swallowed Use Only with Adequate Ventilation or Respiratory Protection

• Labels are not required when the inorganic arsenic in the product is bound in such a manner so as to make unlikely the possibility of airborne exposure to inorganic arsenic. (Possible examples of products not requiring labels are semiconductors, light emitting diodes and glass.)

Note: • You should keep containers tightly covered when not in use to help prevent unnecessary exposure and accidental spills.

• Contaminated items should be handled and disposed of to prevent further exposure in the workplace. For example, vacuuming or wet wiping contaminated equipment helps prevent the release of dust into the air.

Reference: • Additional requirements are found in other chapters:
– For spills, leaks, or other releases, go to Emergency response, chapter 296-824 WAC.
– For labeling go to((÷
~~• The Safety and health core rules, chapter 296-800 WAC, and find the section, Label containers holding hazardous chemicals, WAC 296-800-17025;~~
~~**AND**~~
~~• Material safety data sheet and label preparation, chapter 296-839~~)) WAC 296-901-140, Hazardous communication.

You must:

(2) Establish safe and effective housekeeping and maintenance practices by doing all the following:

• Develop and keep a written housekeeping and maintenance plan that lists appropriate frequencies for:

– Housekeeping operations;

AND

– Cleaning and maintaining dust collection equipment.

• Keep surfaces free of accumulations of inorganic arsenic, to the degree feasible.

• When cleaning floors and other accessible surfaces:

– Use vacuuming or other cleaning methods that minimize the release of inorganic arsenic into the air.

– Do not use compressed air.

– Select vacuums that have high efficiency particulate air (HEPA) filters.

– Use and empty vacuums in a way that minimizes the release of inorganic arsenic back into the workplace.

Note: • Shoveling or brushing may be used only when vacuuming or other cleaning methods have not been effective.
• Using non-HEPA vacuums will increase inorganic arsenic contamination in air and on area surfaces.

You must:

• Maintain ventilation systems, including dust collection equipment, to make sure they are effective. Do all of the following:

– Perform periodic inspections for effectiveness.

– Periodically clean the equipment.

– Keep a note of the most recent inspection for effectiveness, and cleaning or maintenance.

(3) Prevent eye or skin contact with:

• Arsenic trichloride;

AND

• Liquid or particulate forms of inorganic arsenic when contact could cause eye or skin irritation.

Note: Arsenic trichloride is corrosive and can be quickly absorbed through skin.

AMENDATORY SECTION (Amending WSR 05-01-173, filed 12/21/04, effective 5/1/05)

WAC 296-848-300 Training, exposure monitoring, and medical monitoring.

Summary:

Your responsibility:

To detect any significant changes in employee health and exposure monitoring results.

IMPORTANT:

• These sections apply when skin or eye irritation could occur or when employee exposure monitoring results are either:

– At or above the action level (AL) of 5 micrograms per cubic meter (µg/m^3) for inorganic arsenic;

OR

– Above the permissible exposure limit (PEL) of 10 µg/m^3 for inorganic arsenic.

Contents

Training
WAC 296-848-30005.
Communication of hazards
WAC 296-848-30007.
Periodic exposure evaluations
WAC 296-848-30010.
Medical evaluations
WAC 296-848-30030.
Medical records
WAC 296-848-30080.

AMENDATORY SECTION (Amending WSR 07-03-153, filed 1/23/07, effective 6/1/07)

WAC 296-848-30005 Training.

You must:

• Train employees:

– Who are exposed above the action level (AL) of 5 micrograms per cubic meter (µg/m^3) of air;

OR

– Who could experience eye or skin irritation from exposure.

• Provide training:

– At the time of initial assignment;

AND

– At least every twelve months after initial training.

• Make sure training and information includes all of the following:

– A review of WAC 296-848-100 through 296-848-40045, and 296-848-500.

– The following health information about inorganic arsenic:

• Inorganic arsenic is a poison and can affect your body if it's swallowed or inhaled.

• Exposure to airborne concentrations of inorganic arsenic may cause lung cancer and can be a skin irritant.

• Arsenic trichloride can be absorbed readily through your skin and is especially dangerous.

• Wash hands thoroughly before eating or smoking to help minimize your risk for swallowing inorganic arsenic.

– The purpose for medical evaluations and a description of how you are fulfilling the medical evaluation requirements of this chapter found in Medical evaluations, WAC 296-848-30030.

• Make a copy of this chapter readily available to all employees required to be trained under this section.

Reference: • To see additional training and information requirements in other chapters, go to the:
– Respirators rule, chapter 296-842 WAC.

– ((~~Safety and health core rules, chapter 296-800 WAC, and find the section titled, Inform and train your employees about hazardous chemicals in your workplace, WAC 296-800-17030~~)) WAC 296-901-140, Hazardous communication.

• When following these requirements, include specific information about potential exposures to inorganic arsenic, such as the types of operations, locations, quantities, exposure sources, exposure controls, inorganic arsenic use, and storage.

NEW SECTION

WAC 296-848-30007 Communication of hazards.

You must:

Hazard communication - General.

• Chemical manufacturers, importers, distributors and employers shall comply with all requirements of the Hazard Communication Standard (HCS), WAC 296-901-140 for inorganic arsenic.

• In classifying the hazards of inorganic arsenic at least the following hazards are to be addressed: Cancer; liver effects; skin effects; respiratory irritation; nervous system effects; and acute toxicity effects.

• Employers shall include inorganic arsenic in the hazard communication program established to comply with the HCS, WAC 296-901-140. Employers shall ensure that each employee has access to labels on containers of inorganic arsenic and to safety data sheets, and is trained in accordance with the requirements of HCS and WAC 296-848-30005.

AMENDATORY SECTION (Amending WSR 05-01-173, filed 12/21/04, effective 5/1/05)

WAC 296-848-40025 Exposure control areas.

You must:

• Establish temporary or permanent exposure control areas where airborne concentrations of inorganic arsenic are above the permissible exposure limit (PEL) by doing all the following:

– Distinguish the boundaries of exposure control areas from the rest of the workplace in any way that minimizes employee access.

– Allow only authorized personnel to enter exposure control areas.

– Post signs at access points to exposure control areas that include this warning:

DANGER INORGANIC ARSENIC MAY CAUSE CANCER DO NOT EAT, DRINK OR SMOKE WEAR RESPIRATORY PROTECTION IN THIS AREA AUTHORIZED PERSONNEL ONLY

– Prior to June 1, 2016, employers may use the following legend in lieu of that specified above in this section:

DANGER Inorganic Arsenic Cancer Hazard Authorized Personnel Only No Smoking or Eating Respirator Required

– Make sure signs are kept clean and well lit so they are easy to read.

– Keep signs and areas near them free of statements that contradict or detract from their message.

Note: This requirement does not prevent you from posting signs required by other laws, rules, or ordinances.

You must:

– Make sure employees entering exposure control areas have an appropriate respirator.

– Prevent all of the following activities from occurring in exposure control areas unless they are conducted in required lunchrooms, change rooms, or showers:

■ Eating food or drinking beverages.
■ Smoking.
■ Chewing tobacco or gum.
■ Applying cosmetics.

Note:
• You may use permanent or temporary enclosures, caution tape, ropes, painted lines on surfaces, or other materials to visibly distinguish exposure control areas or separate them from the rest of the workplace.
• When distinguishing exposure control areas, you should consider factors such as:
– The level and duration of airborne exposure.
– Whether the area is permanent or temporary.
– The number of employees in adjacent areas.

Reference: To see other requirements for respirators within this chapter, go to Respirators, WAC 296-848-40045.

AMENDATORY SECTION (Amending WSR 09-05-071, filed 2/17/09, effective 4/1/09)

WAC 296-848-40040 Personal protective equipment (PPE).

You must:

• Provide at no cost to employees, make sure employees use, and maintain PPE as follows:

– Provide clean and dry protective clothing to employees who could experience eye or skin irritation from exposure to inorganic arsenic or who work in exposure control areas.

– Provide impervious protective clothing to employees exposed to arsenic trichloride.

Note:
• Arsenic trichloride is corrosive and can be rapidly absorbed through skin.
• Examples of protective clothing appropriate for inorganic arsenic exposures include:
– Coveralls or similar full-body work clothing.
– Gloves, and shoes or coverlets.
– Face shields or vented goggles when necessary to prevent eye irritation.

You must:

– Make sure employees do not remove inorganic arsenic from PPE by blowing or shaking.

– Make sure protective clothing is removed:

■ In change rooms;

AND

■ At the end of the work shift.

– Make sure contaminated protective clothing that will be cleaned, laundered, or disposed of, is placed in a closed container located in the change room.

■ Make sure the container prevents the release of inorganic arsenic.

– Launder protective clothing:

■ At least weekly if employees work in areas where exposure monitoring results of inorganic arsenic are below an eight-hour time-weighted average concentration of 100 micrograms per cubic meter (µg/m³);

OR

■ Daily if employees work in areas where either exposure monitoring results of inorganic arsenic are above an eight-hour time-weighted average concentration of 100 µg/m³ or when more frequent washing is needed to prevent skin irritation.

– Maintain the effectiveness of PPE by repairing or replacing it, as needed:

■ Dispose of protective clothing if it will not be repaired.

• Inform individuals who clean or launder protective clothing about the possible health effects associated with inorganic arsenic, including carcinogenic effects, by doing the following:

– Provide the information in writing;

AND

– Label containers of contaminated PPE with the following warning:

DANGER:
CONTAMINATED WITH INORGANIC ARSENIC.
MAY CAUSE CANCER.
DO NOT REMOVE DUST BY BLOWING OR SHAKING.
DISPOSE OF INORGANIC ARSENIC CONTAMINATED WASH WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE OR FEDERAL REGULATIONS

– Prior to June 1, 2015, employers may include the following information on containers of protective clothing and equipment in lieu of the labeling requirements listed above in this section:

CAUTION:
Clothing contaminated with inorganic arsenic
Do not remove dust by blowing or shaking
Dispose of inorganic arsenic contaminated wash water as applicable local, state, or federal regulations require

Reference: To see additional Personal protective equipment requirements go to the Safety and health core rules, chapter 296-800 WAC, and find the section titled, PPE, WAC 296-800-160.

AMENDATORY SECTION (Amending WSR 05-01-173, filed 12/21/04, effective 5/1/05)

WAC 296-848-500 Definitions.

Action level

An airborne concentration of inorganic arsenic of 5 micrograms per cubic meter (µg/m³) of air calculated as an eight-hour time-weighted average.

Authorized personnel

Individuals specifically permitted by the employer to enter the exposure control area to perform duties, or to observe employee exposure evaluations as a designated representative.

Breathing zone

The space around and in front of an employee's nose and mouth, forming a hemisphere with a 6- to 9-inch radius.

CAS (Chemical Abstract Service) number

CAS numbers are internationally recognized and used on ((~~material~~)) safety data sheets ((~~(MSDSs)~~)) (SDSs) and other documents to identify substances. For more information see http://www.cas.org/about.

Day

Any part of a calendar day.

Designated representative

Any one of the following:

• Any individual or organization to which an employee gives written authorization.

• A recognized or certified collective bargaining agent without regard to written employee authorization.

• The legal representative of a deceased or legally incapacitated employee.

Emergency

Any event that could or does result in the unexpected significant release of inorganic arsenic. Examples of emergencies include equipment failure, container rupture, or control equipment failure.

Exposure

The contact an employee has with inorganic arsenic, whether or not protection is provided by respirators or other personal protective equipment (PPE). Exposure can occur through various routes of entry such as inhalation, ingestion, skin contact, or skin absorption.

Inorganic arsenic

Elemental arsenic (As), copper aceto-arsenite, and inorganic compounds containing arsenic (measured as As), except arsine. Inorganic compounds do not contain the element carbon.

Licensed health care professional (LHCP)

An individual whose legally permitted scope of practice allows him or her to provide some or all of the health care services required for medical evaluations.

Permissible exposure limits (PELs)

PELs are employee exposures to toxic substances or harmful physical agents that must not be exceeded. PELs are also specified in WISHA rules found in other chapters. The PEL for inorganic arsenic is an eight-hour time-weighted average (TWA_8) of 10 micrograms per cubic meter (µg/m³).

Time-weighted average (TWA_8)

An exposure limit averaged over an eight-hour period that must not be exceeded during an employee's workday.

AMENDATORY SECTION (Amending WSR 07-03-163, filed 1/24/07, effective 4/1/07)

WAC 296-849-100 Scope. This chapter applies to **all** occupational exposure to benzene.

Definition:

Exposure is the contact an employee has with benzene, whether or not protection is provided by respirators or other personal protective equipment (PPE). Exposure can occur through various routes of entry such as inhalation, ingestion, skin contact, or skin absorption.

Exemptions: This chapter does not apply to any of the following:

• Liquids, vapors, mixtures in containers or pipelines, and gas in natural gas processing plants when benzene content is 0.1% or less.

• Gasoline and other fuels containing benzene once they leave the final bulk wholesale facility and are being:

– Transported;

– Sold;

– Distributed;

– Stored;

– Dispensed either:

■ Outdoors;

OR

■ Indoors four hours or less a day.

– Used as a fuel.

• Oil and gas drilling, production, and servicing operations.

• Solid materials that contain only trace amounts of benzene.

• Coke ovens.

All requirements in this chapter will not apply to every workplace with an occupational exposure. The following will show you which requirements apply to your workplace.

Step 1: If any of your work tasks are listed in Table 1, follow Table 1.

• Go to Step 2a if you have additional work tasks or other exposures that are not covered in Table 1.

Table 1
Requirements that Apply to Specific Tasks

If employees do any of the following:	Then the only requirements in this chapter that apply to those tasks are:
Load and unload benzene at bulk storage facilities that use vapor control systems for all loading and unloading operations.	• The labeling requirement found in Preventive practices, WAC 296-849-11010.
Perform tasks around sealed transport pipelines carrying gasoline, crude oil, or other liquids containing more than 0.1% benzene.	• This requirement found in Training, WAC 296-849-11050: – Make sure training and information includes specific information on benzene for each hazard communication training topic.
	For the list of hazard communication training ((~~topics~~)) topics, go to ((~~the Safety and health core rules, chapter 296-800 WAC, and find Inform and train your employees about hazardous chemicals in your workplace, WAC 296-800-17030~~)) WAC 296-901-14016, Employee information and training.
Work with, or around, sealed containers of liquids containing more than 0.1% benzene.	• Emergency requirements found in Medical evaluations, WAC 296-849-12030. • Requirements found in Medical records, WAC 296-849-12080. • Respirator requirements found in Respirators, WAC 296-849-13045.

Step 2a: Follow requirements in the basic rules sections, WAC 296-849-11010 through 296-849-11090, for tasks **not** listed in Table 1.

• This includes completing an exposure evaluation, as specified in Exposure evaluations, WAC 296-849-11030, to:

– Obtain employee fifteen-minute and eight-hour exposure monitoring results of airborne benzene;

AND

– Determine if employee exposure monitoring results are above, at, or below these values:

■ Eight-hour time-weighted average **(TWA_8)** . . . . . 1 parts per million (ppm).

■ Fifteen-minute short-term exposure limit **(STEL)** . . . . 5 ppm.

■ Eight-hour action level **(AL)** . . . . . 0.5 ppm.

Step 2b: Use employee exposure monitoring results from Step 2a and follow Table 2 to find out which additional sections of this chapter apply to your workplace.

Table 2
Section Application

If employee exposure monitoring results are:	Then continue to follow the basic rules, and these additional requirements:
• **Above** the TWA_8 or STEL	• Exposure and medical monitoring, WAC 296-849-12010 through 296-849-12080; **AND**

If employee exposure monitoring results are:	Then continue to follow the basic rules, and these additional requirements:
	• Exposure control areas, WAC 296-849-13005 through 296-849-13045.
• **At or below** the TWA_8 or STEL; **AND** • **At or above** AL	• Exposure and medical monitoring, WAC 296-849-12005 through 296-849-12080.
• **Below** the AL and STEL	• No additional requirements apply.

AMENDATORY SECTION (Amending WSR 05-01-172, filed 12/21/04, effective 3/1/05)

WAC 296-849-110 Basic rules.

Summary:

Your responsibility:

To measure and minimize employee exposure to benzene.

IMPORTANT:

To determine which requirements to follow for your work tasks, go to Table 1 in the scope of this chapter, WAC 296-849-100.

Contents:

((~~Preventive practices~~)) Communication of hazards
WAC 296-849-11010.
Exposure control areas
WAC 296-849-11020.
Exposure evaluations
WAC 296-849-11030.
Personal protective equipment (PPE)
WAC 296-849-11040.
Training
WAC 296-849-11050.
Exposure monitoring observation
WAC 296-849-11065.
Notification
WAC 296-849-11070.
Exposure records
WAC 296-849-11090.

AMENDATORY SECTION (Amending WSR 05-01-172, filed 12/21/04, effective 3/1/05)

WAC 296-849-11010 ((~~Preventive practices.~~)) Communication of hazards.

You must:

• ((~~Make sure containers of benzene in the workplace are labeled, tagged, or marked with this warning~~)) Hazard communication—General.

- Chemical manufacturers, importers, distributors and employers comply with all requirements of the Hazard Communication Standard (HCS, WAC 296-901-140 for benzene).

- In classifying the hazards of benzene at least the following hazards are to be addressed: Cancer; central nervous system effects; blood effects; aspiration; skin, eye, and respiratory tract irritation; and flammability.

- Employers shall include benzene in the hazard communication program established to comply with the HCS, WAC 296-901-140. Employers shall ensure that each employee has access to labels on containers of benzene and to safety data sheets, and is trained in accordance with the requirements of HCS and WAC 296-849-11050.

• Prior to June 1, 2015, employers shall include the following legend or similar language on the labels or other appropriate forms of warning:

DANGER
CONTAINS BENZENE
CANCER HAZARD

Note: You should keep containers tightly covered when not in use to prevent unnecessary exposure and accidental spills.

References: Additional requirements are found in other chapters as follows:

• For spills, leaks, or other releases of benzene, go to Emergency response, chapter 296-824 WAC.

• For labeling go to:

– ((~~The Safety and health core rules, chapter 296-800 WAC, and find the section Label containers holding hazardous chemicals, WAC 296-800-17025;~~)) WAC 296-901-14012, Labels and other forms of warning.

AND

– ((~~Material safety data sheet and label preparation, chapter 296-839~~)) WAC 296-901-14014, Safety data sheets.

AMENDATORY SECTION (Amending WSR 05-01-172, filed 12/21/04, effective 3/1/05)

WAC 296-849-11020 Exposure control areas.

You must:

• Establish temporary or permanent exposure control areas where airborne concentrations of benzene are above, or can be reasonably expected to be above, the permissible exposure limits (PELs) for benzene by doing all the following:

– Post signs ((~~at access points to exposure control areas that include this warning:~~

~~DANGER~~
~~Benzene~~
~~Cancer Hazard~~
~~Flammable - No Smoking~~
~~Authorized Personnel Only~~
~~Respirator Required~~)) in accordance with WAC 296-849-11010.

– Distinguish the boundaries of exposure control areas from the rest of the workplace in any way that minimizes employee access.

– Allow only authorized personnel to enter exposure control areas.

Note: • You may use permanent or temporary enclosures, caution tape, ropes, painted lines on surfaces, or other materials to visibly distinguish exposure control areas or separate them from the rest of the workplace.

• When distinguishing exposure control areas you should consider factors such as:

– The level and duration of airborne exposure.
– Whether the area is permanent or temporary.
– The number of employees in adjacent areas.

Reference: If exposure control areas are established, go to Respirators, WAC 296-849-13045.

AMENDATORY SECTION (Amending WSR 07-03-153, filed 1/23/07, effective 6/1/07)

WAC 296-849-11050 Training.

You must:

• Provide training and information to employees:

– At the time of initial assignment to a work area where benzene is present;

AND

– At least every twelve months after initial training for employees exposed to airborne concentrations at or above the action level (AL) of 0.5 parts per million (ppm).

• Make sure training and information includes all of the following:

– Specific information on benzene for each hazard communication training topic. For the list of hazard communication training ((~~tropics~~)) topics, go to ((~~the Safety and health core rules, chapter 296-800 WAC, and find Inform and train your employees about hazardous chemicals in your workplace, WAC 296-800-17030~~)) WAC 296-901-14016, Employee information and training;

AND

– An explanation of the contents of this chapter and guidance about where to find a copy of it;

AND

– A description of the medical evaluation requirements of this chapter found in:

■ Medical evaluations, WAC 296-849-12030;

AND

■ Medical removal, WAC 296-849-12050.

Reference: To see additional training and information requirements in other chapters, go to the:

• Respirators rule, chapter 296-842 WAC, and find the Training section, WAC 296-842-16005.

• ((~~Safety and health core rules, chapter 296-800 WAC, and find the section titled, Inform and train your employees about hazardous chemicals in your workplace, WAC 296-800-17030.~~)) WAC 296-901-14016, Employee information and training.

AMENDATORY SECTION (Amending WSR 05-01-172, filed 12/21/04, effective 3/1/05)

WAC 296-849-190 Definitions.

Action level an airborne concentration of benzene of 0.5 parts per million (ppm) calculated as an eight-hour time-weighted average.

Authorized personnel individuals specifically permitted by the employer to enter the exposure control area to perform necessary duties, or to observe employee exposure evaluations as a designated representative.

Benzene liquid benzene, benzene vapor, and benzene in liquid mixtures and the vapors released by these liquids.

The chemical abstract service (CAS) registry number for benzene is 71-43-2. CAS numbers are internationally recognized and used on ((~~material~~)) safety data sheets ((~~(MSDSs)~~)) (SDSs) and other documents to identify substances. For more information see http://www.cas.org/about.

Breathing zone the space around and in front of an employee's nose and mouth, forming a hemisphere with a 6- to 9-inch radius.

Bulk wholesale storage facility any bulk terminal or bulk plant where fuel is stored before its delivery to wholesale customers.

Container any container, except for pipes or piping systems, that contains benzene. It can be any of the following:

• Barrel;
• Bottle;
• Can;
• Cylinder;
• Drum;
• Reaction vessel;
• Storage tank.

Day any part of a calendar day.

Designated representative any of the following:

• Any individual or organization to which an employee gives written authorization;

• A recognized or certified collective bargaining agent without regard to written employee authorization;

OR

• The legal representative of a deceased or legally incapacitated employee.

Emergency any event that could or does result in the unexpected significant release of benzene. Examples of emergencies include equipment failure, container rupture, or control equipment failure.

Exposure the contact an employee has with benzene, whether or not protection is provided by respirators or other personal protective equipment (PPE). Contact can occur through various routes of entry such as inhalation, ingestion, skin contact, or skin absorption.

Licensed health care professional (LHCP) an individual whose legally permitted scope of practice allows him or her to provide some or all of the health care services required for medical evaluations.

Permissible exposure limits (PELs) PELs are employee exposures to toxic substances or harmful physical agents that must not be exceeded. PELs are also specified in various WISHA rules found in other chapters. The PELs for benzene are the:

• Eight-hour time-weighted average (TWA_8) of 1 part per million (ppm);

AND

• Fifteen-minute short-term exposure limit (STEL) of 5 ppm.

Short-term exposure limit (STEL) an exposure limit averaged over a fifteen-minute period that must not be exceeded during any part of an employee's workday.

Time-weighted average (TWA_8) an exposure limit averaged over an eight-hour period that must not be exceeded during an employee's workday.

Vapor control systems equipment that controls the vapor displaced when chemicals are loaded and unloaded from truck or storage tanks. It also processes or balances the vapor back into the truck or storage tanks.

AMENDATORY SECTION (Amending WSR 05-17-168, filed 8/23/05, effective 1/1/06)

WAC 296-855-20010 Preventive practices.

You must:

• Make sure that all containers of EtO whose contents are capable of causing employee exposure above the action level or above the STEL are labeled, tagged, or marked with this warning.

AND

Prior to June 1, 2015, employers may include the following information on containers of EtO in lieu of the labeling requirements in WAC 296-855-420:

Danger
Contains Ethylene Oxide
Cancer Hazard and Reproductive Hazard

AND

A warning stating that breathing airborne concentrations of EtO is hazardous.

• Keep container labels free of statements that contradict or detract from the labels' hazard warning.

Note: • EtO is highly flammable and should be kept in a tightly covered container, and in a cool, well-ventilated area away from any type of ignition source.

You must:

• Make sure warning labels remain on containers of EtO when these containers are transported.

Exemption: • Reaction vessels, storage tanks, and pipes or piping systems are not considered to be containers and do not require labeling.

• Labeling requirements do not apply when EtO:

– Is used as a pesticide as defined by the Federal Insecticide, Fungicide, and Rodenticides Act (7 U.S.C. 136 et seq.);

AND

– Meets the Environmental Protection Agency labeling requirements for pesticides.

AMENDATORY SECTION (Amending WSR 05-17-168, filed 8/23/05, effective 1/1/06)

WAC 296-855-20020 Exposure control areas.

You must:

• Establish temporary or permanent exposure control areas where airborne concentrations of ethylene oxide (EtO) exceed or could exceed the permissible exposure limits (PELs) by doing all the following:

– Clearly identify the boundaries of exposure control areas in any way that minimizes employee access.

– Post signs at access points to exposure control areas that:

■ Are easy to read (for example, they are kept clean and well lit).

AND

■ Include this warning:

DANGER
ETHYLENE OXIDE
MAY CAUSE CANCER ((~~AND REPRODUCTIVE HAZARD~~))
MAY DAMAGE FERTILITY OR THE UNBORN CHILD
RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING MAY BE REQUIRED IN THIS AREA
AUTHORIZED PERSONNEL ONLY
((~~RESPIRATORS AND PROTECTIVE CLOTHING MAY BE REQUIRED TO BE WORN IN THIS AREA~~))

• Prior to June 1, 2016, employers may use the following legend in lieu of that specified in this section:

DANGER
ETHYLENE OXIDE
CANCER HAZARD AND REPRODUCTIVE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING MAY BE REQUIRED TO BE WORN IN THIS AREA

• Keep signs and areas near them free of statements that contradict or detract from their message.

Note: • This requirement does not prevent you from posting other signs.

You must:

• Allow only authorized personnel to enter exposure control areas.

Note: • When identifying the boundaries of exposure control areas you should consider factors such as:

– The level and duration of airborne exposure.

– Whether the area is permanent or temporary.

– The number of employees in adjacent areas.

• You may use permanent or temporary enclosures, caution tape, ropes, painted lines on surfaces, or other materials to visibly distinguish exposure control areas or separate them from the rest of the workplace.

You must:

• Make sure employees entering exposure control areas have appropriate respirators available for use.

• Prevent all of the following activities from occurring in exposure control areas:

– Eating food.

– Drinking beverages.

– Smoking.

– Chewing tobacco or gum.

– Applying cosmetics.

– Storing food, beverages, or cosmetics.

AMENDATORY SECTION (Amending WSR 05-17-168, filed 8/23/05, effective 1/1/06)

WAC 296-855-20090 Training.

You must:

• Train employees who are potentially exposed above the:

– Action level (AL) 0.5 parts per million (ppm);

OR

– Fifteen-minute short-term exposure limit (STEL) of five ppm.

• Provide training:

– At the time of initial assignment;

AND

– Then at least every twelve months.

• Make sure training and information includes all of the following:

– The requirements of this chapter.

– The location and availability of this chapter.

– The purpose of medical evaluations and a description of your medical evaluation program required in Medical evaluations, WAC 296-855-30030 in this chapter.

– Monitoring procedures and observations to detect the presence or release of EtO.

– The physical and health hazards of EtO.

– Actions employees can take to protect themselves from EtO exposure such as work practices, emergency procedures, and PPE.

– The details of your hazard communication program required by another chapter, ((~~Employer chemical~~)) Hazard communication, WAC ((~~296-800-170~~)) 296-901-140.

– Operations in employee work areas where EtO is present.

– The following information found in the General occupational health standards, chapter 296-62 WAC:

■ The Substance safety data sheet, WAC 296-62-07383 Appendix A.

■ The Substance technical guidelines, WAC 296-62-07385 Appendix B.

■ Medical surveillance guidelines, WAC 296-62-07387 Appendix C.

NEW SECTION

WAC 296-855-420 Communication of hazards. Hazard communication—General.

• Chemical manufacturers, importers, distributors and employers shall comply with all requirements of the Hazard Communication Standard (HCS), WAC 296-901-140 for EtO.

• In classifying the hazards of EtO at least the following hazards are to be addressed: Cancer; reproductive effects; mutagenicity; central nervous system; skin sensitization; skin, eye and respiratory tract irritation; acute toxicity effects; and flammability.

• Employers shall include EtO in the hazard communication program established to comply with the HCS, WAC 296-901-140. Employers shall ensure that each employee has access to labels on containers of EtO and to safety data sheets, and is trained in accordance with the requirements of HCS and WAC 296-855-20090.

AMENDATORY SECTION (Amending WSR 05-17-168, filed 8/23/05, effective 1/1/06)

WAC 296-855-500 Definitions.

Action level:

An airborne concentration of ethylene oxide (EtO) of 0.5 parts per million, calculated as an eight-hour time-weighted average.

Authorized personnel:

Individuals specifically permitted by the employer to enter the exposure control area to perform necessary duties, or to observe employee exposure evaluations.

Breathing zone:

The space around and in front of an employee's nose and mouth, forming a hemisphere with a six- to nine-inch radius.

CAS (Chemical Abstract Service) number:

CAS numbers are internationally recognized and used on ((~~material~~)) safety data sheets ((~~(MSDSs)~~)) (SDSs) and other documents to identify substances. For more information see http://www.cas.org/about.

Container:

Any container, except for pipes or piping systems that contains ethylene oxide. It can be any of the following:

■ Barrel.

■ Bottle.

■ Can.

■ Cylinder.

■ Drum.

■ Reaction vessel.

■ Storage tank.

Day:

Any part of a calendar day.

Director:

The director means the director of the department of labor and industries or their designee.

Emergency:

Any event that could or does result in the unexpected significant release of ethylene oxide. Examples of emergencies include equipment failure, container rupture, or control equipment failure.

Ethylene oxide (EtO):

Is an organic chemical represented by the CAS registry number 75-21-8. EtO is a flammable colorless gas and is commonly used to sterilize medical equipment and as a fumigant for certain agricultural products. It is also used as an intermediary in the production of various chemicals such as ethylene glycol, automotive antifreeze, and polyurethane.

Exposure:

The contact an employee has with ethylene oxide, whether or not protection is provided by respirators or other personal protective equipment (PPE). Exposure can occur through various routes of entry such as inhalation, ingestion, skin contact, or skin absorption.

Licensed health care professional (LHCP):

An individual whose legally permitted scope of practice allows him or her to provide some or all of the health care services required for medical evaluations.

Permissible exposure limits (PELs):

PELs are employee exposures to toxic substances or harmful physical agents that must not be exceeded. PELs are specified in applicable WISHA rules. The PELs for ethylene oxide (EtO) are:

• Eight-hour time-weighted average (TWA_8) of one part per million (ppm);

AND

• Fifteen-minute short-term exposure limit (STEL) of five ppm.

Short term exposure limit (STEL):

An exposure limit averaged over a short time period (usually fifteen minutes) that must not be exceeded during any part of an employee's workday.

Time-weighted average (TWA_8):

An exposure limit averaged over an eight-hour period that must not be exceeded during an employee's workday.

AMENDATORY SECTION (Amending WSR 06-08-087, filed 4/4/06, effective 9/1/06)

WAC 296-856-20010 Preventive practices.

You must:

• Make sure containers of gasses, solutions, or materials composed of greater than 0.1 percent formaldehyde, **and** capable of releasing formaldehyde at concentrations greater than 0.1 ppm to 0.5 ppm, are properly labeled, tagged, or marked with all of the following:

- That the product contains formaldehyde.

- The name and address of the responsible party (for example manufacturer, importer, or employer).

- A statement that the physical and health hazard information can be obtained from you, and from the ((~~material~~)) safety data sheet (((~~MSDS~~))) (SDS).

• Label, tag, or mark containers and materials capable of releasing formaldehyde at levels above 0.5 ppm as follows:

- Include the requirements in WAC 296-856-42010.

- Appropriately address all hazards as defined in WAC 296-901-14008, 296-901-14022, and 296-901-14024, including cancer and respiratory sensitization.

- Prior to June 1, 2015, employers may include the ((~~words on the label~~)) phrase "Potential Cancer Hazard((~~.~~))" in lieu of "May Cause Cancer."

- Follow the requirements for labels found in ((~~the following separate chapters~~)):

■ ((~~The safety and health core rules, employer chemical hazard communications, WAC 296-800-170.~~

■ ~~Material safety data sheet and label preparation, chapter 296-839 WAC.~~)) WAC 296-901-140, 296-901-14022, and 296-901-14024.

You must:

• Make sure you have a housekeeping and maintenance program to detect leaks and spills by doing at least the following:

- Regular visual inspections.

- Preventive maintenance of equipment, that includes surveys for leaks, at regular intervals.

- In areas where spills could occur, make resources available to contain the spills, decontaminate the area affected, and dispose of waste.

- Promptly repair leaks and clean up spills.

- Train employees who will clean spills and repair leaks, about the methods for cleanup and decontamination.

- Make sure employees who will clean up spills and repair leaks, have the appropriate personal protective equipment and respirators.

- Dispose of waste from spills or leaks in sealed containers marked with information that states the contents contain formaldehyde and the hazards associated with formaldehyde exposure. The employer shall ensure that the labels are in accordance with WAC 296-856-420.

- Develop and implement appropriate procedures to minimize injury and loss of life if there is a possibility of an emergency, such as an uncontrolled release of formaldehyde.

Note: Following the requirements of a separate chapter, Emergency response, chapter 296-824 WAC, will meet the requirements for emergency procedures.

• Provide emergency washing facilities, for formaldehyde exposures, as required by a separate chapter, the safety and health core rules, First aid, WAC 296-800-150, as follows:

- Emergency showers in the immediate work areas where skin contact to solutions of 1 percent or greater of formaldehyde could occur.

- Emergency eye wash in the immediate work area where an eye contact to solutions of 0.1 percent or greater of formaldehyde could occur.

AMENDATORY SECTION (Amending WSR 06-08-087, filed 4/4/06, effective 9/1/06)

WAC 296-856-20020 Training.

Exemption: Training is not required for employees when you have conclusive documentation that they cannot be exposed to formaldehyde at airborne concentrations above 0.1 parts per million (ppm).

You must:

• Provide training and information to employees exposed to formaldehyde at all of the following times:

- At the time of initial assignment to a work area where there is formaldehyde exposure.

- Whenever there is a new exposure to formaldehyde in their work area.

- At least every twelve months after initial training.

• Make sure training includes at least the following:

- The contents of this chapter and ((~~MSDS~~)) SDS for formaldehyde.

- The purpose of medical evaluations and a description of how you are fulfilling the medical evaluation requirements of this chapter.

- The health hazards and signs and symptoms associated with formaldehyde exposure, including:

■ Cancer hazard.

■ Skin and respiratory system irritant and sensitizer.

■ Eye and throat irritation.

■ Acute toxicity.

- How employees will immediately report any signs or symptoms suspected to be from formaldehyde exposure.

- Descriptions of operations where formaldehyde is present.

- Explanations of safe work practices to limit employee exposure to formaldehyde for each job.

- The purpose, proper use, and limitations of personal protective clothing.

- Instructions for the handling of spills, emergencies, and clean-up procedures.

- An explanation of the importance of exposure controls, and instructions in the use of them.

- A review of emergency procedures, including the specific duties or assignments of each employee in the event of an emergency.

- The purpose, proper use, limitations, and other training requirements for respiratory protection, as required by a separate chapter, Respirators, chapter 296-842 WAC.

• Make sure any written training materials are readily available to your employees at no cost.

AMENDATORY SECTION (Amending WSR 06-08-087, filed 4/4/06, effective 9/1/06)

WAC 296-856-20030 Personal protective equipment (PPE).

You must:

• Provide PPE at no cost to employees and make sure employees wear the equipment.

• Make sure that employees do not take contaminated clothing or other PPE from the workplace.

Select PPE that is appropriate for your workplace based on at least the following:

- The form of formaldehyde, such as gas, solution, or material.

- The conditions of use.

- The hazard to be prevented.

• Provide full body protection for entry into areas where formaldehyde exposure could exceed 100 parts per million (ppm) or when airborne concentrations are unknown.

• Protect employees from all contact with liquids containing one percent or more of formaldehyde by providing chemical protective clothing that is impervious to formaldehyde and other personal protective equipment, such as goggles and face shields, as appropriate for the operation.

• Make sure when face shields are worn, employees also wear chemical safety goggles if there could be eye contact with formaldehyde.

• Make sure contaminated clothing and other PPE is cleaned or laundered before it is used again.

• Repair or replace clothing and other PPE as needed to maintain effectiveness.

• Make sure storage areas for ventilating contaminated clothing and PPE are established to minimize employee exposure to formaldehyde.

- Make sure storage areas and containers for contaminated clothing and PPE have labels or signs with the following warning:

((~~DANGER~~

~~FORMALDEHYDE-CONTAMINATED (CLOTHING) OR EQUIPMENT~~

~~AVOID INHALATION AND SKIN CONTACT~~))

DANGER

FORMALDEHYDE-CONTAMINATED (CLOTHING) EQUIPMENT

MAY CAUSE CANCER

CAUSES SKIN, EYE, AND RESPIRATORY IRRITATION

DO NOT BREATHE VAPOR

DO NOT GET ON SKIN

- Labels. The employer shall ensure containers for contaminated clothing and equipment are labeled consistent with the Hazard Communication Standard, WAC 296-901-140, and shall, as a minimum, include the following:

DANGER

FORMALDEHYDE-CONTAMINATED (CLOTHING) EQUIPMENT

MAY CAUSE CANCER

CAUSES SKIN, EYE AND RESPIRATORY IRRITATION

DO NOT BREATHE VAPOR

DO NOT GET ON SKIN

- Prior to June 1, 2016, employers may use the following legend in lieu of that specified above in this section:

DANGER

FORMALDEHYDE-CONTAMINATED (CLOTHING) OR EQUIPMENT

AVOID INHALATION AND SKIN CONTACT

- Prior to June 1, 2015, employers may use the following information on containers of protective clothing and equipment in lieu of the labeling requirements specified above in this section:

DANGER

FORMALDEHYDE-CONTAMINATED (CLOTHING) OR EQUIPMENT

AVOID INHALATION AND SKIN CONTACT

You must:

• Make sure that only employees trained to recognize the hazards of formaldehyde remove personal protective equipment (PPE) and clothing from storage areas for the purposes of disposal, cleaning, or laundering.

• Inform any person who launders, cleans, or repairs contaminated clothing or other PPE, of the hazards of formaldehyde and procedures to safely handle the clothing and equipment.

• Provide change rooms for employees who are required to change from work clothes into protective clothing to protect them from skin contact with formaldehyde.

- Make sure change rooms have separate storage facilities for street clothes and protective clothing.

AMENDATORY SECTION (Amending WSR 06-08-087, filed 4/4/06, effective 9/1/06)

WAC 296-856-40020 Establishing exposure control areas.

You must:

• Establish temporary or permanent exposure control areas where airborne concentrations of formaldehyde are above either the 8-hour time weighted average (TWA_8) or the 15-minute short-term exposure limit (STEL), by doing at least the following:

- Clearly identify the boundaries of exposure control areas in any way that minimizes employee access.

- Post signs at access points to exposure control areas that:

■ Are easy to read (for example, they are kept clean and well lit);

AND

■ Include this warning:

((~~DANGER~~
~~Formaldehyde~~
~~Irritant and Potential Cancer Hazard~~
~~Authorized Personnel Only~~))

DANGER
FORMALDEHYDE
MAY CAUSE CANCER
CAUSES SKIN, EYE, AND RESPIRATORY IRRITATION
AUTHORIZED PERSONNEL ONLY

Prior to June 1, 2016, employers may use the following legend in lieu of the above one in this section:

DANGER
FORMALDEHYDE
IRRITANT AND POTENTIAL CANCER HAZARD
AUTHORIZED PERSONNEL ONLY

Note: This requirement does not prevent you from posting other signs.

You must:

• Allow only employees, who have been trained to recognize the hazards of formaldehyde exposure, to enter exposure control areas.

Note:
• When identifying the boundaries of exposure control areas you should consider factors such as:
– The level and duration of airborne exposure.
– Whether the area is permanent or temporary.
– The number of employees in adjacent areas.
• You may use permanent or temporary enclosures, caution tape, ropes, painted lines on surfaces, or other materials to visibly distinguish exposure control areas or separate them from the rest of the workplace.

You must:

• Inform other employers at multi-employer work sites of the exposure control areas, and the restrictions that apply to those areas.

NEW SECTION

WAC 296-856-420 Communication of hazards.

Section contents:

Hazard communication—General
WAC 296-856-42010

NEW SECTION

WAC 296-856-42010 Hazard communication—General.

• Chemical manufacturers, importers, distributors and employers must comply with all requirements of Hazard communication, WAC 296-901-140.

• In classifying the hazards of formaldehyde at least the following hazards are to be addressed: Cancer; skin and respiratory sensitization; eye, skin and respiratory tract irritation; acute toxicity effects; and flammability.

• Employers shall include formaldehyde in the hazard communication program established to comply with the HCS, WAC 296-901-140. Employers shall ensure that each employee has access to labels on containers of formaldehyde and to safety data sheets, and is trained in accordance with the requirements of HCS and WAC 296-856-20020.

• The above information in this section applies to chemicals associated with formaldehyde gas, all mixtures or solutions composed of greater than 0.1% formaldehyde, and materials capable of releasing formaldehyde into the air at concentrations reaching or exceeding 0.1 ppm.

• In making the determinations of anticipated levels of formaldehyde release, the employer may rely on objective data indicating the extent of potential formaldehyde release under reasonably foreseeable conditions of use.

AMENDATORY SECTION (Amending WSR 06-08-087, filed 4/4/06, effective 9/1/06)

WAC 296-856-500 Definitions.

Action level

An airborne concentration of formaldehyde of 0.5 parts per million of air calculated as an 8-hour time-weighted average.

Authorized personnel

Individuals specifically permitted by the employer to enter the exposure control area to perform duties, or to observe employee exposure evaluations as a designated representative.

Breathing zone

The space around and in front of an employee's nose and mouth, forming a hemisphere with a six- to nine-inch radius.

CAS (chemical abstract service) number

CAS numbers are internationally recognized and used on ((~~material~~)) safety data sheets (((~~MSDSs~~))) (SDSs) and other documents to identify substances. For more information see http://www.cas.org

Canister or cartridge (air-purifying)

Part of an air-purifying respirator that consists of a container holding materials such as fiber, treated charcoal, or a combination of the two, that removes contaminants from the air passing through the cartridge or canister.

Container

Any container, except for pipes or piping systems that contains formaldehyde. It can be any of the following:

• Barrel.
• Bottle.
• Can.
• Cylinder.
• Drum.
• Reaction vessel.
• Shipping containers.
• Storage tank.

Designated representative

Any one of the following:

• Any individual or organization to which an employee gives written authorization.

• A recognized or certified collective bargaining agent without regard to written employee authorization.

• The legal representative of a deceased or legally incapacitated employee.

Emergency

Any event that could or does result in the unexpected significant release of formaldehyde. Examples of emergencies include equipment failure, container rupture, or control equipment failure.

Exposure

The contact an employee has with formaldehyde, whether or not protection is provided by respirators or other personal protective equipment (PPE). Exposure can occur through various routes of entry such as inhalation, ingestion, skin contact, or skin absorption.

Formaldehyde

An organic chemical with the formula of HCHO, represented by the chemical abstract service (CAS) registry number 50-00-0. Examples of primary uses of formaldehyde and its solutions are as follows:

• An intermediate in the production of:

- Resins.

- Industrial chemicals.

• A bactericide or fungicide.

• A preservative.

• A component in the manufacture of end-use consumer items such as cosmetics, shampoos, and glues.

Licensed health care professional (LHCP)

An individual whose legally permitted scope of practice allows him or her to provide some or all of the health care services required for medical evaluations.

Permissible exposure limits (PELs)

PELs are employee exposures to toxic substances or harmful physical agents that must not be exceeded. PELs are also specified in WISHA rules found in other chapters. The PEL for formaldehyde is an 8-hour time-weighted average (TWA_8) of 0.75 parts per million (ppm) and a 15-minute short-term exposure limit of 2 ppm.

Short-term exposure limit (STEL)

An exposure limit averaged over a 15-minute period that must not be exceeded during an employee's workday.

Time-weighted average (TWA_8)

An exposure limit averaged over an 8-hour period that must not be exceeded during an employee's workday.

Uncontrolled release

A release where significant safety and health risks could be created. Releases of hazardous substances that are either incidental or could not create a safety or health hazard (i.e., fire, explosion, or chemical exposure) are not considered to be uncontrolled releases.

Examples of conditions that could create a significant safety and health risk are:

• Large-quantity releases.

• Small releases that could be highly toxic.

• Potentially contaminated individuals arriving at hospitals.

• Airborne exposures that could exceed a WISHA permissible exposure limit or a published exposure limit and employees are not adequately trained or equipped to control the release.

AMENDATORY SECTION (Amending WSR 07-03-163, filed 1/24/07, effective 4/1/07)

WAC 296-863-700 Definitions.

ANSI is an acronym for the American National Standards Institute.

Authorized person (maintenance) means a person who has been designated to perform maintenance on a PIT.

Authorized person (training) means a person approved or assigned by the employer to perform training for powered industrial truck operators.

Approved means listed or approved by a nationally recognized testing laboratory or a federal agency that issues approvals for equipment such as the Mine Safety and Health Administration (MSHA); the National Institute for Occupational Safety and Health (NIOSH); Department of Transportation; or U.S. Coast Guard, which issue approvals for such equipment.

Bridge plate (dockboard) means a device used to span the distance between rail cars or highway vehicles and loading platforms.

Classified location or hazardous location means areas that could be hazardous because of explosive or flammable atmospheres. These locations are broken down into the following categories:

• Class I locations are areas where flammable gases or vapors are or may be present in the air in quantities sufficient to produce explosive or ((~~ignitible~~)) ignitable mixtures.

• Class II locations are areas where the presence of combustible dust could be sufficient to produce explosions.

• Class III locations are areas where the presence of easily ignitible fibers are suspended in the air but are not in large enough quantities to produce ignitible mixtures.

Counterweight means a weight used to counteract or the load being carried by the truck, or to increase the load carrying capacity of a truck.

Designations means a code used to show the different types of hazardous (classified) locations where PITs can be safely used:

• **D** refers to trucks that are diesel engine powered that have minimum safeguards against inherent fire hazards.

• **DS** refers to diesel powered trucks that, in addition to meeting all the requirements for type D trucks, are provided with additional safeguards to the exhaust, fuel and electrical systems.

• **DY** refers to diesel powered trucks that have all the safeguards of the DS trucks and, in addition, any electrical equipment is completely enclosed. They are equipped with temperature limitation features.

• **E** refers to electrically powered trucks that have minimum acceptable safeguards against inherent fire hazards.

• **ES** refers to electrically powered trucks that, in addition to all of the requirements for the E trucks, have additional safeguards to the electrical system to prevent emission of hazardous sparks and to limit surface temperatures.

• **EE** refers to electrically powered trucks that have, in addition to all of the requirements for the E and ES type trucks, have their electric motors and all other electrical equipment completely enclosed.

• **EX** refers to electrically powered trucks that differ from E, ES, or EE type trucks in that the electrical fittings and

equipment are designed, constructed and assembled to be used in atmospheres containing flammable vapors or dusts.

• **G** refers to gasoline powered trucks that have minimum acceptable safeguards against inherent fire hazards.

• **GS** refers to gasoline powered trucks that are provided with additional exhaust, fuel, and electrical systems safeguards.

• **LP** refers to liquefied petroleum gas-powered trucks that, in addition to meeting all the requirements for type G trucks, have minimum acceptable safeguards against inherent fire hazards.

• **LPS** refers to liquefied petroleum gas powered trucks that in addition to meeting the requirements for LP type trucks, have additional exhaust, fuel, and electrical systems safeguards.

Electrolyte means a chemical, usually acid, that is mixed with water to produce electricity.

Flammable liquid means any liquid having a flashpoint at or below ((~~100°F (37.8°C), except any mixture having components with flashpoints of 100°F (37.8°C) or higher, the total of which make up 99% or more of the total volume of the mixture~~)) 199.4°F (93°C). Flammable liquids are divided into four categories as follows:

(a) Category 1 includes liquids having flashpoints below 73.4°F (23°C) and having a boiling point at or below 95°F (35°C).

(b) Category 2 includes liquids having flashpoints below 73.4°F (23°C) and having a boiling point above 95°F (35°C).

(c) Category 3 includes liquids having flashpoints at or above 73.4°F (23°C) and at or below 140°F (60°C). When a Category 3 liquid with a flashpoint at or above 100°F (37.8°C) is heated for use to within 30°F (16.7°C) of its flashpoint, it must be handled in accordance with the requirements for a Category 3 liquid with a flashpoint below 100°F (37.8°C).

(d) Category 4 includes liquids having flashpoints above 140°F (60°C) and at or below 199.4°F (93°C). When a Category 4 flammable liquid is heated for use to within 30°F (16.7°C) of its flashpoint, it must be handled in accordance with the requirements for a Category 3 liquid with a flashpoint at or above 100°F (37.8°C).

(e) When liquid with a flashpoint greater than 199.4°F (93°C) is heated for use to within 30°F (16.7°C) of its flashpoint, it must be handled in accordance with the requirements for a Category 4 flammable liquid.

Flashpoint means the minimum temperature at which a liquid gives off ((~~enough~~)) vapor ((~~to ignite~~)) within a test vessel in sufficient concentration to form an ignitable mixture with air near the surface of the liquid, and shall be determined as follows:

(a) For a liquid which has a viscosity of less than 45 SUS at 100°F (37.8°C), does not contain suspended solids, and does not have a tendency to form a surface film while under test, the procedure specified in the Standard Method of Test for Flashpoint by Tag Closed Tester (ASTM D-56-70), WAC 296-901-14024, Appendix B—Physical hazard criteria shall be used.

(b) For a liquid which has a viscosity of 45 SUS or more at 100°F (37.8°C), or contains suspended solids, or has a tendency to form a surface film while under test, the Standard Method of Test for Flashpoint by Pensky-Martens Closed Tester (ASTM D-93-71) or an equivalent method as defined by WAC 296-91-14024, Appendix B—Physical hazard criteria, shall be used, except that the methods specified in Note 1 to section 1.1 of ASTM D-93-71 may be used for the respective materials specified in the note.

(c) For a liquid that is a mixture of compounds that have different volatilities and flashpoints, its flashpoint shall be determined by using the procedure specified in (a) or (b) of this subsection on the liquid in the form it is shipped.

(d) Organic peroxides, which undergo autoaccelerating thermal decomposition, are excluded from any of the flashpoint determination methods specified in this section.

Front-end attachment means a device that is attached to the forks or lifting device of the truck.

Lanyard means a flexible line of webbing, rope, or cable used to secure a harness to an anchor point.

((~~**Listed by report** means a report listing the field assembly, installation procedures, or both, for a UL listed product that does not have generally recognized installation requirements.~~))

Liquefied petroleum gas means any gas that is composed predominantly of the following hydrocarbons, or mixtures of them; propane, propylene, butanes (normal butane or iso-butane), and butylenes.

Listed by report means a report listing the field assembly, installation procedures, or both, for a UL listed product that does not have generally recognized installation requirements.

Load engaging means a device attached to a powered industrial truck and used to manipulate or carry a load.

Motorized hand truck means a powered truck with wheeled forks designed to go under or between pallets and is controlled by a walking or riding operator.

Nationally recognized testing laboratory means an organization recognized by the Occupational Safety and Health Administration that conducts safety tests on equipment and materials.

Order picker means a truck controlled by an operator who is stationed on a platform that moves with the load engaging means.

Powered industrial truck (PIT) means a mobile, power-driven vehicle used to carry, push, pull, lift, stack, or tier material.

Rough terrain forklift truck means a truck intended to be used on unimproved natural terrain and at construction sites.

Safety harness (full body harness) means a configuration of connected straps to distribute a fall arresting force over at least the thighs, shoulders and pelvis, with provisions for attaching a lanyard, lifeline, or deceleration devices.

Tie-off point (anchorage) means a secure point to attach a lanyard that meets the requirements of WAC 296-24-87035, Appendix—C Personal fall arrest systems.

Vertical load backrest extension means a device that extends vertically from the fork carriage frame.

AMENDATORY SECTION (Amending WSR 13-06-050, filed 3/5/13, effective 4/15/13)

WAC 296-901-14006 Definitions. *Article* means a manufactured item other than a fluid or particle:

(1) Which is formed to a specific shape or design during manufacture;

(2) Which has end use function(s) dependent in whole or in part upon its shape or design during end use; and

(3) Which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical (as determined under WAC 296-901-14008), and does not pose a physical hazard or health risk to employees.

Chemical means any substance, or mixture of substances.

Chemical manufacturer means an employer with a workplace where chemical(s) are produced for use or distribution.

Chemical name means the scientific designation of a chemical the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS) rules of nomenclature, or a name that will clearly identify the chemical for the purpose of conducting a hazard classification.

Classification means to identify the relevant data regarding the hazards of a chemical; review those data to ascertain the hazards associated with the chemical; and decide whether the chemical will be classified as hazardous according to the definition of hazardous chemical in this section. In addition, classification for health and physical hazards includes the determination of the degree of hazard, where appropriate, by comparing the data with the criteria for health and physical hazards.

Commercial account means an arrangement whereby a retail distributor sells hazardous chemicals to an employer, generally in large quantities over time and/or at costs that are below the regular retail price.

Common name means any designation or identification such as code name, code number, trade name, brand name or generic name used to identify a chemical other than by its chemical name.

Container means any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical. For purposes of this section, pipes or piping systems, and engines, fuel tanks, or other operating systems in a vehicle, are not considered to be containers.

Designated representative means any individual or organization to whom an employee gives written authorization to exercise such employee's rights under this section. A recognized or certified collective bargaining agent must be treated automatically as a designated representative without regard to written employee authorization.

Distributor means a business, other than a chemical manufacturer or importer, which supplies hazardous chemicals to other distributors or to employers.

Employee is a person, as defined under RCW 49.17.020 (5), who may be exposed to hazardous chemicals under normal operating conditions or in foreseeable emergencies. Employees such as office workers or bank tellers who encounter hazardous chemicals only in nonroutine, isolated instances are not covered.

Employer means an employer, as defined under RCW 49.17.020(4), engaged in a business where chemicals are either used, distributed, or are produced for use or distribution, including a contractor or subcontractor.

Exposure or *exposed* means that an employee is subjected in the course of employment to a chemical that is a physical or health hazard, and includes potential (e.g., accidental or possible) exposure. "Subjected" in terms of health hazards includes any route of entry (e.g., inhalation, ingestion, skin contact or absorption).

Foreseeable emergency means any potential occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment which could result in an uncontrolled release of a hazardous chemical into the workplace.

Hazard category means the division of criteria within each hazard class, e.g., oral acute toxicity and flammable liquids include four hazard categories. These categories compare hazard severity within a hazard class and ((~~must~~)) should not be taken as a comparison of hazard categories more generally.

Hazard class means the nature of the physical or health hazards, e.g., flammable solid, carcinogen, oral acute toxicity.

Hazard not otherwise classified (*HNOC*) means an adverse physical or health effect identified through evaluation of scientific evidence during the classification process that does not meet the specified criteria for the physical and health hazard classes addressed in this section. This does not extend coverage to adverse physical and health effects for which there is a hazard class addressed in this section, but the effect either falls below the cut-off value/concentration limit of the hazard class or is under a GHS hazard category that has not been adopted by OSHA (e.g., acute toxicity Category 5).

Hazard statement means a statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical including, where appropriate, the degree of hazard.

Hazardous chemical means any chemical which is classified as a physical hazard or a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, or hazard not otherwise classified.

Health hazard means a chemical which is classified as posing one of the following hazardous effects: Acute toxicity (any route of exposure); skin corrosion or irritation; serious eye damage or eye irritation; respiratory or skin sensitization; germ cell mutagenicity; carcinogenicity; reproductive toxicity; specific target organ toxicity (single or repeated exposure); or aspiration hazard. The criteria for determining whether a chemical is classified as a health hazard are detailed in WAC 296-901-14022, Appendix A—Health hazard criteria.

Immediate use means that the hazardous chemical will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

Importer means the first business with employees within the Customs Territory of the United States which receives

hazardous chemicals produced in other countries for the purpose of supplying them to distributors or employers within the United States.

Label means an appropriate group of written, printed or graphic information elements concerning a hazardous chemical that is affixed to, printed on, or attached to the immediate container of a hazardous chemical, or to the outside packaging.

Label elements means the specified pictogram, hazard statement, signal word and precautionary statement for each hazard class and category.

Mixture means a combination or a solution composed of two or more substances in which they do not react.

Physical hazard means a chemical that is classified as posing one of the following hazardous effects: Explosive; flammable (gases, aerosols, liquids, or solids); oxidizer (liquid, solid or gas); self-reactive; pyrophoric (liquid or solid); self-heating; organic peroxide; corrosive to metal; gas under pressure; or in contact with water emits flammable gas. WAC ((~~296-901-1424~~)) 296-901-14024, Appendix B—Physical hazard criteria.

Pictogram means a composition that may include a symbol plus other graphic elements, such as a border, background pattern, or color, that is intended to convey specific information about the hazards of a chemical. Eight pictograms are designated under this standard for application to a hazard category.

Precautionary statement means a phrase that describes recommended measures that ((~~must~~)) should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical, or improper storage or handling.

Produce means to manufacture, process, formulate, blend, extract, generate, emit, or repackage.

Product identifier means the name or number used for a hazardous chemical on a label or in the SDS. It provides a unique means by which the user can identify the chemical. The product identifier used must permit cross-references to be made among the list of hazardous chemicals required in the written hazard communication program, the label and the SDS.

Pyrophoric gas means a chemical in a gaseous state that will ignite spontaneously in air at a temperature of 130 degrees F (54.4 degrees C) or below.

Responsible party means someone who can provide additional information on the hazardous chemical and appropriate emergency procedures, if necessary.

Safety data sheet (*SDS*) means written or printed material concerning a hazardous chemical that is prepared in accordance with WAC 296-901-14014.

Signal word means a word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. The signal words used in this section are "danger" and "warning." "Danger" is used for the more severe hazards, while "warning" is used for the less severe.

Simple asphyxiant means a substance or mixture that displaces oxygen in the ambient atmosphere, and can thus cause oxygen deprivation in those who are exposed, leading to unconsciousness and death.

Specific chemical identity means the chemical name, Chemical Abstracts Service (CAS) Registry Number, or any other information that reveals the precise chemical designation of the substance.

Substance means chemical elements and their compounds in the natural state or obtained by any production process, including any additive necessary to preserve the stability of the product and any impurities deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition.

Trade secret means any confidential formula, pattern, process, device, information or compilation of information that is used in an employer's business, and that gives the employer an opportunity to obtain an advantage over competitors who do not know or use it. WAC 296-901-14030, Appendix E—Definition of "trade secret," sets out the criteria to be used in evaluating trade secrets.

Use means to package, handle, react, emit, extract, generate as a by-product, or transfer.

Work area means a room or defined space in a workplace where hazardous chemicals are produced or used, and where employees are present.

Workplace means an establishment, job site, or project, at one geographical location containing one or more work areas.

AMENDATORY SECTION (Amending WSR 13-06-050, filed 3/5/13, effective 4/15/13)

WAC 296-901-14008 Hazard classification. (1) Chemical manufacturers and importers must evaluate chemicals produced in their workplaces or imported by them to classify the chemicals in accordance with this section. For each chemical, the chemical manufacturer or importer must determine the hazard classes, and where appropriate, the category of each class that apply to the chemical being classified. Employers are not required to classify chemicals unless they choose not to rely on the classification performed by the chemical manufacturer or importer for the chemical to satisfy this requirement.

(2) Chemical manufacturers, importers or employers classifying chemicals must identify and consider the full range of available scientific literature and other evidence concerning the potential hazards. There is no requirement to test the chemical to determine how to classify its hazards. WAC 296-901-14022, Appendix A—Health hazard criteria must be consulted for classification of health hazards, and WAC 296-901-14024, Appendix B—Physical hazard criteria must be consulted for the classification of physical hazards.

(3) *Mixtures*.

(a) Chemical manufacturers, importers, or employers evaluating chemicals must follow the procedures described in WAC 296-901-14022, Appendix A—Health hazard criteria and WAC 296-901-14024, Appendix B—Physical hazard criteria to classify the hazards of the chemicals, including determinations regarding when mixtures of the classified chemicals are covered by this section.

(b) When classifying mixtures they produce or import, chemical manufacturers and importers of mixtures may rely on the information provided on the current safety data sheets of the individual ingredients, except where the chemical man-

ufacturer or importer knows, or in the exercise of reasonable diligence ((~~must~~)) should know, that the safety data sheet misstates or omits information required by this section.

(((~~(4) Chemical manufacturers, importers and employers evaluating chemicals must treat the following sources as establishing that a chemical is a carcinogen or potential carcinogen for hazard communication purposes:~~

~~(a) National Toxicology Program (NTP), *Annual Report on Carcinogens* (latest edition);~~

~~(b) International Agency for Research on Cancer (IARC) *Monographs* (latest editions); or~~

~~(c) Chapter 296-841 WAC, Airborne contaminants.~~

~~**Note:** The *Registry of Toxic Effects of Chemical Substances* published by the National Institute for Occupational Safety and Health indicates whether a chemical has been found by NTP or IARC to be a potential carcinogen.~~

~~(5) The chemical manufacturer, importer or employer must determine the hazards of mixtures of chemicals as follows:~~

~~(a) If a mixture has been tested as a whole to determine its hazards, the results of such testing must be used to determine whether the mixture is hazardous;~~

~~(b) If a mixture has not been tested as a whole to determine whether the mixture is a health hazard, the mixture must be assumed to present the same health hazards as do the components which comprise one percent (by weight or volume) or greater of the mixture, except that the mixture must be assumed to present a carcinogenic hazard if it contains a component in concentrations of 0.1 percent or greater which is considered to be a carcinogen under subsection (4) of this section;~~

~~(c) If a mixture has not been tested as a whole to determine whether the mixture is a physical hazard, the chemical manufacturer, importer, or employer may use whatever scientifically valid data is available to evaluate the physical hazard potential of the mixture; and~~

~~(d) If the chemical manufacturer, importer, or employer has evidence to indicate that a component present in the mixture in concentrations of less than one percent (or in the case of carcinogens, less than 0.1 percent) could be released in concentrations which would exceed an established OSHA permissible exposure limit or American Conference of Industrial Hygienists (ACGIH) Threshold Limit Value, or could present a health risk to employees in those concentrations, the mixture must be assumed to present the same hazard.~~

~~(6) Chemical manufacturers, importers, or employers evaluating chemicals must describe in writing the procedures they use to determine the hazards of the chemical they evaluate. The written procedures are to be made available, upon request, to employees, their designated representatives, the assistant secretary and the director. The written description may be incorporated into the written hazard communication program required under WAC 296-901-14010.~~))

AMENDATORY SECTION (Amending WSR 13-06-050, filed 3/5/13, effective 4/15/13)

WAC 296-901-14014 Safety data sheets. (1) Chemical manufacturers and importers must obtain or develop a safety data sheet for each hazardous chemical they produce or import. Employers must have a safety data sheet in the workplace for each hazardous chemical which they use.

(2) The chemical manufacturer or importer preparing the safety data sheet must ensure that it is in English (although the employer may maintain copies in other languages as well), and includes at least the following section numbers and headings, and associated information under each heading, in the order listed (*see* WAC 296-901-14028, Appendix D—Safety data sheets, for the specific content of each section of the safety data sheet):

(a) Section 1, Identification;

(b) Section 2, Hazard(s) identification;

(c) Section 3, Composition/information on ingredients;

(d) Section 4, First-aid measures;

(e) Section 5, Firefighting measures;

(f) Section 6, Accidental release measures;

(g) Section 7, Handling and storage;

(h) Section 8, Exposure controls/personal protection;

(i) Section 9, Physical and chemical properties;

(j) Section 10, Stability and reactivity;

(k) Section 11, Toxicological information;

(l) Section 12, Ecological information;

(m) Section 13, Disposal considerations;

(n) Section 14, Transport information;

(o) Section 15, Regulatory information; and

(p) Section 16, Other information, including date of preparation or last revision.

Note 1 to WAC 296-901-14014(2): To be consistent with the GHS, an SDS must also include the headings in WAC 296-901-14014 (2)(m) through (o) in order.

Note 2 to WAC 296-901-14014(2): The department will not be enforcing information requirements in SDS sections 12 through 15 (WAC 296-901-14014 (2)(l) through (o), as these areas are not under its jurisdiction.

(3) If no relevant information is found for any subheading within a section on the safety data sheet, the chemical manufacturer, importer or employer preparing the safety data sheet must mark it to indicate that no applicable information was found.

(4) Where complex mixtures have similar hazards and contents (i.e., the chemical ingredients are essentially the same, but the specific composition varies from mixture to mixture), the chemical manufacturer, importer or employer may prepare one safety data sheet to apply to all of these similar mixtures.

(5) The chemical manufacturer, importer or employer preparing the safety data sheet must ensure that the information provided accurately reflects the scientific evidence used in making the hazard classification. If the chemical manufacturer, importer or employer preparing the safety data sheet becomes newly aware of any significant information regarding the hazards of a chemical, or ways to protect against the hazards, this new information must be added to the safety data sheet within three months. If the chemical is not currently being produced or imported, the chemical manufacturer or importer must add the information to the safety data sheet before the chemical is introduced into the workplace again.

(a) Chemical manufacturers or importers must ensure that distributors and employers are provided an appropriate

safety data sheet with their initial shipment, and with the first shipment after a safety data sheet is updated;

(b) The chemical manufacturer or importer must either provide safety data sheets with the shipped containers or send them to the distributor or employer prior to or at the time of the shipment;

(c) If the safety data sheet is not provided with a shipment that has been labeled as a hazardous chemical, the distributor or employer must obtain one from the chemical manufacturer or importer as soon as possible; and

(d) The chemical manufacturer or importer must also provide distributors or employers with a safety data sheet upon request.

(6) Distributors must ensure that safety data sheets, and updated information, are provided to other distributors and employers with their initial shipment and with the first shipment after a safety data sheet is updated.

(a) The distributor must either provide safety data sheets with the shipped containers, or send them to the other distributor or employer prior to or at the time of the shipment;

(b) Retail distributors selling hazardous chemicals to employers having a commercial account must provide a safety data sheet to such employers upon request, and must post a sign or otherwise inform them that a safety data sheet is available;

(c) Wholesale distributors selling hazardous chemicals to employers over-the-counter may also provide safety data sheets upon the request of the employer at the time of the over-the-counter purchase, and must post a sign or otherwise inform such employers that a safety data sheet is available;

(d) If an employer without a commercial account purchases a hazardous chemical from a retail distributor not required to have safety data sheets on file (i.e., the retail distributor does not have commercial accounts and does not use the materials), the retail distributor must provide the employer, upon request, with the name, address, and telephone number of the chemical manufacturer, importer, or distributor from which a safety data sheet can be obtained;

(e) Wholesale distributors must also provide safety data sheets to employers or other distributors upon request; and

(f) Chemical manufacturers, importers, and distributors need not provide safety data sheets to retail distributors that have informed them that the retail distributor does not sell the product to commercial accounts or open the sealed container to use it in their own workplaces.

(7) The employer must maintain in the workplace copies of the required safety data sheets for each hazardous chemical, and must ensure that they are readily accessible during each work shift to employees when they are in their work area(s). (Electronic access and other alternatives to maintaining paper copies of the safety data sheets are permitted as long as no barriers to immediate employee access in each workplace are created by such options.)

(8) Where employees must travel between workplaces during a workshift, i.e., their work is carried out at more than one geographical location, the ((~~material~~)) safety data sheets may be kept at the primary workplace facility. In this situation, the employer must ensure that employees can immediately obtain the required information in an emergency.

(9) Safety data sheets may be kept in any form, including operating procedures, and may be designed to cover groups of hazardous chemicals in a work area where it may be more appropriate to address the hazards of a process rather than individual hazardous chemicals. However, the employer must ensure that in all cases the required information is provided for each hazardous chemical, and is readily accessible during each work shift to employees when they are in their work area(s).

(10) Safety data sheets must also be made readily available, upon request, to designated representatives, and the department in accordance with the requirements of WAC 296-901-14010.

(11) The department of labor and industries will translate certain ((~~chemical~~)) hazard communication documents upon receipt of written or verbal request (within available resources) to employers or the public, a translation into Cambodian, Chinese, Korean, Spanish, or Vietnamese of any of the following:

• An employer's written ((~~Chemical~~)) Hazard Communication Program;

• A ((~~material~~)) safety data sheet; or

• Written materials prepared by the department to inform employees of their rights described in this rule, regarding ((~~chemical~~)) hazard communication.

Note: Written request for translations ((~~must~~)) should be directed to:

Department of Labor and Industries
Right-To-Know Program
P.O. Box 44610
Olympia, WA 98504-4610

AMENDATORY SECTION (Amending WSR 13-06-050, filed 3/5/13, effective 4/15/13)

WAC 296-901-14022 Appendix A—Health hazard criteria.

A.0 GENERAL CLASSIFICATION CONSIDERATIONS

A.0.1 Classification

A.0.1.1 The term "hazard classification" is used to indicate that only the intrinsic hazardous properties of chemicals are considered. Hazard classification incorporates three steps:

(a) identification of relevant data regarding the hazards of a chemical;

(b) subsequent review of those data to ascertain the hazards associated with the chemical;

(c) determination of whether the chemical will be classified as hazardous and the degree of hazard.

A.0.1.2 For many hazard classes, the criteria are semi quantitative or qualitative and expert judgment is required to interpret the data for classification purposes.

A.0.2 Available data, test methods and test data quality

A.0.2.1 There is no requirement for testing chemicals.

A.0.2.2 The criteria for determining health hazards are test method neutral, i.e., they do not specify particular test methods, as long as the methods are scientifically validated.

A.0.2.3 The term "scientifically validated" refers to the process by which the reliability and the relevance of a procedure are established for a particular purpose. Any test that determines hazardous properties, which is conducted according to recognized scientific principles, can be used for purposes of a hazard determination for health hazards. Test conditions need to be standardized so that the results are reproducible with a given substance, and the standardized test yields "valid" data for defining the hazard class of concern.

A.0.2.4 Existing test data are acceptable for classifying chemicals, although expert judgment also may be needed for classification purposes.

A.0.2.5 The effect of a chemical on biological systems is influenced, by the physico-chemical properties of the substance and/or ingredients of the mixture and the way in which ingredient substances are biologically available. A chemical need not be classified when it can be shown by conclusive experimental data from scientifically validated test methods that the chemical is not biologically available.

A.0.2.6 For classification purposes, epidemiological data and experience on the effects of chemicals on humans (e.g., occupational data, data from accident databases) shall be taken into account in the evaluation of human health hazards of a chemical.

A.0.3 Classification based on weight of evidence

A.0.3.1 For some hazard classes, classification results directly when the data satisfy the criteria. For others, classification of a chemical shall be determined on the basis of the total weight of evidence using expert judgment. This means that all available information bearing on the classification of hazard shall be considered together, including the results of valid in vitro tests, relevant animal data, and human experience such as epidemiological and clinical studies and well-documented case reports and observations.

A.0.3.2 The quality and consistency of the data shall be considered. Information on chemicals related to the material being classified shall be considered as appropriate, as well as site of action and mechanism or mode of action study results. Both positive and negative results shall be considered together in a single weight-of-evidence determination.

A.0.3.3 Positive effects which are consistent with the criteria for classification, whether seen in humans or animals, shall normally justify classification. Where evidence is available from both humans and animals and there is a conflict between the findings, the quality and reliability of the evidence from both sources shall be evaluated in order to resolve the question of classification. Reliable, good quality human data shall generally have precedence over other data. However, even well-designed and conducted epidemiological studies may lack a sufficient number of subjects to detect relatively rare but still significant effects, or to assess potentially confounding factors. Therefore, positive results from well-conducted animal studies are not necessarily negated by the lack of positive human experience but require an assessment of the robustness, quality and statistical power of both the human and animal data.

A.0.3.4 Route of exposure, mechanistic information, and metabolism studies are pertinent to determining the relevance of an effect in humans. When such information raises doubt about relevance in humans, a lower classification may be warranted. When there is scientific evidence demonstrating that the mechanism or mode of action is not relevant to humans, the chemical should not be classified.

A.0.3.5 Both positive and negative results are considered together in the weight of evidence determination. However, a single positive study performed according to good scientific principles and with statistically and biologically significant positive results may justify classification.

A.0.4 Considerations for the classification of mixtures

A.0.4.1 For most hazard classes, the recommended process of classification of mixtures is based on the following sequence:

(a) Where test data are available for the complete mixture, the classification of the mixture will always be based on those data;

(b) Where test data are not available for the mixture itself, the bridging principles designated in each health hazard chapter of this appendix shall be considered for classification of the mixture;

(c) If test data are not available for the mixture itself, and the available information is not sufficient to allow application of the above-mentioned bridging principles, then the method(s) described in each chapter for estimating the hazards based on the information known will be applied to classify the mixture (e.g., application of cut-off values/concentration limits).

A.0.4.2 An exception to the above order or precedence is made for Carcinogenicity, Germ Cell Mutagenicity, and Reproductive Toxicity. For these three hazard classes, mixtures shall be classified based upon information on the ingredient substances, unless on a case-by-case basis, justification can be provided for classifying based upon the mixture as a whole. See chapters A.5, A.6, and A.7 for further information on case-by-case bases.

A.0.4.3 Use of cut-off values/concentration limits

A.0.4.3.1 When classifying an untested mixture based on the hazards of its ingredients, cut-off values/concentration limits for the classified ingredients of the mixture are used for several hazard classes. While the adopted cut-off values/concentration limits adequately identify the hazard for most mixtures, there may be some that contain hazardous ingredients at lower concentrations than the specified cut-off values/concentration limits that still pose an identifiable hazard. There may also be cases where the cut-off value/concentration limit is considerably lower than the established non-hazardous level for an ingredient.

A.0.4.3.2 If the classifier has information that the hazard of an ingredient will be evident (i.e., it presents a health risk) below the specified cut-off value/concentration limit, the mixture containing that ingredient shall be classified accordingly.

A.0.4.3.3 In exceptional cases, conclusive data may demonstrate that the hazard of an ingredient will not be evident (i.e.,

it does not present a health risk) when present at a level above the specified cut-off value/concentration limit(s). In these cases the mixture may be classified according to those data. The data must exclude the possibility that the ingredient will behave in the mixture in a manner that would increase the hazard over that of the pure substance. Furthermore, the mixture must not contain ingredients that would affect that determination.

A.0.4.4 Synergistic or antagonistic effects

When performing an assessment in accordance with these requirements, the evaluator must take into account all available information about the potential occurrence of synergistic effects among the ingredients of the mixture. Lowering classification of a mixture to a less hazardous category on the basis of antagonistic effects may be done only if the determination is supported by sufficient data.

A.0.5 Bridging principles for the classification of mixtures where test data are not available for the complete mixture.

A.0.5.1 Where the mixture itself has not been tested to determine its toxicity, but there are sufficient data on both the individual ingredients and similar tested mixtures to adequately characterize the hazards of the mixture, these data shall be used in accordance with the following bridging principles, subject to any specific provisions for mixtures for each hazard class. These principles ensure that the classification process uses the available data to the greatest extent possible in characterizing the hazards of the mixture.

A.0.5.1.1 Dilution

For mixtures classified in accordance with A.1 through A.10 of this Appendix, if a tested mixture is diluted with a diluent that has an equivalent or lower toxicity classification than the least toxic original ingredient, and which is not expected to affect the toxicity of other ingredients, then:

(a) the new diluted mixture shall be classified as equivalent to the original tested mixture; or

(b) for classification of acute toxicity in accordance with A.1 of this Appendix, paragraph A.1.3.6 (the additivity formula) shall be applied.

A.0.5.1.2 Batching

For mixtures classified in accordance with A.1 through A.10 of this Appendix, the toxicity of a tested production batch of a mixture can be assumed to be substantially equivalent to that of another untested production batch of the same mixture, when produced by or under the control of the same chemical manufacturer, unless there is reason to believe there is significant variation such that the toxicity of the untested batch has changed. If the latter occurs, a new classification is necessary.

A.0.5.1.3 Concentration of mixtures

For mixtures classified in accordance with A.1, A.2, A.3, A.8, A.9, or A.10 of this Appendix, if a tested mixture is classified in Category 1, and the concentration of the ingredients of the tested mixture that are in Category 1 is increased, the resulting untested mixture shall be classified in Category 1.

A.0.5.1.4 Interpolation within one toxicity category

For mixtures classified in accordance with A.1, A.2, A.3, A.8, A.9, or A.10 of this Appendix, for three mixtures (A, B and C) with identical ingredients, where mixtures A and B have been tested and are in the same toxicity category, and where untested mixture C has the same toxicologically active ingredients as mixtures A and B but has concentrations of toxicologically active ingredients intermediate to the concentrations in mixtures A and B, then mixture C is assumed to be in the same toxicity category as A and B.

A.0.5.1.5 Substantially similar mixtures

For mixtures classified in accordance with A.1 through A.10 of this Appendix, given the following set of conditions:

(a) Where there are two mixtures:

(i) A + B;

(ii) C + B;

(b) the concentration of ingredient B is essentially the same in both mixtures;

(c) the concentration of ingredient A in mixture (i) equals that of ingredient C in mixture (ii);

(d) and data on toxicity for A and C are available and substantially equivalent; i.e., they are in the same hazard category and are not expected to affect the toxicity of B; then

If mixture (i) or (ii) is already classified based on test data, the other mixture can be assigned the same hazard category.

A.0.5.1.6 Aerosols

For mixtures classified in accordance with A.1, A.2, A.3, A.4, A.8, or A.9 of this Appendix, an aerosol form of a mixture shall be classified in the same hazard category as the tested, non-aerosolized form of the mixture, provided the added propellant does not affect the toxicity of the mixture when spraying.

A.1 ACUTE TOXICITY

A.1.1 Definition

Acute toxicity refers to those adverse effects occurring following oral or dermal administration of a single dose of a substance, or multiple doses given within 24 hours, or an inhalation exposure of 4 hours.

A.1.2 Classification criteria for substances

A.1.2.1 Substances can be allocated to one of four toxicity categories based on acute toxicity by the oral, dermal or inhalation route according to the numeric cut-off criteria as shown in Table A.1.1. Acute toxicity values are expressed as (approximate) LD50 (oral, dermal) or LC50 (inhalation) values or as acute toxicity estimates (ATE). See the footnotes following Table A.1.1 for further explanation on the application of these values.

Table A.1.1: Acute toxicity hazard categories and acute toxicity estimate (ATE) values defining the respective categories

Exposure route	Category 1	Category 2	Category 3	Category 4
Oral (mg/kg bodyweight) see: *Note (a)* *Note (b)*	≤5	>5 and ≤50	>50 and ≤300	>300 and ≤2000
Dermal (mg/kg bodyweight) see: *Note (a)* *Note (b)*	≤((~~5~~)) 50	>50 and ≤200	>200 and ≤1000	>1000 and ≤2000
Inhalation - Gases (ppmV) see: *Note (a)* *Note (b)* *Note (c)*	≤100	>100 and ≤500	>500 and ≤2500	>2500 and ≤20000
Inhalation - Vapors (mg/l) see: *Note (a)* *Note (b)* *Note (c)* *Note (d)*	≤0.5	>0.5 and ≤2.0	>2.0 and ≤10.0	>10.0 and ≤20.0
Inhalation - Dusts and Mists (mg/l) see: *Note (a)* *Note (b)* *Note (c)*	≤0.05	>0.05 and ≤0.5	>0.5 and ≤1.0	>1.0 and ≤5.0

Note: Gas concentrations are expressed in parts per million per volume (ppmV).

Notes to Table A.1.1:

(a) The acute toxicity estimate (ATE) for the classification of a substance is derived using the LD50/LC50 where available;

(b) The acute toxicity estimate (ATE) for the classification of a substance or ingredient in a mixture is derived using:

(i) the LD50/LC50 where available. Otherwise,

(ii) the appropriate conversion value from Table 1.2 that relates to the results of a range test, or

(iii) the appropriate conversion value from Table 1.2 that relates to a classification category;

(c) Inhalation cut-off values in the table are based on 4 hour testing exposures. Conversion of existing inhalation toxicity data which has been generated according to 1 hour exposure is achieved by dividing by a factor of 2 for gases and vapors and 4 for dusts and mists;

(d) For some substances the test atmosphere will be a vapor which consists of a combination of liquid and gaseous phases. For other substances the test atmosphere may consist of a vapor which is nearly all the gaseous phase. In these latter cases, classification is based on ppmV as follows: Category 1 (100 ppmV), Category 2 (500 ppmV), Category 3 (2500 ppmV), Category 4 (20000 ppmV).

The terms "dust", "mist" and "vapor" are defined as follows:

(i) Dust: solid particles of a substance or mixture suspended in a gas (usually air);

(ii) Mist: liquid droplets of a substance or mixture suspended in a gas (usually air);

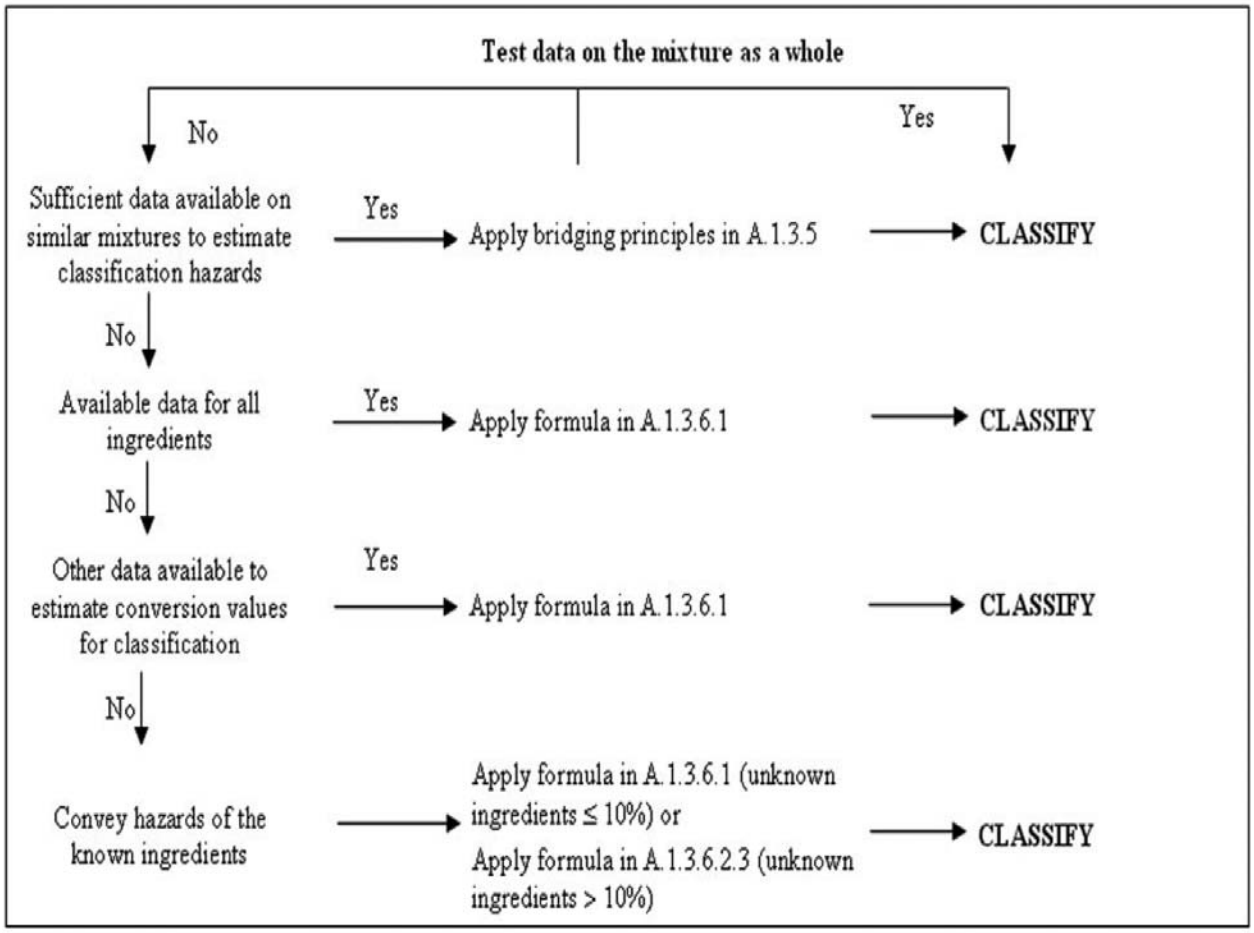
(iii) Vapor: the gaseous form of a substance or mixture released from its liquid or solid state.

A.1.2.3 The preferred test species for evaluation of acute toxicity by the oral and inhalation routes is the rat, while the rat or rabbit are preferred for evaluation of acute dermal toxicity. Test data already generated for the classification of chemicals under existing systems should be accepted when reclassifying these chemicals under the harmonized system. When experimental data for acute toxicity are available in several animal species, scientific judgment should be used in selecting the most appropriate LD50 value from among scientifically validated tests.

A.1.3 Classification criteria for mixtures

A.1.3.1 The approach to classification of mixtures for acute toxicity is tiered, and is dependent upon the amount of information available for the mixture itself and for its ingredients. The flow chart of Figure A.1.1 indicates the process that must be followed:

Figure A.1.1: Tiered approach to classification of mixtures for acute toxicity



A.1.3.2 Classification of mixtures for acute toxicity may be carried out for each route of exposure, but is only required for one route of exposure as long as this route is followed (estimated or tested) for all ingredients and there is no relevant evidence to suggest acute toxicity by multiple routes. When there is relevant evidence of acute toxicity by multiple routes of exposure, classification is to be conducted for all appropriate routes of exposure. All available information shall be considered. The pictogram and signal word used shall reflect the most severe hazard category; and all relevant hazard statements shall be used.

A.1.3.3 For purposes of classifying the hazards of mixtures in the tiered approach:

(a) The "relevant ingredients" of a mixture are those which are present in concentrations ≥ 1% (weight/weight for solids, liquids, dusts, mists and vapors and volume/volume for gases). If there is reason to suspect that an ingredient present at a concentration < 1% will affect classification of the mixture for acute toxicity, that ingredient shall also be considered relevant. Consideration of ingredients present at a concentration < 1% is particularly important when classifying untested mixtures which contain ingredients that are classified in Category 1 and Category 2;

(b) Where a classified mixture is used as an ingredient of another mixture, the actual or derived acute toxicity estimate (ATE) for that mixture is used when calculating the classification of the new mixture using the formulas in A.1.3.6.1 and A.1.3.6.2.4.

(c) If the converted acute toxicity point estimates for all ingredients of a mixture are within the same category, then the mixture should be classified in that category.

(d) When only range data (or acute toxicity hazard category information) are available for ingredients in a mixture, they may be converted to point estimates in accordance with Table A.1.2 when calculating the classification of the new mixture using the formulas in A.1.3.6.1 and A.1.3.6.2.4.

A.1.3.4 Classification of mixtures where acute toxicity test data are available for the complete mixture

Where the mixture itself has been tested to determine its acute toxicity, it is classified according to the same criteria as those used for substances, presented in Table A.1.1. If test data for the mixture are not available, the procedures presented below must be followed.

A.1.3.5 Classification of mixtures where acute toxicity test data are not available for the complete mixture: bridging principles

A.1.3.5.1 Where the mixture itself has not been tested to determine its acute toxicity, but there are sufficient data on both the individual ingredients and similar tested mixtures to adequately characterize the hazards of the mixture, these data will be used in accordance with the following bridging principles as found in paragraph A.0.5 of this Appendix: Dilution, Batching, Concentration of mixtures, Interpolation within one toxicity category, Substantially similar mixtures, and Aerosols.

A.1.3.6 Classification of mixtures based on ingredients of the mixture (additivity formula)

A.1.3.6.1 Data available for all ingredients

The acute toxicity estimate (ATE) of ingredients is considered as follows:

(a) Include ingredients with a known acute toxicity, which fall into any of the acute toxicity categories, or have an oral or dermal LD50 greater than 2000 but less than or equal to 5000 mg/kg body weight (or the equivalent dose for inhalation);

(b) Ignore ingredients that are presumed not acutely toxic (e.g., water, sugar);

(c) Ignore ingredients if the data available are from a limit dose test (at the upper threshold for Category 4 for the appropriate route of exposure as provided in Table A.1.1) and do not show acute toxicity.

Ingredients that fall within the scope of this paragraph are considered to be ingredients with a known acute toxicity estimate (ATE). See note (b) to Table A.1.1 and paragraph A.1.3.3 for appropriate application of available data to the equation below, and paragraph A.1.3.6.2.4.

The ATE of the mixture is determined by calculation from the ATE values for all relevant ingredients according to the following formula below for oral, dermal or inhalation toxicity:

The ATE of the Mixture 2

$$\frac{100}{ATEmix} = \sum_{n} \frac{Ci}{ATE_i}$$

where:
Ci = concentration of ingredient i
n ingredients and i is running from 1 to n
ATEi = acute toxicity estimate of ingredient i.

A.1.3.6.2 Data are not available for one or more ingredients of the mixture

A.1.3.6.2.1 Where an ATE is not available for an individual ingredient of the mixture, but available information provides a derived conversion value, the formula in A.1.3.6.1 may be applied. This information may include evaluation of:

(a) Extrapolation between oral, dermal and inhalation acute toxicity estimates. Such an evaluation requires appropriate pharmacodynamic and pharmacokinetic data;

(b) Evidence from human exposure that indicates toxic effects but does not provide lethal dose data;

(c) Evidence from any other toxicity tests/assays available on the substance that indicates toxic acute effects but does not necessarily provide lethal dose data; or

(d) Data from closely analogous substances using structure/activity relationships.

A.1.3.6.2.2 This approach requires substantial supplemental technical information, and a highly trained and experienced expert, to reliably estimate acute toxicity. If sufficient information is not available to reliably estimate acute toxicity, proceed to the provisions of A.1.3.6.2.3.

A.1.3.6.2.3 In the event that an ingredient with unknown acute toxicity is used in a mixture at a concentration ≥ 1%, and the mixture has not been classified based on testing of the mixture as a whole, the mixture cannot be attributed a definitive acute toxicity estimate. In this situation the mixture is classified based on the known ingredients only. (Note: A statement that x percent of the mixture consists of ingredient(s) of unknown toxicity is required on the label and safety data sheet in such cases; see Appendix C, Allocation of Label Elements and Appendix D, Safety Data Sheets.)

Where an ingredient with unknown acute toxicity is used in a mixture at a concentration ≥ 1%, and the mixture is not classified based on testing of the mixture as a whole, a statement that X% of the mixture consists of ingredient(s) of unknown acute toxicity is required on the label and safety data sheet in such cases; see Appendix C, Allocation of Label Elements and Appendix D, Safety Data Sheets.)

A.1.3.6.2.4 If the total concentration of the relevant ingredient(s) with unknown acute toxicity is ≤ 10% then the formula presented in A.1.3.6.1 must be used. If the total concentration of the relevant ingredient(s) with unknown acute toxicity is < 10%, the formula presented in A.1.3.6.1 is corrected to adjust for the percentage of the unknown ingredient(s) as follows:

$$\frac{100 - \left(\sum C_{unknown \text{ if } > 10\%}\right)}{ATE_{mix}} = \sum_{n} \frac{Ci}{ATE_i}$$

Table A.1.2: Conversion from experimentally obtained acute toxicity range values (or acute toxicity hazard categories) to acute toxicity point estimates for use in the formulas for the classification of mixtures

Exposure routes	Classification category or experimentally obtained acute toxicity range estimate			Converted Acute Toxicity point estimate
Oral	0	<Category 1 ≤	5	0.5
(mg/kg bodyweight)	5	<Category 2 ≤	50	5

Exposure routes	Classification category or experimentally obtained acute toxicity range estimate			Converted Acute Toxicity point estimate
	50	<Category 3 ≤	300	100
	300	<Category 4 ≤	2000	500
Dermal	0	<Category 1 ≤	50	5
(mg/kg bodyweight)	50	<Category 2 ≤	200	50
	200	<Category 3 ≤	1000	300
	1000	<Category 4 ≤	2000	1100
Gases	0	<Category 1 ≤	100	10
(ppmV)	100	<Category 2 ≤	500	100
	500	<Category 3 ≤	2500	700
	2500	<Category 4 ≤	20000	4500
Vapors	0	<Category 1 ≤	0.5	0.05
(mg/l)	0.5	<Category 2 ≤	2.0	0.5
	2.0	<Category 3 ≤	10.0	3
	10.0	<Category 4 ≤	20.0	11
Dust/mist	0	<Category 1 ≤	0.05	0.005
(mg/l)	0.05	<Category 2 ≤	0.5	0.05
	0.5	<Category 3 ≤	1.0	0.5
	1.0	<Category 4 ≤	5.0	1.5

Note: Gas concentrations are expressed in parts per million per volume (ppmV).

A.2 SKIN CORROSION/IRRITATION

A.2.1 Definitions and general considerations

A.2.1.1 *Skin corrosion* is the production of irreversible damage to the skin; namely, visible necrosis through the epidermis and into the dermis, following the application of a test substance for up to 4 hours. Corrosive reactions are typified by ulcers, bleeding, bloody scabs, and, by the end of observation at 14 days, by discoloration due to blanching of the skin, complete areas of alopecia, and scars. Histopathology should be considered to evaluate questionable lesions.

Skin irritation is the production of reversible damage to the skin following the application of a test substance for up to 4 hours.

A.2.1.2 Skin corrosion/irritation shall be classified using a tiered approach as detailed in figure A.2.1. Emphasis shall be placed upon existing human data (See A.0.2.6), followed by other sources of information. Classification results directly when the data satisfy the criteria in this section. In case the criteria cannot be directly applied, classification of a substance or a mixture is made on the basis of the total weight of evidence (See A.0.3.1). This means that all available information bearing on the determination of skin corrosion/irritation is considered together, including the results of appropriate scientifically validated in-vitro tests, relevant animal data, and human data such as epidemiological and clinical studies and well-documented case reports and observations.

A.2.2 Classification criteria for substances using animal test data

A.2.2.1 Corrosion

A.2.2.1.1 A corrosive substance is a chemical that produces destruction of skin tissue, namely, visible necrosis through the epidermis and into the dermis, in at least 1 of 3 tested animals after exposure up to a 4-hour duration. Corrosive reactions are typified by ulcers, bleeding, bloody scabs and, by the end of observation at 14 days, by discoloration due to blanching of the skin, complete areas of alopecia and scars. Histopathology should be considered to discern questionable lesions.

A.2.2.1.2 Three sub-categories of Category 1 are provided in Table A.2.1, all of which shall be regulated as Category 1.

Table A.2.1: Skin corrosion category and sub-categories

Category 1: Corrosive	Corrosive sub-categories	Corrosive in ≥1 of 3 animals	
		Exposure	Observation
	1A	≤ 3 min	≤ 1 h
	1B	> 3 min ≤ 1 h	≤ 14 days
	1C	> 1 h ≤ 4 h	≤ 14 days

A.2.2.2 Irritation

A.2.2.2.1 A single irritant category (Category 2) is presented in the Table A.2.2. The major criterion for the irritant category is that at least 2 tested animals have a mean score of ≥ 2.3 ≥ 4.0.

Table A.2.2 Skin irritation category

	Criteria
Irritant (Category 2)	(1) Mean value of ≥ 2.3 ≥ 4.0 for erythema/eschar or for edema in at least 2 of 3 tested animals from gradings at 24, 48 and 72 hours after patch removal or, if reactions are delayed, from grades on 3 consecutive days after the onset of skin reactions; or (2) Inflammation that persists to the end of the observation period normally 14 days in at least 2 animals, particularly taking into account alopecia (limited area), hyperkeratosis, hyperplasia, and scaling; or (3) In some cases where there is pronounced variability of response among animals, with very definite positive effects related to chemical exposure in a single animal but less than the criteria above.

A.2.2.2.2 Animal irritant responses within a test can be quite variable, as they are with corrosion. A separate irritant criterion accommodates cases when there is a significant irritant response but less than the mean score criterion for a positive test. For example, a substance might be designated as an irritant if at least 1 of 3 tested animals shows a very elevated mean score throughout the study, including lesions persisting at the end of an observation period of normally 14 days. Other responses could also ((~~fulfil~~)) fulfill this criterion. However, it should be ascertained that the responses are the result of chemical exposure. Addition of this criterion increases the sensitivity of the classification system.

A.2.2.2.3. Reversibility of skin lesions is another consideration in evaluating irritant responses. When inflammation persists to the end of the observation period in 2 or more test animals, taking into consideration alopecia (limited area), hyperkeratosis, hyperplasia and scaling, then a chemical should be considered to be an irritant.

A.2.3 Classification Criteria for Substances Using Other Data Elements

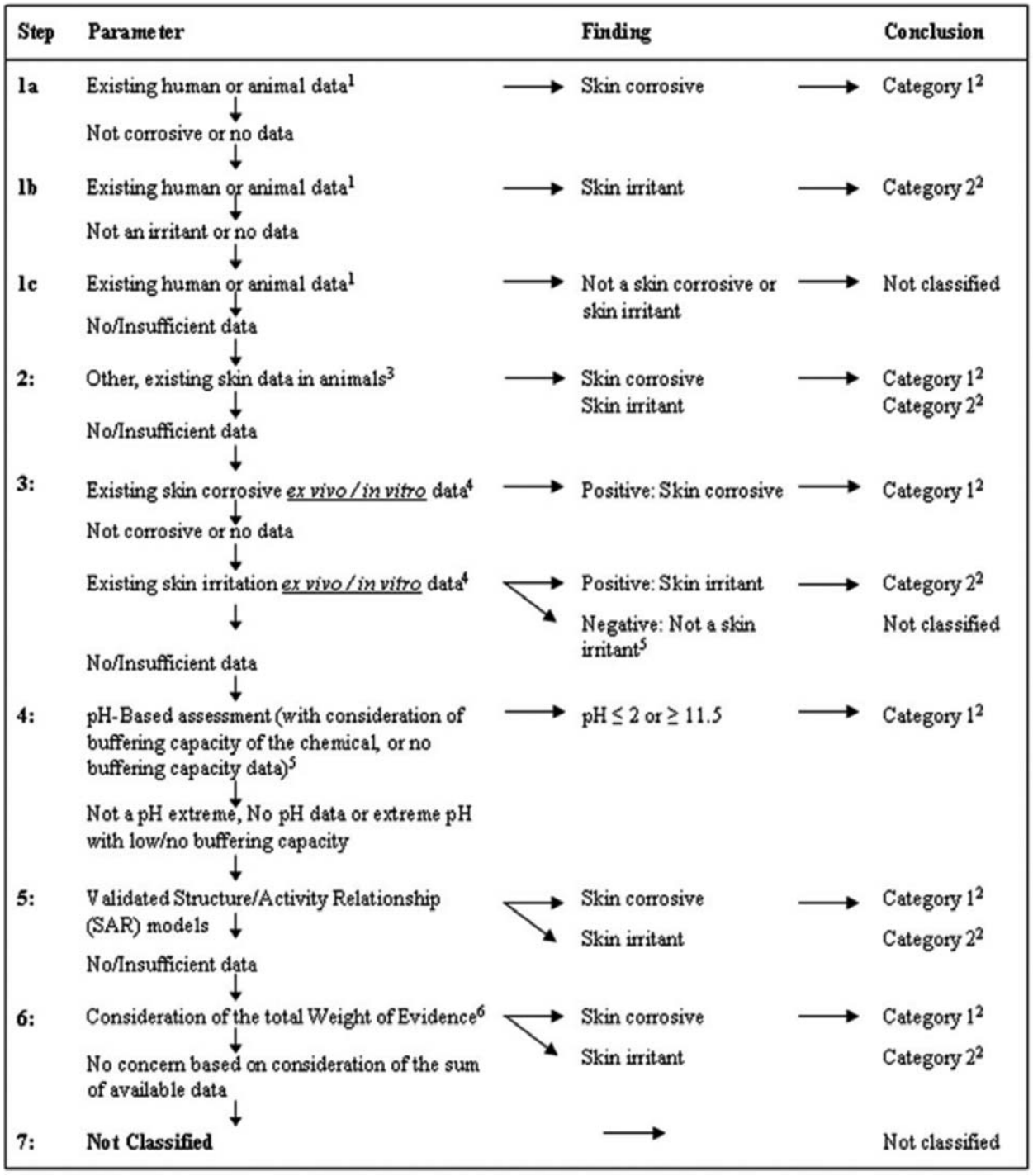
A.2.3.1 Existing human and animal data including information from single or repeated exposure should be the first line of analysis, as they give information directly relevant to effects on the skin. If a substance is highly toxic by the dermal route, a skin corrosion/irritation study may not be practicable since the amount of test substance to be applied would considerably exceed the toxic dose and, consequently, would result in the death of the animals. When observations are made of skin corrosion/irritation in acute toxicity studies and are observed up through the limit dose, these data may be used for classification provided that the dilutions used and species tested are equivalent. In vitro alternatives that have been scientifically validated shall be used to make classification decisions. Solid substances (powders) may become corrosive or irritant when moistened or in contact with moist skin or mucous membranes. Likewise, pH extremes like ≤ 2 and ≥ 11.5 may indicate skin effects, especially when associated with significant buffering capacity. Generally, such substances are expected to produce significant effects on the skin. In the absence of any other information, a substance is considered corrosive (Skin Category 1) if it has a pH ≤ 2 or a pH ≥ 11.5. However, if consideration of alkali/acid reserve suggests the substance or mixture may not be corrosive despite the low or high pH value, then further evaluation may be necessary. In some cases enough information may be available from structurally related compounds to make classification decisions.

A.2.3.2 A tiered approach to the evaluation of initial information shall be used (Figure A.2.1) recognizing that all elements may not be relevant in certain cases.

A.2.3.3 The tiered approach explains how to organize information on a substance and to make a weight-of-evidence decision about hazard assessment and hazard classification.

A.2.3.4 All the above information that is available on a substance shall be evaluated. Although information might be gained from the evaluation of single parameters within a tier, there is merit in considering the totality of existing information and making an overall weight of evidence determination. This is especially true when there is information available on some but not all parameters. Emphasis shall be placed upon existing human experience and data, followed by animal experience and testing data, followed by other sources of information, but case-by-case determinations are necessary.

Figure A.2.1: Tiered evaluation of skin corrosion and irritation potential



Notes to Figure A.2.1:

1. Evidence of existing human or animal data may be derived from single or repeated exposure(s) in occupational, consumer, transportation, or emergency response scenarios; from ethically-conducted human clinical studies; or from purposely-generated data from animal studies conducted according to scientifically validated test methods (at present, there is no internationally accepted test method for human skin irritation testing).

2. Classify in the appropriate harmonized category, as shown in Tables A.2.1 and A.2.2.

3. Pre-existing animal data (e.g. from an acute dermal toxicity test or a sensitisation test) should be carefully reviewed to determine if sufficient skin corrosion/irritation

evidence is available through other, similar information. For example, classification/categorization may be done on the basis of whether a chemical has or has not produced any skin irritation in an acute dermal toxicity test in animals at the limit dose, or produces very toxic effects in an acute dermal toxicity test in animals. In the latter case, the chemical would be classified as being very hazardous by the dermal route for acute toxicity, and it would be moot whether the chemical is also irritating or corrosive on the skin. It should be kept in mind in evaluating acute dermal toxicity information that the reporting of dermal lesions may be incomplete, testing and observations may be made on a species other than the rabbit, and species may differ in sensitivity in their responses.

4. Evidence from studies using scientifically validated protocols with isolated human/animal tissues or other, non-tissue-based, though scientifically validated, protocols should be assessed. Examples of scientifically validated test methods for skin corrosion include OECD TG 430 (Transcutaneous Electrical Resistance Test (TER)), 431 (Human Skin Model Test), and 435 (Membrane Barrier Test Method). OECD TG 439 (Reconstructed Human Epidermis Test Method) is a scientifically validated in vitro test method for skin irritation.

5. Measurement of pH alone may be adequate, but assessment of acid or alkali reserve (buffering capacity) would be preferable. Presently, there is no scientifically validated and internationally accepted method for assessing this parameter.

6. All information that is available on a chemical should be considered and an overall determination made on the total weight of evidence. This is especially true when there is conflict in information available on some parameters. Professional judgment should be exercised in making such a determination.

A.2.4 Classification criteria for mixtures

A.2.4.1 Classification of mixtures when data are available for the complete mixture

A.2.4.1.1 The mixture shall be classified using the criteria for substances (See A.2.3).

A.2.4.2 Classification of mixtures when data are not available for the complete mixture: bridging principles

A.2.4.2.1 Where the mixture itself has not been tested to determine its skin corrosion/irritation, but there are sufficient data on both the individual ingredients and similar tested mixtures to adequately characterize the hazards of the mixture, these data will be used in accordance with the following bridging principles, as found in paragraph A.0.5 of this Appendix: Dilution, Batching, Concentration of mixtures, Interpolation within one toxicity category, Substantially similar mixtures, and Aerosols.

A.2.4.3 Classification of mixtures when data are available for all ingredients or only for some ingredients of the mixture

A.2.4.3.1 For purposes of classifying the skin corrosion/irritation hazards of mixtures in the tiered approach:

The "relevant ingredients" of a mixture are those which are present in concentrations ((≥)) ≥ 1% (weight/weight for solids, liquids, dusts, mists and vapors and volume/volume for gases.) If the classifier has reason to suspect that an ingredient present at a concentration < 1% will affect classification of the mixture for skin corrosion/irritation, that ingredient shall also be considered relevant.

A.2.4.3.2 In general, the approach to classification of mixtures as irritant or corrosive to skin when data are available on the ingredients, but not on the mixture as a whole, is based on the theory of additivity, such that each corrosive or irritant ingredient contributes to the overall irritant or corrosive properties of the mixture in proportion to its potency and concentration. A weighting factor of 10 is used for corrosive ingredients when they are present at a concentration below the concentration limit for classification with Category 1, but are at a concentration that will contribute to the classification of the mixture as an irritant. The mixture is classified as corrosive or irritant when the sum of the concentrations of such ingredients exceeds a cut-off value/concentration limit.

A.2.4.3.3 Table A.2.3 below provides the cut-off value/concentration limits to be used to determine if the mixture is considered to be an irritant or a corrosive to the skin.

A.2.4.3.4 Particular care shall be taken when classifying certain types of chemicals such as acids and bases, inorganic salts, aldehydes, phenols, and surfactants. The approach explained in A.2.4.3.1 and A.2.4.3.2 might not work given that many of such substances are corrosive or irritant at concentrations < 1%. For mixtures containing strong acids or bases the pH should be used as classification criteria since pH will be a better indicator of corrosion than the concentration limits of Table A.2.3. A mixture containing corrosive or irritant ingredients that cannot be classified based on the additivity approach shown in Table A.2.3, due to chemical characteristics that make this approach unworkable, should be classified as Skin Category 1 if it contains ≥ 1% of a corrosive ingredient and as Skin Category 2 when it contains ≥ 3% of an irritant ingredient. Classification of mixtures with ingredients for which the approach in Table A.2.3 does not apply is summarized in Table A.2.4 below.

A.2.4.3.5 On occasion, reliable data may show that the skin corrosion/irritation of an ingredient will not be evident when present at a level above the generic concentration cut-off values mentioned in Tables A.2.3 and A.2.4. In these cases the mixture could be classified according to those data (See Use of cut-off values/concentration limits, paragraph A.0.4.3 of this Appendix).

A.2.4.3.6 If there are data showing that (an) ingredient(s) may be corrosive or irritant at a concentration of < 1% (corrosive) or < 3% (irritant), the mixture shall be classified accordingly (See Use of cut-off values/concentration limits, paragraph A.0.4.3 of this Appendix).

Table A.2.3: Concentration of ingredients of a mixture classified as skin Category 1 or 2 that would trigger classification of the mixture as hazardous to skin (Category 1 or 2)

Sum of ingredients classified as:	Concentration triggering classification of a mixture as:	
	Skin corrosive	Skin irritant
	Category 1	Category 2
Skin Category 1	≥ 5%	≥ 1% but < 5%
Skin Category 2		≥ 10%
(10 x Skin Category 1) + Skin Category 2		≥ 10%

Table A.2.4: Concentration of ingredients of a mixture for which the additivity approach does not apply, that would trigger classification of the mixture as hazardous to skin

Ingredient:	Concentration:	Mixture classified as: Skin
Acid with pH ≤ 2	≥ 1%	Category 1
Base with pH ≥ 11.5	≥ 1%	Category 1
Other corrosive (Category 1) ingredients for which additivity does not apply	≥ 1%	Category 1
Other irritant (Category 2) ingredients for which additivity does not apply, including acids and bases	≥ 3%	Category 2

A.3 SERIOUS EYE DAMAGE/EYE IRRITATION

A.3.1 Definitions and general considerations

A.3.1.1 *Serious eye damage* is the production of tissue damage in the eye, or serious physical decay of vision, following application of a test substance to the anterior surface of the eye, which is not fully reversible within 21 days of application.

Eye irritation is the production of changes in the eye following the application of test substance to the anterior surface of the eye, which are fully reversible within 21 days of application.

A.3.1.2 Serious eye damage/eye irritation shall be classified using a tiered approach as detailed in figure A.3.1. Emphasis shall be placed upon existing human data (See A.0.2.6), followed by animal data, followed by other sources of information. Classification results directly when the data satisfy the criteria in this section. In case the criteria cannot be directly applied, classification of a substance or a mixture is made on the basis of the total weight of evidence (See A.0.3.1). This means that all available information bearing on the determination of serious eye damage/eye irritation is considered together, including the results of appropriate scientifically validated in vitro tests, relevant animal data, and human data such as epidemiological and clinical studies and well-documented case reports and observations.

A.3.2 Classification criteria for substances using animal test data

A.3.2.1 Irreversible effects on the eye/serious damage to eyes (Category 1)

A single hazard category is provided in Table A.3.1, for substances that have the potential to seriously damage the eyes. Category 1, irreversible effects on the eye, includes the criteria listed below. These observations include animals with grade 4 cornea lesions and other severe reactions (e.g. destruction of cornea) observed at any time during the test, as well as persistent corneal opacity, discoloration of the cornea by a dye substance, adhesion, pannus, and interference with the function of the iris or other effects that impair sight. In this context, persistent lesions are considered those which are not fully reversible within an observation period of normally 21 days. Category 1 also contains substances fulfilling the criteria of corneal opacity ≥ 3 and/or iritis > 1.5 detected in a Draize eye test with rabbits, because severe lesions like these usually do not reverse within a 21-day observation period.

Table A.3.1: Irreversible eye effects

A substance is classified as Serious **Eye Damage Category 1 (irreversible effects on the eye)** when it produces:

(a) at least in one tested animal, effects on the cornea, iris or conjunctiva that are not expected to reverse or have not fully reversed within an observation period of normally 21 days; and/or

(b) at least in 2 of 3 tested animals, a positive response of:

(i) corneal opacity ≥ 3; and/or

(ii) iritis > 1.5;

calculated as the mean scores following grading at 24, 48 and 72 hours after instillation of the substance.

A.3.2.2 Reversible effects on the eye (Category 2)

A single category is provided in Table A.3.2 for substances that have the potential to induce reversible eye irritation.

Table A.3.2: Reversible eye effects

A substance is classified as **Eye irritant Category 2A (irritating to eyes)** when it produces in at least in 2 of 3 tested animals a positive response of:

(i) corneal opacity ≥ 1; and/or

(ii) iritis ≥ 1; and/or

(iii) conjunctival redness ≥ 2; and/or

(iv) conjunctival edema (chemosis) ≥ 2

calculated as the mean scores following grading at 24, 48 and 72 hours after instillation of the substance, and which fully reverses within an observation period of normally 21 days. An eye irritant is considered **mildly irritating to eyes (Category 2B)** when the effects listed above are fully reversible within 7 days of observation.

A.3.2.3 For those chemicals where there is pronounced variability among animal responses, this information may be taken into account in determining the classification.

A.3.3 Classification Criteria for Substances Using Other Data Elements

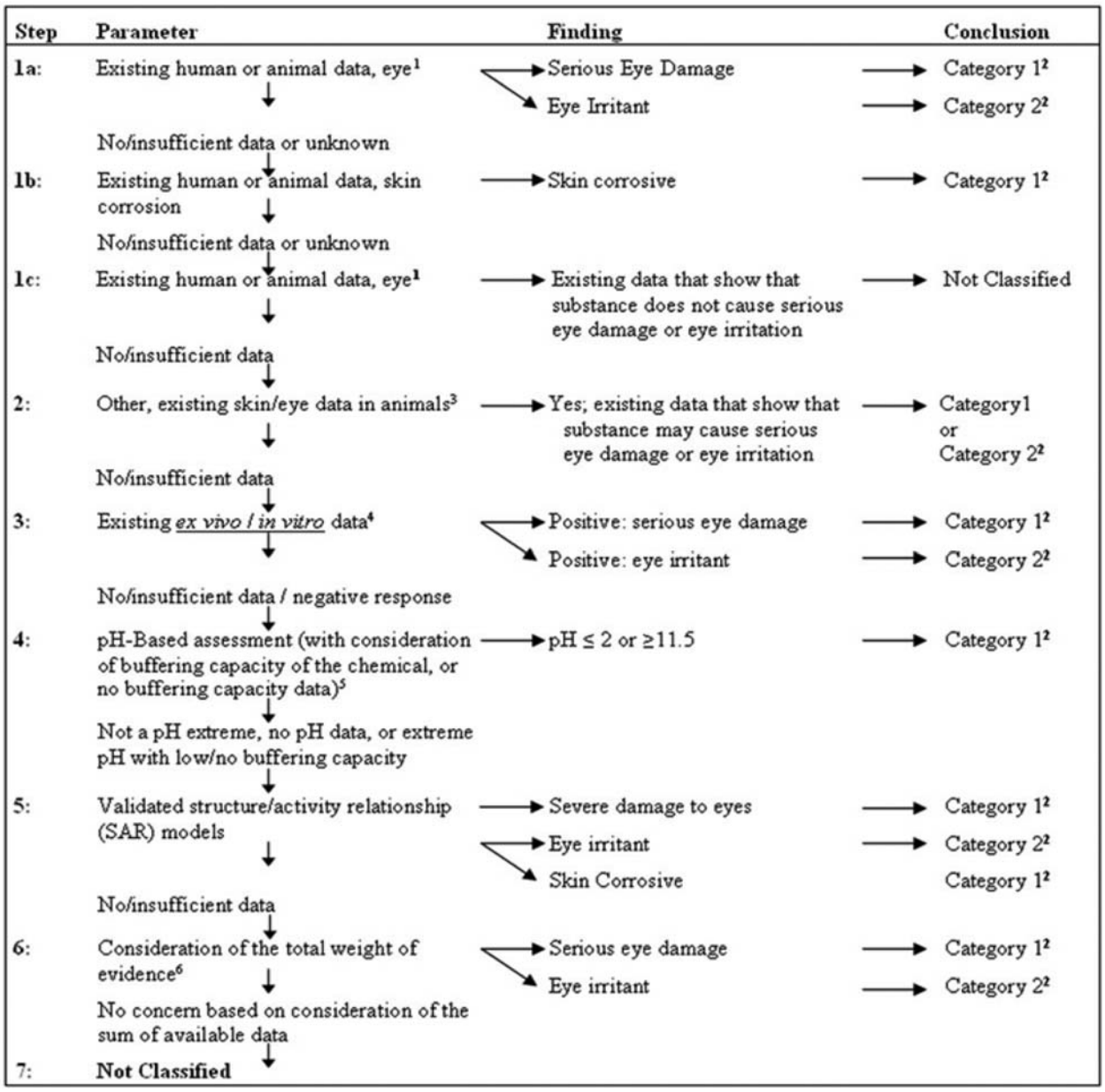
A.3.3.1 Existing human and animal data should be the first line of analysis, as they give information directly relevant to effects on the eye. Possible skin corrosion shall be evaluated prior to consideration of serious eye damage/eye irritation in order to avoid testing for local effects on eyes with skin corrosive substances. In vitro alternatives that have been scientifically validated and accepted shall be used to make classification decisions. Likewise, pH extremes like ≤ 2 and ≥ 11.5, may indicate serious eye damage, especially when associated with significant buffering capacity. Generally, such substances are expected to produce significant effects on the eyes. In the absence of any other information, a mixture/substance is considered to cause serious eye damage (Eye Category 1) if it has a pH ≤ 2 or ≥ 11.5. However, if consideration of acid/alkaline reserve suggests the substance may not have the potential to cause serious eye damage despite the low or high pH value, then further evaluation may be necessary. In some cases enough information may be available from structurally related compounds to make classification decisions.

A.3.3.2 A tiered approach to the evaluation of initial information shall be used where applicable, recognizing that all elements may not be relevant in certain cases (Figure A.3.1).

A.3.3.3 The tiered approach explains how to organize existing information on a substance and to make a weight-of-evidence decision, where appropriate, about hazard assessment and hazard classification.

A.3.3.4 All the above information that is available on a substance shall be evaluated. Although information might be gained from the evaluation of single parameters within a tier, consideration should be given to the totality of existing information and making an overall weight of evidence determination. This is especially true when there is conflict in information available on some parameters.

Figure A.3.1 Evaluation strategy for serious eye damage and eye irritation (See also Figure A.2.1)



Notes to Figure A.3.1:

1 Evidence of existing human or animal data may be derived from single or repeated exposure(s) in occupational, consumer, transportation, or emergency response scenarios; from ethically-conducted human clinical studies; or from purposely-generated data from animal studies conducted according to scientifically validated test methods. At present, there are no internationally accepted test methods for human skin or eye irritation testing.

2 Classify in the appropriate harmonized category, as shown in Tables A.3.1 and A.3.2.

also lead to a conclusion to classify as causing Serious Eye

3 Pre-existing animal data should be carefully reviewed to determine if sufficient skin or eye corrosion/irritation evidence is available through other, similar information.

4 Evidence from studies using scientifically validated protocols with isolated human/animal tissues or other, non-tissue-based, though scientifically validated, protocols should be assessed. Examples of, scientifically validated test methods for identifying eye corrosives and severe irritants (i.e., Serious Eye Damage) include OECD TG 437 (Bovine Corneal Opacity and Permeability (BCOP)) and TG 438 (Isolated Chicken Eye). Positive test results from a scientifically validated in vitro test for skin corrosion would likely

Damage.

5 Measurement of pH alone may be adequate, but assessment of acid or alkali reserve (buffering capacity) would be preferable.

6 All information that is available on a chemical should be considered and an overall determination made on the total weight of evidence. This is especially true when there is conflict in information available on some parameters. The weight of evidence including information on skin irritation could lead to classification of eye irritation. It is recognized that not all skin irritants are eye irritants as well. Professional judgment should be exercised in making such a determination.

A.3.4 Classification criteria for mixtures

A.3.4.1 Classification of mixtures when data are available for the complete mixture

A.3.4.1.1 The mixture will be classified using the criteria for substances

A.3.4.1.2 Unlike other hazard classes, there are alternative tests available for skin corrosivity of certain types of chemicals that can give an accurate result for classification purposes, as well as being simple and relatively inexpensive to perform. When considering testing of the mixture, chemical manufacturers are encouraged to use a tiered weight of evidence strategy as included in the criteria for classification of substances for skin corrosion and serious eye damage and eye irritation to help ensure an accurate classification, as well as avoid unnecessary animal testing. In the absence of any other information, a mixture is considered to cause serious eye damage (Eye Category 1) if it has a pH ≤ 2 or ≥ 11.5. However, if consideration of acid/alkaline reserve suggests the substance or mixture may not have the potential to cause serious eye damage despite the low or high pH value, then further evaluation may be necessary.

A.3.4.2 Classification of mixtures when data are not available for the complete mixture: bridging principles

A.3.4.2.1 Where the mixture itself has not been tested to determine its skin corrosivity or potential to cause serious eye damage or eye irritation, but there are sufficient data on both the individual ingredients and similar tested mixtures to adequately characterize the hazards of the mixture, these data will be used in accordance with the following bridging principles, as found in paragraph A.0.5 of this Appendix: Dilution, Batching, Concentration of mixtures, Interpolation within one toxicity category, Substantially similar mixtures, and Aerosols.

A.3.4.3 Classification of mixtures when data are available for all ingredients or only for some ingredients of the mixture

A.3.4.3.1 For purposes of classifying the eye corrosion/irritation hazards of mixtures in the tiered approach:

The "relevant ingredients" of a mixture are those which are present in concentrations (($\geq$)) $\geq 1\%$ (weight/weight for solids, liquids, dusts, mists and vapors and volume/volume for gases.) If the classifier has reason to suspect that an ingredient present at a concentration < 1% will affect classification of the mixture for eye corrosion/irritation, that ingredient shall also be considered relevant.

A.3.4.3.2 In general, the approach to classification of mixtures as seriously damaging to the eye or eye irritant when data are available on the ingredients, but not on the mixture as a whole, is based on the theory of additivity, such that each corrosive or irritant ingredient contributes to the overall irritant or corrosive properties of the mixture in proportion to its potency and concentration. A weighting factor of 10 is used for corrosive ingredients when they are present at a concentration below the concentration limit for classification with Category 1, but are at a concentration that will contribute to the classification of the mixture as an irritant. The mixture is classified as seriously damaging to the eye or eye irritant when the sum of the concentrations of such ingredients exceeds a threshold cut-off value/concentration limit.

A.3.4.3.3 Table A.3.3 provides the cut-off value/concentration limits to be used to determine if the mixture should be classified as seriously damaging to the eye or an eye irritant.

A.3.4.3.4 Particular care must be taken when classifying certain types of chemicals such as acids and bases, inorganic salts, aldehydes, phenols, and surfactants. The approach explained in A.3.4.3.1 and A.3.4.3.2 might not work given that many of such substances are corrosive or irritant at concentrations < 1%. For mixtures containing strong acids or bases, the pH should be used as classification criteria (See A.3.4.1) since pH will be a better indicator of serious eye damage than the concentration limits of Table A.3.3. A mixture containing corrosive or irritant ingredients that cannot be classified based on the additivity approach applied in Table A.3.3 due to chemical characteristics that make this approach unworkable, should be classified as Eye Category 1 if it contains $\geq 1\%$ of a corrosive ingredient and as Eye Category 2 when it contains $\geq 3\%$ of an irritant ingredient. Classification of mixtures with ingredients for which the approach in Table A.3.3 does not apply is summarized in Table A.3.4.

A.3.4.3.5 On occasion, reliable data may show that the reversible/irreversible eye effects of an ingredient will not be evident when present at a level above the generic cut-off values/concentration limits mentioned in Tables A.3.3 and A.3.4. In these cases the mixture could be classified according to those data (See also A.0.4.3 Use of cut-off values/concentration limits"). On occasion, when it is expected that the skin corrosion/irritation or the reversible/irreversible eye effects of an ingredient will not be evident when present at a level above the generic concentration/cut-off levels mentioned in Tables A.3.3 and A.3.4, testing of the mixture may be considered. In those cases, the tiered weight of evidence strategy should be applied as referred to in section A.3.3, Figure A.3.1 and explained in detail in this chapter.

A.3.4.3.6 If there are data showing that (an) ingredient(s) may be corrosive or irritant at a concentration of < 1% (corrosive) or < 3% (irritant), the mixture should be classified accordingly (See also paragraph A.0.4.3, Use of cut-off values/concentration limits).

Table A.3.3: Concentration of ingredients of a mixture classified as Skin Category 1 and/or Eye Category 1 or 2 that would trigger classification of the mixtures as hazardous to the eye

Sum of ingredients classified as:	Concentration triggering classification of a mixture as:	
	Irreversible eye effects	Reversible eye effects
	Category 1	Category 2
Eye or Skin Category 1	≥ 3%	≥ 1% but < 3%
Eye Category 2		≥ 10%
(10 x Eye Category 1) + Eye Category 2		≥ 10%
Skin Category 1 + Eye Category 1	≥ 3%	≥ 1% but < 3%
10 x (Skin Category 1 + Eye Category 1) + Eye Category 2		≥ 10%

Note: A mixture may be classified as Eye Category 2B in cases when all relevant ingredients are classified as Eye Category 2B.

Table A.3.4: Concentration of ingredients of a mixture for which the additivity approach does not apply, that would trigger classification of the mixture as hazardous to the eye

Ingredient	Concentration	Mixture classified as: Eye
Acid with pH ≤ 2	≥ 1%	Category 1
Base with pH ≥ 11.5	≥ 1%	Category 1
Other corrosive (Category 1) ingredients for which additivity does not apply	≥ 1%	Category 1
Other irritant (Category 2) ingredients for which additivity does not apply, including acids and bases	≥ 3%	Category 2

A.4 RESPIRATORY OR SKIN SENSITIZATION

A.4.1 Definitions and general considerations

A.4.1.1 *Respiratory sensitizer* means a chemical that will lead to hypersensitivity of the airways following inhalation of the chemical.

Skin sensitizer means a chemical that will lead to an allergic response following skin contact.

A.4.1.2 For the purpose of this chapter, sensitization includes two phases: the first phase is induction of specialized immunological memory in an individual by exposure to an allergen. The second phase is elicitation, i.e., production of a cell-mediated or antibody-mediated allergic response by exposure of a sensitized individual to an allergen.

A.4.1.3 For respiratory sensitization, the pattern of induction followed by elicitation phases is shared in common with skin sensitization. For skin sensitization, an induction phase is required in which the immune system learns to react; clinical symptoms can then arise when subsequent exposure is sufficient to elicit a visible skin reaction (elicitation phase). As a consequence, predictive tests usually follow this pattern in which there is an induction phase, the response to which is measured by a standardized elicitation phase, typically involving a patch test. The local lymph node assay is the exception, directly measuring the induction response. Evidence of skin sensitization in humans normally is assessed by a diagnostic patch test.

A.4.1.4 Usually, for both skin and respiratory sensitization, lower levels are necessary for elicitation than are required for induction.

A.4.1.5 The hazard class "respiratory or skin sensitization" is differentiated into:

(a) Respiratory sensitization; and

(b) Skin sensitization

A.4.2 Classification criteria for substances

A.4.2.1 Respiratory sensitizers

A.4.2.1.1 Hazard categories

A.4.2.1.1.1 Effects seen in either humans or animals will normally justify classification in a weight of evidence approach for respiratory sensitizers. Substances may be allocated to one of the two sub-categories 1A or 1B using a weight of evidence approach in accordance with the criteria given in Table A.4.1 and on the basis of reliable and good quality evidence from human cases or epidemiological studies and/or observations from appropriate studies in experimental animals.

A.4.2.1.1.2 Where data are not sufficient for sub-categorization, respiratory sensitizers shall be classified in Category 1.

Table A.4.1: Hazard category and sub-categories for respiratory sensitizers

Category 1:	Respiratory sensitizer
	A substance is classified as a respiratory sensitizer (a) if there is evidence in humans that the substance can lead to specific respiratory hypersensitivity and/or (b) if there are positive results from an appropriate animal test.

Category 1:	Respiratory sensitizer
Sub-category 1A:	Substances showing a high frequency of occurrence in humans; or a probability of occurrence of a high sensitization rate in humans based on animal or other tests.1 Severity of reaction may also be considered.
Sub-category 1B:	Substances showing a low to moderate frequency of occurrence in humans; or a probability of occurrence of a low to moderate sensitization rate in humans based on animal or other tests.1 Severity of reaction may also be considered.

A.4.2.1.2 Human evidence

A.4.2.1.2.1 Evidence that a substance can lead to specific respiratory hypersensitivity will normally be based on human experience. In this context, hypersensitivity is normally seen as asthma, but other hypersensitivity reactions such as rhinitis/conjunctivitis and alveolitis are also considered. The condition will have the clinical character of an allergic reaction. However, immunological mechanisms do not have to be demonstrated.

A.4.2.1.2.2 When considering the human evidence, it is necessary that in addition to the evidence from the cases, the following be taken into account:

(a) the size of the population exposed;

(b) the extent of exposure.

A.4.2.1.2.3 The evidence referred to above could be:

(a) clinical history and data from appropriate lung function tests related to exposure to the substance, confirmed by other supportive evidence which may include:

(i) in vivo immunological test (e.g., skin prick test);

(ii) in vitro immunological test (e.g., serological analysis);

(iii) studies that may indicate other specific hypersensitivity reactions where immunological mechanisms of action have not been proven, e.g., repeated low-level irritation, pharmacologically mediated effects;

(iv) a chemical structure related to substances known to cause respiratory hypersensitivity;

(b) data from positive bronchial challenge tests with the substance conducted according to accepted guidelines for the determination of a specific hypersensitivity reaction.

A.4.2.1.2.4 Clinical history should include both medical and occupational history to determine a relationship between exposure to a specific substance and development of respiratory hypersensitivity. Relevant information includes aggravating factors both in the home and workplace, the onset and progress of the disease, family history and medical history of the patient in question. The medical history should also include a note of other allergic or airway disorders from childhood and smoking history.

A.4.2.1.2.5 The results of positive bronchial challenge tests are considered to provide sufficient evidence for classification on their own. It is, however, recognized that in practice many of the examinations listed above will already have been carried out.

A.4.2.1.3 Animal studies

A.4.2.1.3.1 Data from appropriate animal studies which may be indicative of the potential of a substance to cause sensitization by inhalation in humans may include:

(a) measurements of Immunoglobulin E (IgE) and other specific immunological parameters, for example in mice

(b) specific pulmonary responses in guinea pigs.

A.4.2.2 Skin sensitizers

A.4.2.2.1 Hazard categories

A.4.2.2.1.1 Effects seen in either humans or animals will normally justify classification in a weight of evidence approach for skin sensitizers. Substances may be allocated to one of the two sub-categories 1A or 1B using a weight of evidence approach in accordance with the criteria given in Table A.4.2 and on the basis of reliable and good quality evidence from human cases or epidemiological studies and/or observations from appropriate studies in experimental animals according to the guidance values provided in A.4.2.2.2.1 and A.4.2.2.3.2 for sub-category 1A and in A.4.2.2.2.2 and A.4.2.2.3.3 for sub-category 1B.

A.4.2.2.1.2 Where data are not sufficient for sub-categorization, skin sensitizers shall be classified in Category 1.

Table A.4.2: Hazard category and sub-categories for skin sensitizers

Category 1:	Skin sensitizer
	A substance is classified as a skin sensitizer (a) if there is evidence in humans that the substance can lead to sensitization by skin contact in a substantial number of persons, or (b) if there are positive results from an appropriate animal test.
Sub-category 1A:	Substances showing a high frequency of occurrence in humans and/or a high potency in animals can be presumed to have the potential to produce significant sensitization in humans. Severity of reaction may also be considered.
Sub-category 1B:	Substances showing a low to moderate frequency of occurrence in humans and/or a low to moderate potency in animals can be presumed to have the potential to produce sensitization in humans. Severity of reaction may also be considered.

A.4.2.2.2 Human evidence

A.4.2.2.2.1 Human evidence for sub-category 1A may include:

(a) positive responses at ≤ 500 µg/cm2 (Human Repeat Insult Patch Test (HRIPT), Human Maximization Test (HMT) - induction threshold);

(b) diagnostic patch test data where there is a relatively high and substantial incidence of reactions in a defined population in relation to relatively low exposure;

(c) other epidemiological evidence where there is a relatively high and substantial incidence of allergic contact dermatitis in relation to relatively low exposure.

A.4.2.2.2.2 Human evidence for sub-category 1B may include:

(a) positive responses at > 500 µg/cm2 (HRIPT, HMT - induction threshold);

(b) diagnostic patch test data where there is a relatively low but substantial incidence of reactions in a defined population in relation to relatively high exposure;

(c) other epidemiological evidence where there is a relatively low but substantial incidence of allergic contact dermatitis in relation to relatively high exposure.

A.4.2.2.3 Animal studies

A.4.2.2.3.1 For Category 1, when an adjuvant type test method for skin sensitization is used, a response of at least 30% of the animals is considered as positive. For a non-adjuvant Guinea pig test method a response of at least 15% of the animals is considered positive. For Category 1, a stimulation index of three or more is considered a positive response in the local lymph node assay.

A.4.2.2.3.2 Animal test results for sub-category 1A can include data with values indicated in Table A.4.3 below:

Table A.4.3: Animal test results for sub-category 1A

Assay	Criteria
Local lymph node assay	EC3 value ≤ 2%
Guinea pig maximization test	≥ 30% responding at ≤ 0.1% intradermal induction dose or ≥ 60% responding at > 0.1% to ≤ 1% intradermal induction dose
Buehler assay	≥ 15% responding at ≤ 0.2% topical induction dose or ≥ 60% responding at > 0.2% to ≤ 20% topical induction dose

Note: EC3 refers to the estimated concentration of test chemical required to induce a stimulation index of 3 in the local lymph node assay.

A.4.2.2.3.3 Animal test results for sub-category 1B can include data with values indicated in Table A.4.4 below:

Table A.4.4: Animal test results for sub-category 1B

Assay	Criteria
Local lymph node assay	EC3 value > 2%
Guinea pig maximization test	≥ 30% to < 60% responding at > 0.1% to ≤ 1% intradermal induction dose or ≥ 30% responding at > 1% intradermal induction dose
Buehler assay	≥ 15% to < 60% responding at > 0.2% to ≤ 20% topical induction dose or ≥ 15% responding at > 20% topical induction dose

Note: EC3 refers to the estimated concentration of test chemical required to induce a stimulation index of 3 in the local lymph node assay.

A.4.2.2.4 Specific considerations

A.4.2.2.4.1 For classification of a substance, evidence shall include one or more of the following using a weight of evidence approach:

(a) Positive data from patch testing, normally obtained in more than one dermatology clinic;

(b) Epidemiological studies showing allergic contact dermatitis caused by the substance. Situations in which a high proportion of those exposed exhibit characteristic symptoms are to be looked at with special concern, even if the number of cases is small;

(c) Positive data from appropriate animal studies;

(d) Positive data from experimental studies in man (See paragraph A.0.2.6 of this Appendix);

(e) Well documented episodes of allergic contact dermatitis, normally obtained in more than one dermatology clinic;

(f) Severity of reaction.

A.4.2.2.4.2 Evidence from animal studies is usually much more reliable than evidence from human exposure. However, in cases where evidence is available from both sources, and there is conflict between the results, the quality and reliability of the evidence from both sources must be assessed in order to resolve the question of classification on a case-by-case basis. Normally, human data are not generated in controlled experiments with volunteers for the purpose of hazard classification but rather as part of risk assessment to confirm lack of effects seen in animal tests. Consequently, positive human data on skin sensitization are usually derived from case-control or other, less defined studies. Evaluation of human data must, therefore, be carried out with caution as the frequency of cases reflect, in addition to the inherent properties of the substances, factors such as the exposure situation, bioavailability, individual predisposition and preventive measures taken. Negative human data should not normally be used to negate positive results from animal studies. For both animal and human data, consideration should be given to the impact of vehicle.

A.4.2.2.4.3 If none of the above-mentioned conditions are met, the substance need not be classified as a skin sensitizer. However, a combination of two or more indicators of skin sensitization, as listed below, may alter the decision. This shall be considered on a case-by-case basis.

(a) Isolated episodes of allergic contact dermatitis;

(b) Epidemiological studies of limited power, e.g., where chance, bias or confounders have not been ruled out fully with reasonable confidence;

(c) Data from animal tests, performed according to existing guidelines, which do not meet the criteria for a positive result described in A.4.2.2.3, but which are sufficiently close to the limit to be considered significant;

(d) Positive data from non-standard methods;

(e) Positive results from close structural analogues.

A.4.2.2.4.4 Immunological contact urticaria

A.4.2.2.4.4.1 Substances meeting the criteria for classification as respiratory sensitizers may, in addition, cause immunological contact urticaria. Consideration shall be given to classifying these substances as skin sensitizers.

A.4.2.2.4.4.2 Substances which cause immunological contact urticaria without meeting the criteria for respiratory sensitizers shall be considered for classification as skin sensitizers.

A.4.2.2.4.4.3 There is no recognized animal model available to identify substances which cause immunological contact urticaria. Therefore, classification will normally be based on human evidence, similar to that for skin sensitization.

A.4.3 Classification criteria for mixtures

A.4.3.1 Classification of mixtures when data are available for the complete mixture

When reliable and good quality evidence, as described in the criteria for substances, from human experience or appropriate studies in experimental animals, is available for the mixture, then the mixture shall be classified by weight of evidence evaluation of these data. Care must be exercised in evaluating data on mixtures that the dose used does not render the results inconclusive.

A.4.3.2 Classification of mixtures when data are not available for the complete mixture: bridging principles

A.4.3.2.1 Where the mixture itself has not been tested to determine its sensitizing properties, but there are sufficient data on both the individual ingredients and similar tested mixtures to adequately characterize the hazards of the mixture, these data will be used in accordance with the following agreed bridging principles as found in paragraph A.0.5 of this Appendix: Dilution, Batching, Concentration of mixtures, Interpolation, Substantially similar mixtures, and Aerosols.

A.4.3.3 Classification of mixtures when data are available for all ingredients or only for some ingredients of the mixture

The mixture shall be classified as a respiratory or skin sensitizer when at least one ingredient has been classified as a respiratory or skin sensitizer and is present at or above the appropriate cut-off value/concentration limit for the specific endpoint as shown in Table A.4.5.

Table A.4.5: Cut-off values/concentration limits of ingredients of a mixture classified as either respiratory sensitizers or skin sensitizers that would trigger classification of the mixture

Ingredient classified as:	Cut-off values/concentration limits triggering classification of a mixture as:		
	Respiratory Sensitizer		Skin Sensitizer
	Category 1		Category 1
	Solid/Liquid	Gas	All physical states
Respiratory Sensitizer Category 1	≥ 0.1%	≥ 0.1%	
Respiratory Sensitizer Sub-category 1A	≥ 0.1%	≥ 0.1%	
Respiratory Sensitizer Sub-category 1B	≥ 0.1%	≥ 0.2%	
Skin Sensitizer Category 1			≥ 0.1%
Skin Sensitizer Sub-category 1A			≥ 0.1%
Skin Sensitizer Sub-category 1B			≥ 1.0%

A.5 GERM CELL MUTAGENICITY

A.5.1 Definitions and general considerations

A.5.1.1 *A mutation* is defined as a permanent change in the amount or structure of the genetic material in a cell. The term mutation applies both to heritable genetic changes that may be manifested at the phenotypic level and to the underlying DNA modifications when known (including, for example, specific base pair changes and chromosomal translocations). The term mutagenic and mutagen will be used for agents giving rise to an increased occurrence of mutations in populations of cells and/or organisms.

A.5.1.2 The more general terms *genotoxic* and *genotoxicity* apply to agents or processes which alter the structure, information content, or segregation of DNA, including those which cause DNA damage by interfering with normal replication processes, or which in a non-physiological manner (temporarily) alter its replication. Genotoxicity test results are usually taken as indicators for mutagenic effects.

A.5.1.3 This hazard class is primarily concerned with chemicals that may cause mutations in the germ cells of humans that can be transmitted to the progeny. However, mutagenicity/genotoxicity tests *in vitro* and in mammalian somatic cells

in vivo are also considered in classifying substances and mixtures within this hazard class.

A.5.2 Classification criteria for substances

A.5.2.1 The classification system provides for two different categories of germ cell mutagens to accommodate the weight of evidence available. The two-category system is described in the Figure A.5.1.

Figure A.5.1: Hazard categories for germ cell mutagens

CATEGORY 1:	**Substances known to induce heritable mutations or to be regarded as if they induce heritable mutations in the germ cells of humans**
Category 1A:	**Substances known to induce heritable mutations in germ cells of humans** Positive evidence from human epidemiological studies.
Category 1B:	**Substances which should be regarded as if they induce heritable mutations in the germ cells of humans**
	(a) Positive result(s) from *in vivo* heritable germ cell mutagenicity tests in mammals; or
	(b) Positive result(s) from *in vivo* somatic cell mutagenicity tests in mammals, in combination with some evidence that the substance has potential to cause mutations to germ cells. This supporting evidence may, for example, be derived from mutagenicity/genotoxicity tests in germ cells *in vivo*, or by demonstrating the ability of the substance or its metabolite(s) to interact with the genetic material of germ cells; or
	(c) Positive results from tests showing mutagenic effects in the germ cells of humans, without demonstration of transmission to progeny; for example, an increase in the frequency of aneuploidy in sperm cells of exposed people.
CATEGORY 2:	**Substances which cause concern for humans owing to the possibility that they may induce heritable mutations in the germ cells of humans**
	Positive evidence obtained from experiments in mammals and/or in some cases from *in vitro* experiments, obtained from:
	(a) Somatic cell mutagenicity tests *in vivo*, in mammals; or
	(b) Other in vivo somatic cell genotoxicity tests which are supported by positive results from *in vitro* mutagenicity assays.
	Note: Substances which are positive in in vitro mammalian mutagenicity assays, and which also show chemical structure activity relationship to known germ cell mutagens, should be considered for classification as Category 2 mutagens.

A.5.2.2 Specific considerations for classification of substances as germ cell mutagens:

A.5.2.2.1 To arrive at a classification, test results are considered from experiments determining mutagenic and/or genotoxic effects in germ and/or somatic cells of exposed animals. Mutagenic and/or genotoxic effects determined in in vitro tests shall also be considered.

A.5.2.2.2 The system is hazard based, classifying chemicals on the basis of their intrinsic ability to induce mutations in germ cells. The scheme is, therefore, not meant for the (quantitative) risk assessment of chemical substances.

A.5.2.2.3 Classification for heritable effects in human germ cells is made on the basis of scientifically validated tests. Evaluation of the test results shall be done using expert judgment and all the available evidence shall be weighed for classification.

A.5.2.2.4 The classification of substances shall be based on the total weight of evidence available, using expert judgment. In those instances where a single well-conducted test is used for classification, it shall provide clear and unambiguously positive results. The relevance of the route of exposure used in the study of the substance compared to the route of human exposure should also be taken into account.

A.5.3 Classification criteria for mixtures

A.5.3.1 Classification of mixtures when data are available for all ingredients or only for some ingredients of the mixture

A.5.3.1.1 Classification of mixtures shall be based on the available test data for the individual ingredients of the mixture using cut-off values/concentration limits for the ingredients classified as germ cell mutagens.

A.5.3.1.2 The mixture will be classified as a mutagen when at least one ingredient has been classified as a Category 1A, Category 1B or Category 2 mutagen and is present at or above the appropriate cut-off value/concentration limit as shown in Table A.5.1 below for Category 1 and 2 respectively.

Table A.5.1: Cut-off values/concentration limits of ingredients of a mixture classified as germ cell mutagens that would trigger classification of the mixture

Ingredient classified as:	Cut-off/concentration limits triggering classification of a mixture as:	
	Category 1 mutagen	**Category 2 mutagen**
Category 1 A/B mutagen	≥ 0.1%	-
Category 2 mutagen	-	≥ 1.0%

Note: The cut-off values/concentration limits in the table above apply to solids and liquids (w/w units) as well as gases (v/v units).

A.5.3.2 Classification of mixtures when data are available for the mixture itself

The classification may be modified on a case-by-case basis based on the available test data for the mixture as a whole. In such cases, the test results for the mixture as a whole must be shown to be conclusive taking into account dose and other factors such as duration, observations and analysis (e.g. statistical analysis, test sensitivity) of germ cell mutagenicity test systems.

A.5.3.3 Classification of mixtures when data are not available for the complete mixture: bridging principles

A.5.3.3.1 Where the mixture itself has not been tested to determine its germ cell mutagenicity hazard, but there are sufficient data on both the individual ingredients and similar tested mixtures to adequately characterize the hazards of the mixture, these data will be used in accordance with the following bridging principles as found in paragraph A.0.5 of this Appendix: Dilution, Batching, and Substantially similar mixtures.

A.5.4 Examples of scientifically validated test methods:

A.5.4.1 Examples of in vivo heritable germ cell mutagenicity tests are:

(a) Rodent dominant lethal mutation test (OECD 478)

(b) Mouse heritable translocation assay (OECD 485)

(c) Mouse specific locus test

A.5.4.2 Examples of in vivo somatic cell mutagenicity tests are:

(a) Mammalian bone marrow chromosome aberration test (OECD 475)

(b) Mouse spot test (OECD 484)

(c) Mammalian erythrocyte micronucleus test (OECD 474)

A.5.4.3 Examples of mutagenicity/genotoxicity tests in germ cells are:

(a) Mutagenicity tests:

(i) Mammalian spermatogonial chromosome aberration test (OECD 483)

(ii) Spermatid micronucleus assay

(b) Genotoxicity tests:

(i) Sister chromatid exchange analysis in spermatogonia

(ii) Unscheduled DNA synthesis test (UDS) in testicular cells

A.5.4.4 Examples of genotoxicity tests in somatic cells are:

(a) Liver Unscheduled DNA Synthesis (UDS) in vivo (OECD 486)

(b) Mammalian bone marrow Sister Chromatid Exchanges (SCE)

A.5.4.5 Examples of in vitro mutagenicity tests are:

(a) In vitro mammalian chromosome aberration test (OECD 473)

(b) In vitro mammalian cell gene mutation test (OECD 476)

(c) Bacterial reverse mutation tests (OECD 471)

A.5.4.6 As new, scientifically validated tests arise, these may also be used in the total weight of evidence to be considered.

A.6 CARCINOGENICITY

A.6.1 Definitions

Carcinogen means a substance or a mixture of substances which induce cancer or increase its incidence. Substances and mixtures which have induced benign and malignant tumors in well-performed experimental studies on animals are considered also to be presumed or suspected human carcinogens unless there is strong evidence that the mechanism of tumor formation is not relevant for humans.

Classification of a substance or mixture as posing a carcinogenic hazard is based on its inherent properties and does not provide information on the level of the human cancer risk which the use of the substance or mixture may represent.

A.6.2 Classification criteria for substances

A.6.2.1 For the purpose of classification for carcinogenicity, substances are allocated to one of two categories based on strength of evidence and additional weight of evidence considerations. In certain instances, route-specific classification may be warranted.

Figure A.6.1: Hazard categories for carcinogens

CATEGORY 1:	**Known or presumed human carcinogens** The classification of a substance as a Category 1 carcinogen is done on the basis of epidemiological and/or animal data. This classification is further distinguished on the basis of whether the evidence for classification is largely from human data (Category 1A) or from animal data (Category 1B):
Category 1A:	**Known to have carcinogenic potential for humans. Classification in this category is largely based on human evidence.**
Category 1B:	**Presumed to have carcinogenic potential for humans. Classification in this category is largely based on animal evidence.** The classification of a substance in Category 1A and 1B is based on strength of evidence together with weight of evidence considerations (See paragraph A.6.2.5). Such evidence may be derived from: - human studies that establish a causal relationship between human exposure to a substance and the development of cancer (known human carcinogen); or - animal experiments for which there is sufficient evidence to demonstrate animal carcinogenicity (presumed human carcinogen). In addition, on a case by case basis, scientific judgment may warrant a decision of presumed human carcinogenicity derived from studies showing limited evidence of carcinogenicity in humans together with limited evidence of carcinogenicity in experimental animals.

Category 2:	**Suspected human carcinogens** The classification of a substance in Category 2 is done on the basis of evidence obtained from human and/or animal studies, but which is not sufficiently convincing to place the substance in Category 1A or B. This classification is based on strength of evidence together with weight of evidence considerations (See paragraph A.6.2.5). Such evidence may be from either limited evidence of carcinogenicity in human studies or from limited evidence of carcinogenicity in animal studies.
Other considerations:	Where the weight of evidence for the carcinogenicity of a substance does not meet the above criteria, any positive study conducted in accordance with established scientific principles, and which reports statistically significant findings regarding the carcinogenic potential of the substance, must be noted on the safety data sheet.

A.6.2.2 Classification as a carcinogen is made on the basis of evidence from reliable and acceptable methods, and is intended to be used for substances which have an intrinsic property to produce such toxic effects. The evaluations are to be based on all existing data, peer-reviewed published studies and additional data accepted by regulatory agencies.

A.6.2.3 *Carcinogen classification* is a one-step, criterion-based process that involves two interrelated determinations: evaluations of strength of evidence and consideration of all other relevant information to place substances with human cancer potential into hazard categories.

A.6.2.4 *Strength of evidence* involves the enumeration of tumors in human and animal studies and determination of their level of statistical significance. Sufficient human evidence demonstrates causality between human exposure and the development of cancer, whereas sufficient evidence in animals shows a causal relationship between the agent and an increased incidence of tumors. Limited evidence in humans is demonstrated by a positive association between exposure and cancer, but a causal relationship cannot be stated. Limited evidence in animals is provided when data suggest a carcinogenic effect, but are less than sufficient. (Guidance on consideration of important factors in the classification of carcinogenicity and a more detailed description of the terms "limited" and "sufficient" have been developed by the International Agency for Research on Cancer (IARC) and are provided in non-mandatory Appendix F.)

A.6.2.5 *Weight of evidence*: Beyond the determination of the strength of evidence for carcinogenicity, a number of other factors should be considered that influence the overall likelihood that an agent may pose a carcinogenic hazard in humans. The full list of factors that influence this determination is very lengthy, but some of the important ones are considered here.

A.6.2.5.1 These factors can be viewed as either increasing or decreasing the level of concern for human carcinogenicity. The relative emphasis accorded to each factor depends upon the amount and coherence of evidence bearing on each. Generally there is a requirement for more complete information to decrease than to increase the level of concern. Additional considerations should be used in evaluating the tumor findings and the other factors in a case-by-case manner.

A.6.2.5.2 Some important factors which may be taken into consideration, when assessing the overall level of concern are:

(a) Tumor type and background incidence;

(b) Multisite responses;

(c) Progression of lesions to malignancy;

(d) Reduced tumor latency;

Additional factors which may increase or decrease the level of concern include:

(e) Whether responses are in single or both sexes;

(f) Whether responses are in a single species or several species;

(g) Structural similarity or not to a substance(s) for which there is good evidence of carcinogenicity;

(h) Routes of exposure;

(i) Comparison of absorption, distribution, metabolism and excretion between test animals and humans;

(j) The possibility of a confounding effect of excessive toxicity at test doses; and,

(k) Mode of action and its relevance for humans, such as mutagenicity, cytotoxicity with growth stimulation, mitogenesis, immunosuppression.

Mutagenicity: It is recognized that genetic events are central in the overall process of cancer development. Therefore evidence of mutagenic activity in vivo may indicate that a substance has a potential for carcinogenic effects.

A.6.2.5.3 A substance that has not been tested for carcinogenicity may in certain instances be classified in Category 1A, Category 1B, or Category 2 based on tumor data from a structural analogue together with substantial support from consideration of other important factors such as formation of common significant metabolites, e.g., for benzidine congener dyes.

A.6.2.5.4 The classification should also take into consideration whether or not the substance is absorbed by a given route(s); or whether there are only local tumors at the site of administration for the tested route(s), and adequate testing by other major route(s) show lack of carcinogenicity.

A.6.2.5.5 It is important that whatever is known of the physico-chemical, toxicokinetic and toxicodynamic properties of the substances, as well as any available relevant information on chemical analogues, i.e., structure activity relationship, is taken into consideration when undertaking classification.

A.6.3 Classification criteria for mixtures

A.6.3.1 The mixture shall be classified as a carcinogen when at least one ingredient has been classified as a Category 1 or Category 2 carcinogen and is present at or above the appro-

priate cut-off value/concentration limit as shown in Table A.6.1.

Table A.6.1: Cut-off values/concentration limits of ingredients of a mixture classified as carcinogen that would trigger classification of the mixture

Ingredient classified as:	Category 1 carcinogen	Category 2 carcinogen
Category 1 carcinogen	≥ 0.1%	
Category 2 carcinogen		≥ 0.1% (note 1)

Note: If a Category 2 carcinogen ingredient is present in the mixture at a concentration between 0.1% and 1%, information is required on the SDS for a product. However, a label warning is optional. If a Category 2 carcinogen ingredient is present in the mixture at a concentration of ≥ 1%, both an SDS and a label is required and the information must be included on each.

A.6.3.2 Classification of mixtures when data are available for the complete mixture

A mixture may be classified based on the available test data for the mixture as a whole. In such cases, the test results for the mixture as a whole must be shown to be conclusive taking into account dose and other factors such as duration, observations and analysis (e.g., statistical analysis, test sensitivity) of carcinogenicity test systems.

A.6.3.3 Classification of mixtures when data are not available for the complete mixture: bridging principles

Where the mixture itself has not been tested to determine its carcinogenic hazard, but there are sufficient data on both the individual ingredients and similar tested mixtures to adequately characterize the hazards of the mixture, these data will be used in accordance with the following bridging principles as found in paragraph A.0.5 of this Appendix: Dilution; Batching; and Substantially similar mixtures.

A.6.4 Classification of carcinogenicity

A.6.4.1 Chemical manufacturers, importers and employers evaluating chemicals may treat the following sources as establishing that a substance is a carcinogen or potential carcinogen for hazard communication purposes in lieu of applying the criteria described herein:

A.6.4.1.1 National Toxicology Program (NTP), "Report on Carcinogens" (latest edition);

A.6.4.1.2 International Agency for Research on Cancer (IARC) "Monographs on the Evaluation of Carcinogenic Risks to Humans" (latest editions)

A.6.4.2 Where OSHA has included cancer as a health hazard to be considered by classifiers for a chemical covered by 29 CFR part 1910, Subpart Z, Toxic and Hazardous Substances, chemical manufacturers, importers, and employers shall classify the chemical as a carcinogen.

A.7 REPRODUCTIVE TOXICITY

A.7.1 Definitions and general considerations

A.7.1.1 *Reproductive toxicity* includes adverse effects on sexual function and fertility in adult males and females, as well as adverse effects on development of the offspring. Some reproductive toxic effects cannot be clearly assigned to either impairment of sexual function and fertility or to developmental toxicity. Nonetheless, chemicals with these effects shall be classified as reproductive toxicants.

For classification purposes, the known induction of genetically based inheritable effects in the offspring is addressed in Germ cell mutagenicity (See A.5).

A.7.1.2 *Adverse effects on sexual function and fertility* means any effect of chemicals that interferes with reproductive ability or sexual capacity. This includes, but is not limited to, alterations to the female and male reproductive system, adverse effects on onset of puberty, gamete production and transport, reproductive cycle normality, sexual behaviour, fertility, parturition, pregnancy outcomes, premature reproductive senescence, or modifications in other functions that are dependent on the integrity of the reproductive systems.

A.7.1.3 *Adverse effects on development of the offspring* means any effect of chemicals which interferes with normal development of the conceptus either before or after birth, which is induced during pregnancy or results from parental exposure. These effects can be manifested at any point in the life span of the organism. The major manifestations of developmental toxicity include death of the developing organism, structural abnormality, altered growth and functional deficiency.

A.7.1.4 Adverse effects on or via lactation are also included in reproductive toxicity, but for classification purposes, such effects are treated separately (See A.7.2.1).

A.7.2 Classification criteria for substances

A.7.2.1 For the purpose of classification for reproductive toxicity, substances shall be classified in one of two categories in accordance with Figure A.7.1(a). Effects on sexual function and fertility, and on development, shall be considered. In addition, effects on or via lactation shall be classified in a separate hazard category in accordance with Figure A.7.1(b).

Figure A.7.1(a): Hazard categories for reproductive toxicants

CATEGORY 1:	**Known or presumed human reproductive toxicant** Substance shall be classified in Category 1 for reproductive toxicity when they are known to have produced an adverse effect on sexual function and fertility or on development in humans or when there is evidence from animal studies, possibly supplemented with other information, to provide a strong presumption that the substance has the capacity to interfere with reproduction in humans. The classification of a substance is further distinguished on the basis of whether the evidence for classification is primarily from human data (Category 1A) or from animal data (Category 1B).
Category 1A:	**Known human reproductive toxicant** The classification of a substance in this category is largely based on evidence from humans.
Category 1B:	**Presumed human reproductive toxicant** The classification of a substance in this category is largely based on evidence from experimental animals. Data from animal studies shall provide sufficient evidence of an adverse effect on sexual function and fertility or on development in the absence of other toxic effects, or if occurring together with other toxic effects the adverse effect on reproduction is considered not to be a secondary non-specific consequence of other toxic effects. However, when there is mechanistic information that raises doubt about the relevance of the effect for humans, classification in Category 2 may be more appropriate.
Category 2:	**Suspected human reproductive toxicant** Substances shall be classified in Category 2 for reproductive toxicity when there is some evidence from humans or experimental animals, possibly supplemented with other information, of an adverse effect on sexual function and fertility, or on development, in the absence of other toxic effects, or if occurring together with other toxic effects the adverse effect on reproduction is considered not to be a secondary non-specific consequence of the other toxic effects, and where the evidence is not sufficiently convincing to place the substance in Category 1. For instance, deficiencies in the study may make the quality of evidence less convincing, and in view of this, Category 2 would be the more appropriate classification.

Figure A.7.1(b): Hazard category for effects on or via lactation

EFFECTS ON OR VIA LACTATION

Effects on or via lactation shall be classified in a separate single category. Chemicals that are absorbed by women and have been shown to interfere with lactation or that may be present (including metabolites) in breast milk in amounts sufficient to cause concern for the health of a breastfed child, shall be classified to indicate this property hazardous to breastfed babies. This classification shall be assigned on the basis of:

(a) absorption, metabolism, distribution and excretion studies that indicate the likelihood the substance would be present in potentially toxic levels in breast milk; and/or

(b) results of one or two generation studies in animals which provide clear evidence of adverse effect in the offspring due to transfer in the milk or adverse effect on the quality of the milk; and/or

(c) human evidence indicating a hazard to babies during the lactation period.

A.7.2.2 Basis of classification

A.7.2.2.1 Classification is made on the basis of the criteria, outlined above, an assessment of the total weight of evidence, and the use of expert judgment. Classification as a reproductive toxicant is intended to be used for substances which have an intrinsic, specific property to produce an adverse effect on reproduction and substances should not be so classified if such an effect is produced solely as a non-specific secondary consequence of other toxic effects.

A.7.2.2.2 In the evaluation of toxic effects on the developing offspring, it is important to consider the possible influence of maternal toxicity.

A.7.2.2.3 For human evidence to provide the primary basis for a Category 1A classification there must be reliable evidence of an adverse effect on reproduction in humans. Evidence used for classification shall be from well conducted epidemiological studies, if available, which include the use of appropriate controls, balanced assessment, and due consideration of bias or confounding factors. Less rigorous data from studies in humans may be sufficient for a Category 1A classification if supplemented with adequate data from studies in experimental animals, but classification in Category 1B may also be considered.

A.7.2.3 Weight of evidence

A.7.2.3.1 Classification as a reproductive toxicant is made on the basis of an assessment of the total weight of evidence using expert judgment. This means that all available information that bears on the determination of reproductive toxicity is considered together. Included is information such as epidemiological studies and case reports in humans and specific reproduction studies along with sub-chronic, chronic and special study results in animals that provide relevant information regarding toxicity to reproductive and related endocrine

organs. Evaluation of substances chemically related to the material under study may also be included, particularly when information on the material is scarce. The weight given to the available evidence will be influenced by factors such as the quality of the studies, consistency of results, nature and severity of effects, level of statistical significance for intergroup differences, number of endpoints affected, relevance of route of administration to humans and freedom from bias. Both positive and negative results are considered together in a weight of evidence determination. However, a single, positive study performed according to good scientific principles and with statistically or biologically significant positive results may justify classification (See also A.7.2.2.3).

A.7.2.3.2 Toxicokinetic studies in animals and humans, site of action and mechanism or mode of action study results may provide relevant information, which could reduce or increase concerns about the hazard to human health. If it is conclusively demonstrated that the clearly identified mechanism or mode of action has no relevance for humans or when the toxicokinetic differences are so marked that it is certain that the hazardous property will not be expressed in humans then a chemical which produces an adverse effect on reproduction in experimental animals should not be classified.

A.7.2.3.3 In some reproductive toxicity studies in experimental animals the only effects recorded may be considered of low or minimal toxicological significance and classification may not necessarily be the outcome. These effects include, for example, small changes in semen parameters or in the incidence of spontaneous defects in the fetus, small changes in the proportions of common fetal variants such as are observed in skeletal examinations, or in fetal weights, or small differences in postnatal developmental assessments.

A.7.2.3.4 Data from animal studies shall provide sufficient evidence of specific reproductive toxicity in the absence of other systemic toxic effects. However, if developmental toxicity occurs together with other toxic effects in the dam (mother), the potential influence of the generalized adverse effects should be assessed to the extent possible. The preferred approach is to consider adverse effects in the embryo/fetus first, and then evaluate maternal toxicity, along with any other factors which are likely to have influenced these effects, as part of the weight of evidence. In general, developmental effects that are observed at maternally toxic doses should not be automatically discounted. Discounting developmental effects that are observed at maternally toxic doses can only be done on a case-by-case basis when a causal relationship is established or refuted.

A.7.2.3.5 If appropriate information is available it is important to try to determine whether developmental toxicity is due to a specific maternally mediated mechanism or to a non-specific secondary mechanism, like maternal stress and the disruption of homeostasis. Generally, the presence of maternal toxicity should not be used to negate findings of embryo/fetal effects, unless it can be clearly demonstrated that the effects are secondary non-specific effects. This is especially the case when the effects in the offspring are significant, e.g., irreversible effects such as structural malformations. In some situations it is reasonable to assume that reproductive toxicity is due to a secondary consequence of maternal toxicity and discount the effects, for example if the chemical is so toxic that dams fail to thrive and there is severe inanition; they are incapable of nursing pups; or they are prostrate or dying.

A.7.2.4 Maternal toxicity

A.7.2.4.1 Development of the offspring throughout gestation and during the early postnatal stages can be influenced by toxic effects in the mother either through non-specific mechanisms related to stress and the disruption of maternal homeostasis, or by specific maternally-mediated mechanisms. So, in the interpretation of the developmental outcome to decide classification for developmental effects it is important to consider the possible influence of maternal toxicity. This is a complex issue because of uncertainties surrounding the relationship between maternal toxicity and developmental outcome. Expert judgment and a weight of evidence approach, using all available studies, shall be used to determine the degree of influence to be attributed to maternal toxicity when interpreting the criteria for classification for developmental effects. The adverse effects in the embryo/fetus shall be first considered, and then maternal toxicity, along with any other factors which are likely to have influenced these effects, as weight of evidence, to help reach a conclusion about classification.

A.7.2.4.2 Based on pragmatic observation, it is believed that maternal toxicity may, depending on severity, influence development via non-specific secondary mechanisms, producing effects such as depressed fetal weight, retarded ossification, and possibly resorptions and certain malformations in some strains of certain species. However, the limited numbers of studies which have investigated the relationship between developmental effects and general maternal toxicity have failed to demonstrate a consistent, reproducible relationship across species. Developmental effects which occur even in the presence of maternal toxicity are considered to be evidence of developmental toxicity, unless it can be unequivocally demonstrated on a case by case basis that the developmental effects are secondary to maternal toxicity. Moreover, classification shall be considered where there is a significant toxic effect in the offspring, e.g., irreversible effects such as structural malformations, embryo/fetal lethality, or significant post-natal functional deficiencies.

A.7.2.4.3 Classification shall not automatically be discounted for chemicals that produce developmental toxicity only in association with maternal toxicity, even if a specific maternally-mediated mechanism has been demonstrated. In such a case, classification in Category 2 may be considered more appropriate than Category 1. However, when a chemical is so toxic that maternal death or severe inanition results, or the dams (mothers) are prostrate and incapable of nursing the pups, it is reasonable to assume that developmental toxicity is produced solely as a secondary consequence of maternal toxicity and discount the developmental effects. Classification is not necessarily the outcome in the case of minor developmental changes, e.g., a small reduction in fetal/pup body weight or retardation of ossification when seen in association with maternal toxicity.

A.7.2.4.4 Some of the endpoints used to assess maternal toxicity are provided below. Data on these endpoints, if available, shall be evaluated in light of their statistical or biological significance and dose-response relationship.

(a) Maternal mortality: An increased incidence of mortality among the treated dams over the controls shall be considered evidence of maternal toxicity if the increase occurs in a dose-related manner and can be attributed to the systemic toxicity of the test material. Maternal mortality greater than 10% is considered excessive and the data for that dose level shall not normally be considered to need further evaluation.

(b) Mating index (Number of animals with seminal plugs or sperm/Number of mated x 100)

(c) Fertility index (Number of animals with implants/ Number of matings x 100)

(d) Gestation length (If allowed to deliver

(e) Body weight and body weight change: Consideration of the maternal body weight change and/or adjusted (corrected) maternal body weight shall be included in the evaluation of maternal toxicity whenever such data are available. The calculation of an adjusted (corrected) mean maternal body weight change, which is the difference between the initial and terminal body weight minus the gravid uterine weight (or alternatively, the sum of the weights of the fetuses), may indicate whether the effect is maternal or intrauterine. In rabbits, the body weight gain may not be a useful indicator of maternal toxicity because of normal fluctuations in body weight during pregnancy.

(f) Food and water consumption (if relevant): The observation of a significant decrease in the average food or water consumption in treated dams (mothers) compared to the control group may be useful in evaluating maternal toxicity, particularly when the test material is administered in the diet or drinking water. Changes in food or water consumption must be evaluated in conjunction with maternal body weights when determining if the effects noted are reflective of maternal toxicity or more simply, unpalatability of the test material in feed or water.

(g) Clinical evaluations (including clinical signs, markers, and hematology and clinical chemistry studies): The observation of increased incidence of significant clinical signs of toxicity in treated dams (mothers) relative to the control group is useful in evaluating maternal toxicity. If this is to be used as the basis for the assessment of maternal toxicity, the types, incidence, degree and duration of clinical signs shall be reported in the study. Clinical signs of maternal intoxication include, but are not limited to: coma, prostration, hyperactivity, loss of righting reflex, ataxia, or labored breathing.

(h) Post-mortem data: Increased incidence and/or severity of post-mortem findings may be indicative of maternal toxicity. This can include gross or microscopic pathological findings or organ weight data, including absolute organ weight, organ to body weight ratio, or organ to brain weight ratio. When supported by findings of adverse histopathological effects in the affected organ(s), the observation of a significant change in the average weight of suspected target organ(s) of treated dams (mothers), compared to those in the control group, may be considered evidence of maternal toxicity.

A.7.2.5 Animal and experimental data

A.7.2.5.1 A number of scientifically validated test methods are available, including methods for developmental toxicity testing (e.g., OECD Test Guideline 414, ICH Guideline S5A, 1993), methods for peri- and post-natal toxicity testing (e.g., ICH S5B, 1995), and methods for one or two-generation toxicity testing (e.g., OECD Test Guidelines 415, 416)

A.7.2.5.2 Results obtained from screening tests (e.g., OECD Guidelines 421 - Reproduction/ Developmental Toxicity Screening Test, and 422 - Combined Repeated Dose Toxicity Study with Reproduction/Development Toxicity Screening Test) can also be used to justify classification, although the quality of this evidence is less reliable than that obtained through full studies.

A.7.2.5.3 Adverse effects or changes, seen in short- or long-term repeated dose toxicity studies, which are judged likely to impair reproductive function and which occur in the absence of significant generalized toxicity, may be used as a basis for classification, e.g., histopathological changes in the gonads.

A.7.2.5.4 Evidence from *in vitro* assays, or non-mammalian tests, and from analogous substances using structure-activity relationship (SAR), can contribute to the procedure for classification. In all cases of this nature, expert judgment must be used to assess the adequacy of the data. Inadequate data shall not be used as a primary support for classification.

A.7.2.5.5 It is preferable that animal studies are conducted using appropriate routes of administration which relate to the potential route of human exposure. However, in practice, reproductive toxicity studies are commonly conducted using the oral route, and such studies will normally be suitable for evaluating the hazardous properties of the substance with respect to reproductive toxicity. However, if it can be conclusively demonstrated that the clearly identified mechanism or mode of action has no relevance for humans or when the toxicokinetic differences are so marked that it is certain that the hazardous property will not be expressed in humans then a substance which produces an adverse effect on reproduction in experimental animals should not be classified.

A.7.2.5.6 Studies involving routes of administration such as intravenous or intraperitoneal injection, which may result in exposure of the reproductive organs to unrealistically high levels of the test substance, or elicit local damage to the reproductive organs, e.g., by irritation, must be interpreted with extreme caution and on their own are not normally the basis for classification.

A.7.2.5.7 There is general agreement about the concept of a limit dose, above which the production of an adverse effect may be considered to be outside the criteria which lead to classification. Some test guidelines specify a limit dose, other test guidelines qualify the limit dose with a statement that higher doses may be necessary if anticipated human exposure is sufficiently high that an adequate margin of exposure would not be achieved. Also, due to species differences in toxicokinetics, establishing a specific limit dose may not be

adequate for situations where humans are more sensitive than the animal model.

A.7.2.5.8 In principle, adverse effects on reproduction seen only at very high dose levels in animal studies (for example doses that induce prostration, severe inappetence, excessive mortality) do not normally lead to classification, unless other information is available, for example, toxicokinetics information indicating that humans may be more susceptible than animals, to suggest that classification is appropriate.

A.7.2.5.9 However, specification of the actual "limit dose" will depend upon the test method that has been employed to provide the test results.

A.7.3 Classification criteria for mixtures

A.7.3.1 Classification of mixtures when data are available for all ingredients or only for some ingredients of the mixture

A.7.3.1.1 The mixture shall be classified as a reproductive toxicant when at least one ingredient has been classified as a Category 1 or Category 2 reproductive toxicant and is present at or above the appropriate cut-off value/concentration limit specified in Table A.7.1 for Category 1 and 2, respectively.

A.7.3.1.2 The mixture shall be classified for effects on or via lactation when at least one ingredient has been classified for effects on or via lactation and is present at or above the appropriate cut-off value/concentration limit specified in Table A.7.1 for the additional category for effects on or via lactation.

Table A.7.1: Cut-off values/concentration limits of ingredients of a mixture classified as reproductive toxicants or for effects on or via lactation that trigger classification of the mixture

Ingredient classified as:	Cut-off values/concentration limits triggering classification of a mixture as:		
	Category 1 reproductive toxicant	Category 2 reproductive toxicant	Additional category for effects on or via lactation
Category 1 reproductive toxicant	≥ 0.1%		
Category 2 reproductive toxicant		≥ 0.1%	
Additional category for effects on or via lactation			≥ 0.1%

A.7.3.2 Classification of mixtures when data are available for the complete mixture

Available test data for the mixture as a whole may be used for classification on a case-by-case basis. In such cases, the test results for the mixture as a whole must be shown to be conclusive taking into account dose and other factors such as duration, observations and analysis (e.g., statistical analysis, test sensitivity) of reproduction test systems.

A.7.3.3 Classification of mixtures when data are not available for the complete mixture: bridging principles

A.7.3.3.1 Where the mixture itself has not been tested to determine its reproductive toxicity, but there are sufficient data on both the individual ingredients and similar tested mixtures to adequately characterize the hazards of the mixture, these data shall be used in accordance with the following bridging principles as found in paragraph A.0.5 of this Appendix: Dilution, Batching, and Substantially similar mixtures.

A.8 SPECIFIC TARGET ORGAN TOXICITY SINGLE EXPOSURE

A.8.1 Definitions and general considerations

A.8.1.1 *Specific target organ toxicity - single exposure*, (STOT-SE) means specific, non-lethal target organ toxicity arising from a single exposure to a chemical. All significant health effects that can impair function, both reversible and irreversible, immediate and/or delayed and not specifically addressed in A.1 to A.7 and A.10 of this Appendix are included. Specific target organ toxicity following repeated exposure is classified in accordance with *SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE* (A.9 of this Appendix) and is therefore not included here.

A.8.1.2 Classification identifies the chemical as being a specific target organ toxicant and, as such, it presents a potential for adverse health effects in people who are exposed to it.

A.8.1.3 The adverse health effects produced by a single exposure include consistent and identifiable toxic effects in humans; or, in experimental animals, toxicologically significant changes which have affected the function or morphology of a tissue/organ, or have produced serious changes to the biochemistry or hematology of the organism, and these changes are relevant for human health. Human data is the primary source of evidence for this hazard class.

A.8.1.4 Assessment shall take into consideration not only significant changes in a single organ or biological system but also generalized changes of a less severe nature involving several organs.

A.8.1.5 Specific target organ toxicity can occur by any route that is relevant for humans, i.e., principally oral, dermal or inhalation.

A.8.1.6 The classification criteria for specific organ systemic toxicity single exposure are organized as criteria for substances Categories 1 and 2 (See A.8.2.1), criteria for substances Category 3 (See A.8.2.2) and criteria for mixtures (See A.8.3). See also Figure A.8.1.

A.8.2 Classification criteria for substances

A.8.2.1 Substances of Category 1 and Category 2

A.8.2.1.1 Substances shall be classified for immediate or delayed effects separately, by the use of expert judgment on the basis of the weight of all evidence available, including the use of recommended guidance values (See A.8.2.1.9). Substances shall then be classified in Category 1 or 2, depending upon the nature and severity of the effect(s) observed, in accordance with Figure A.8.1.

Figure A.8.1: Hazard categories for specific target organ toxicity following single exposure

CATEGORY 1:	**Substances that have produced significant toxicity in humans, or that, on the basis of evidence from studies in experimental animals can be presumed to have the potential to produce significant toxicity in humans following single exposure** Substances are classified in Category 1 for STOT-SE on the basis of: (a) reliable and good quality evidence from human cases or epidemiological studies; or (b) observations from appropriate studies in experimental animals in which significant and/or severe toxic effects of relevance to human health were produced at generally low exposure concentrations. Guidance dose/concentration values are provided below (See A.8.2.1.9) to be used as part of weight-of-evidence evaluation.
CATEGORY 2:	**Substances that, on the basis of evidence from studies in experimental animals, can be presumed to have the potential to be harmful to human health following single exposure** Substances are classified in Category 2 for STOT-SE on the basis of observations from appropriate studies in experimental animals in which significant toxic effects, of relevance to human health, were produced at generally moderate exposure concentrations. Guidance dose/concentration values are provided below (See A.8.2.1.9) in order to help in classification In exceptional cases, human evidence can also be used to place a substance in Category 2 (See A.8.2.1.6).
CATEGORY 3:	**Transient target organ effects** There are target organ effects for which a substance does not meet the criteria to be classified in Categories 1 or 2 indicated above. These are effects which adversely alter human function for a short duration after exposure and from which humans may recover in a reasonable period without leaving significant alteration of structure or function. This category only includes narcotic effects and respiratory tract irritation. Substances are classified specifically for these effects as discussed in A.8.2.2.
Note: The primary target organ/system shall be identified where possible, and where this is not possible, the substance shall be identified as a general toxicant. The data shall be evaluated and, where possible, shall not include secondary effects (e.g., a hepatotoxicant can produce secondary effects in the nervous or gastro-intestinal systems).	

A.8.2.1.2 The relevant route(s) of exposure by which the classified substance produces damage shall be identified.

A.8.2.1.3 Classification is determined by expert judgment, on the basis of the weight of all evidence available including the guidance presented below.

A.8.2.1.4 Weight of evidence of all available data, including human incidents, epidemiology, and studies conducted in experimental animals is used to substantiate specific target organ toxic effects that merit classification.

A.8.2.1.5 The information required to evaluate specific target organ toxicity comes either from single exposure in humans (e.g., exposure at home, in the workplace or environmentally), or from studies conducted in experimental animals. The standard animal studies in rats or mice that provide this information are acute toxicity studies which can include clinical observations and detailed macroscopic and microscopic examination to enable the toxic effects on target tissues/organs to be identified. Results of acute toxicity studies conducted in other species may also provide relevant information.

A.8.2.1.6 In exceptional cases, based on expert judgment, it may be appropriate to place certain substances with human evidence of target organ toxicity in Category 2: (a) when the weight of human evidence is not sufficiently convincing to warrant Category 1 classification, and/or (b) based on the nature and severity of effects. Dose/concentration levels in humans shall not be considered in the classification and any available evidence from animal studies shall be consistent with the Category 2 classification. In other words, if there are also animal data available on the substance that warrant Category 1 classification, the chemical shall be classified as Category 1.

A.8.2.1.7 Effects considered to support classification for Category 1 and 2

A.8.2.1.7.1 Classification is supported by evidence associating single exposure to the substance with a consistent and identifiable toxic effect.

A.8.2.1.7.2 Evidence from human experience/incidents is usually restricted to reports of adverse health consequences, often with uncertainty about exposure conditions, and may not provide the scientific detail that can be obtained from well-conducted studies in experimental animals.

A.8.2.1.7.3 Evidence from appropriate studies in experimental animals can furnish much more detail, in the form of clinical observations, and macroscopic and microscopic pathological examination and this can often reveal hazards that may not be life-threatening but could indicate functional impairment. Consequently all available evidence, and evidence relevance to human health, must be taken into consideration in the classification process. Relevant toxic effects in humans and/or animals include, but are not limited to:

(a) Morbidity resulting from single exposure;

(b) Significant functional changes, more than transient in nature, in the respiratory system, central or peripheral nervous systems, other organs or other organ systems, including signs of central nervous system depression and effects on special senses (e.g., sight, hearing and sense of smell);

(c) Any consistent and significant adverse change in clinical biochemistry, hematology, or urinalysis parameters;

(d) Significant organ damage that may be noted at necropsy and/or subsequently seen or confirmed at microscopic examination;

(e) Multi-focal or diffuse necrosis, fibrosis or granuloma formation in vital organs with regenerative capacity;

(f) Morphological changes that are potentially reversible but provide clear evidence of marked organ dysfunction; and,

(g) Evidence of appreciable cell death (including cell degeneration and reduced cell number) in vital organs incapable of regeneration.

A.8.2.1.8 Effects considered not to support classification for Category 1 and 2

Effects may be seen in humans and/or animals that do not justify classification. Such effects include, but are not limited to:

(a) Clinical observations or small changes in bodyweight gain, food consumption or water intake that may have some toxicological importance but that do not, by themselves, indicate "significant" toxicity;

(b) Small changes in clinical biochemistry, hematology or urinalysis parameters and/or transient effects, when such changes or effects are of doubtful or of minimal toxicological importance;

(c) Changes in organ weights with no evidence of organ dysfunction;

(d) Adaptive responses that are not considered toxicologically relevant; and,

(e) Substance-induced species-specific mechanisms of toxicity, i.e., demonstrated with reasonable certainty to be not relevant for human health, shall not justify classification.

A.8.2.1.9 Guidance values to assist with classification based on the results obtained from studies conducted in experimental animals for Category 1 and 2

A.8.2.1.9.1 In order to help reach a decision about whether a substance shall be classified or not, and to what degree it shall be classified (Category 1 vs. Category 2), dose/concentration "guidance values" are provided for consideration of the dose/concentration which has been shown to produce significant health effects. The principal argument for proposing such guidance values is that all chemicals are potentially toxic and there has to be a reasonable dose/concentration above which a degree of toxic effect is acknowledged.

A.8.2.1.9.2 Thus, in animal studies, when significant toxic effects are observed that indicate classification, consideration of the dose/concentration at which these effects were seen, in relation to the suggested guidance values, provides useful information to help assess the need to classify (since the toxic effects are a consequence of the hazardous property(ies) and also the dose/concentration).

A.8.2.1.9.3 The guidance value (C) ranges for single-dose exposure which has produced a significant non-lethal toxic effect are those applicable to acute toxicity testing, as indicated in Table A.8.1.

Table A.8.1: Guidance value ranges for single-dose exposures

		Guidance value ranges for:		
Route of exposure	**Units**	**Category 1**	**Category 2**	**Category 3**
Oral (rat)	mg/kg body weight	$C \leq 300$	$2000 \geq C > 300$	Guidance values do not apply
Dermal (rat or rabbit)	mg/kg body weight	$C \leq 1000$	$2000 \geq C > 1000$	
Inhalation (rat) gas	ppmV/4h	$C \leq 2500$	$20{,}000 \geq C > 2500$	
Inhalation (rat) vapor	mg/l/4h	$C \leq 10$	$20 \geq C > 10$	
Inhalation (rat) dust/mist/fume	mg/l/4h	$C \leq 1.0$	$5.0 \geq C > 1.0$	

A.8.2.1.9.4 The guidance values and ranges mentioned in Table A.8.1 are intended only for guidance purposes, i.e., to be used as part of the weight of evidence approach, and to assist with decisions about classification. They are not intended as strict demarcation values. Guidance values are not provided for Category 3 since this classification is primarily based on human data; animal data may be included in the weight of evidence evaluation.

A.8.2.1.9.5 Thus, it is feasible that a specific profile of toxicity occurs at a dose/concentration below the guidance value, e.g., < 2000 mg/kg body weight by the oral route, however the nature of the effect may result in the decision not to classify. Conversely, a specific profile of toxicity may be seen in animal studies occurring at above a guidance value, e.g., ≥ 2000 mg/kg body weight by the oral route, and in addition there is supplementary information from other sources, e.g., other single dose studies, or human case experience, which supports a conclusion that, in view of the weight of evidence, classification is the prudent action to take.

A.8.2.1.10 Other considerations

A.8.2.1.10.1 When a substance is characterized only by use of animal data the classification process includes reference to dose/concentration guidance values as one of the elements that contribute to the weight of evidence approach.

A.8.2.1.10.2 When well-substantiated human data are available showing a specific target organ toxic effect that can be reliably attributed to single exposure to a substance, the substance shall be classified. Positive human data, regardless of probable dose, predominates over animal data. Thus, if a substance is unclassified because specific target organ toxicity observed was considered not relevant or significant to humans, if subsequent human incident data become available showing a specific target organ toxic effect, the substance shall be classified.

A.8.2.1.10.3 A substance that has not been tested for specific target organ toxicity shall, where appropriate, be classified on the basis of data from a scientifically validated structure activity relationship and expert judgment-based extrapolation from a structural analogue that has previously been classified together with substantial support from consideration of other important factors such as formation of common significant metabolites.

A.8.2.2 Substances of Category 3

A.8.2.2.1 Criteria for respiratory tract irritation

The criteria for classifying substances as Category 3 for respiratory tract irritation are:

(a) Respiratory irritant effects (characterized by localized redness, edema, pruritis and/or pain) that impair function with symptoms such as cough, pain, choking, and breathing difficulties are included. It is recognized that this evaluation is based primarily on human data;

(b) Subjective human observations supported by objective measurements of clear respiratory tract irritation (RTI) (e.g., electrophysiological responses, biomarkers of inflammation in nasal or bronchoalveolar lavage fluids);

(c) The symptoms observed in humans shall also be typical of those that would be produced in the exposed population rather than being an isolated idiosyncratic reaction or response triggered only in individuals with hypersensitive airways. Ambiguous reports simply of "irritation" should be excluded as this term is commonly used to describe a wide range of sensations including those such as smell, unpleasant taste, a tickling sensation, and dryness, which are outside the scope of classification for respiratory tract irritation;

(d) There are currently no scientifically validated animal tests that deal specifically with RTI; however, useful information may be obtained from the single and repeated inhalation toxicity tests. For example, animal studies may provide useful information in terms of clinical signs of toxicity (dyspnoea, rhinitis etc.) and histopathology (e.g., hyperemia, edema, minimal inflammation, thickened mucous layer) which are reversible and may be reflective of the characteristic clinical symptoms described above. Such animal studies can be used as part of weight of evidence evaluation; and,

(e) This special classification will occur only when more severe organ effects including the respiratory system are not observed as those effects would require a higher classification.

A.8.2.2.2 Criteria for narcotic effects

The criteria for classifying substances in Category 3 for narcotic effects are:

(a) Central nervous system depression including narcotic effects in humans such as drowsiness, narcosis, reduced alertness, loss of reflexes, lack of coordination, and vertigo are included. These effects can also be manifested as severe headache or nausea, and can lead to reduced judgment, dizziness, irritability, fatigue, impaired memory function, deficits in perception and coordination, reaction time, or sleepiness; and,

(b) Narcotic effects observed in animal studies may include lethargy, lack of coordination righting reflex, narcosis, and ataxia. If these effects are not transient in nature, then they shall be considered for classification as Category 1 or 2.

A.8.3 Classification criteria for mixtures

A.8.3.1 Mixtures are classified using the same criteria as for substances, or alternatively as described below. As with substances, mixtures may be classified for specific target organ toxicity following single exposure, repeated exposure, or both.

A.8.3.2 Classification of mixtures when data are available for the complete mixture

When reliable and good quality evidence from human experience or appropriate studies in experimental animals, as described in the criteria for substances, is available for the mixture, then the mixture shall be classified by weight of evidence evaluation of this data. Care shall be exercised in evaluating data on mixtures, that the dose, duration, observation or analysis, do not render the results inconclusive.

A.8.3.3 Classification of mixtures when data are not available for the complete mixture: bridging principles

A.8.3.3.1 Where the mixture itself has not been tested to determine its specific target organ toxicity, but there are sufficient data on both the individual ingredients and similar tested mixtures to adequately characterize the hazards of the mixture, these data shall be used in accordance with the following bridging principles as found in paragraph A.0.5 of this Appendix: Dilution, Batching, Concentration of mixtures, Interpolation within one toxicity category, Substantially similar mixtures, or Aerosols.

A.8.3.4 Classification of mixtures when data are available for all ingredients or only for some ingredients of the mixture

A.8.3.4.1 Where there is no reliable evidence or test data for the specific mixture itself, and the bridging principles cannot be used to enable classification, then classification of the mixture is based on the classification of the ingredient substances. In this case, the mixture shall be classified as a specific target organ toxicant (specific organ specified), following single exposure, repeated exposure, or both when at least one ingredient has been classified as a Category 1 or Category 2 specific target organ toxicant and is present at or above the appropriate cut-off value/concentration limit specified in Table A.8.2 for Categories 1 and 2, respectively.

Table A.8.2: Cut-off values/concentration limits of ingredients of a mixture classified as a specific target organ toxicant that would trigger classification of the mixture as Category 1 or 2

Ingredient classified as:	Cut-off values/concentration limits triggering classification of a mixture as:	
	Category 1	Category 2
Category 1 Target organ toxicant	((≤)) ≥ 1.0%	
Category 2 Target organ toxicant		((≤)) ≥ 1.0%

A.8.3.4.2 These cut-off values and consequent classifications shall be applied equally and appropriately to both single- and repeated-dose target organ toxicants.

A.8.3.4.3 Mixtures shall be classified for either or both single and repeated dose toxicity independently.

A.8.3.4.4 Care shall be exercised when toxicants affecting more than one organ system are combined that the potentiation or synergistic interactions are considered, because certain substances can cause target organ toxicity at < 1% concentration when other ingredients in the mixture are known to potentiate its toxic effect.

A.8.3.4.5 Care shall be exercised when extrapolating the toxicity of a mixture that contains Category 3 ingredient(s). A cut-off value/concentration limit of 20%, considered as an additive of all Category 3 ingredients for each hazard endpoint, is appropriate; however, this cut-off value/concentration limit may be higher or lower depending on the Category 3 ingredient(s) involved and the fact that some effects such as respiratory tract irritation may not occur below a certain concentration while other effects such as narcotic effects may occur below this 20% value. Expert judgment shall be exercised. Respiratory tract irritation and narcotic effects are to be evaluated separately in accordance with the criteria given in A.8.2.2. When conducting classifications for these hazards, the contribution of each ingredient should be considered additive, unless there is evidence that the effects are not additive.

A.9 SPECIFIC TARGET ORGAN TOXICITY REPEATED OR PROLONGED EXPOSURE

A.9.1 Definitions and general considerations

A.9.1.1 *Specific target organ toxicity* - repeated exposure (STOT-RE) means specific target organ toxicity arising from repeated exposure to a substance or mixture. All significant health effects that can impair function, both reversible and irreversible, immediate and/or delayed and not specifically addressed in A.1 to A.7 and A.10 of this Appendix are included. Specific target organ toxicity following a single-event exposure is classified in accordance with *SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE* (A.8 of this Appendix) and is therefore not included here.

A.9.1.2 Classification identifies the substance or mixture as being a specific target organ toxicant and, as such, it may present a potential for adverse health effects in people who are exposed to it.

A.9.1.3 These adverse health effects produced by repeated exposure include consistent and identifiable toxic effects in humans, or, in experimental animals, toxicologically significant changes which have affected the function or morphology of a tissue/organ, or have produced serious changes to the biochemistry or hematology of the organism and these changes are relevant for human health. Human data will be the primary source of evidence for this hazard class.

A.9.1.4 Assessment shall take into consideration not only significant changes in a single organ or biological system but also generalized changes of a less severe nature involving several organs.

A.9.1.5 Specific target organ toxicity can occur by any route that is relevant for humans, e.g., principally oral, dermal or inhalation.

A.9.2 Classification criteria for substances

A.9.2.1 Substances shall be classified as STOT-RE by expert judgment on the basis of the weight of all evidence available, including the use of recommended guidance values which take into account the duration of exposure and the dose/concentration which produced the effect(s), (See A.9.2.9). Substances shall be placed in one of two categories, depending upon the nature and severity of the effect(s) observed, in accordance with Figure A.9.1.

Figure A.9.1: Hazard categories for specific target organ toxicity following repeated exposure

CATEGORY 1:	**Substances that have produced significant toxicity in humans, or that, on the basis of evidence from studies in experimental animals can be presumed to have the potential to produce significant toxicity in humans following repeated or prolonged exposure** Substances are classified in Category 1 for specific target organ toxicity (repeated exposure) on the basis of: (a) reliable and good quality evidence from human cases or epidemiological studies; or, (b) observations from appropriate studies in experimental animals in which significant and/or severe toxic effects, of relevance to human health, were produced at generally low exposure concentrations. Guidance dose/concentration values are provided below (See A.9.2.9) to be used as part of weight-of-evidence evaluation.

CATEGORY 2:	**Substances that, on the basis of evidence from studies in experimental animals can be presumed to have the potential to be harmful to human health following repeated or prolonged exposure** Substances are classified in Category 2 for specific target organ toxicity (repeated exposure) on the basis of observations from appropriate studies in experimental animals in which significant toxic effects, of relevance to human health, were produced at generally moderate exposure concentrations. Guidance dose/concentration values are provided below (See A.9.2.9) in order to help in classification. In exceptional cases human evidence can also be used to place a substance in Category 2 (See A.9.2.6).
Note: The primary target organ/system shall be identified where possible, or the substance shall be identified as a general toxicant. The data shall be carefully evaluated and, where possible, shall not include secondary effects (e.g., a hepatotoxicant can produce secondary effects in the nervous or gastro-intestinal systems).	

A.9.2.2 The relevant route of exposure by which the classified substance produces damage shall be identified.

A.9.2.3 Classification is determined by expert judgment, on the basis of the weight of all evidence available including the guidance presented below.

A.9.2.4 Weight of evidence of all data, including human incidents, epidemiology, and studies conducted in experimental animals, is used to substantiate specific target organ toxic effects that merit classification.

A.9.2.5 The information required to evaluate specific target organ toxicity comes either from repeated exposure in humans, e.g., exposure at home, in the workplace or environmentally, or from studies conducted in experimental animals. The standard animal studies in rats or mice that provide this information are 28 day, 90 day or lifetime studies (up to 2 years) that include hematological, clinico-chemical and detailed macroscopic and microscopic examination to enable the toxic effects on target tissues/organs to be identified. Data from repeat dose studies performed in other species may also be used. Other long-term exposure studies, e.g., for carcinogenicity, neurotoxicity or reproductive toxicity, may also provide evidence of specific target organ toxicity that could be used in the assessment of classification.

A.9.2.6 In exceptional cases, based on expert judgment, it may be appropriate to place certain substances with human evidence of specific target organ toxicity in Category 2: (a) when the weight of human evidence is not sufficiently convincing to warrant Category 1 classification, and/or (b) based on the nature and severity of effects. Dose/concentration levels in humans shall not be considered in the classification and any available evidence from animal studies shall be consistent with the Category 2 classification. In other words, if there are also animal data available on the substance that warrant Category 1 classification, the substance shall be classified as Category 1.

A.9.2.7 Effects considered to support classification

A.9.2.7.1 Classification is supported by reliable evidence associating repeated exposure to the substance with a consistent and identifiable toxic effect.

A.9.2.7.2 Evidence from human experience/incidents is usually restricted to reports of adverse health consequences, often with uncertainty about exposure conditions, and may not provide the scientific detail that can be obtained from well-conducted studies in experimental animals.

A.9.2.7.3 Evidence from appropriate studies in experimental animals can furnish much more detail, in the form of clinical observations, hematology, clinical chemistry, macroscopic and microscopic pathological examination and this can often reveal hazards that may not be life-threatening but could indicate functional impairment. Consequently all available evidence, and relevance to human health, must be taken into consideration in the classification process. Relevant toxic effects in humans and/or animals include, but are not limited to:

(a) Morbidity or death resulting from repeated or long-term exposure. Morbidity or death may result from repeated exposure, even to relatively low doses/concentrations, due to bioaccumulation of the substance or its metabolites, or due to the overwhelming of the de-toxification process by repeated exposure;

(b) Significant functional changes in the central or peripheral nervous systems or other organ systems, including signs of central nervous system depression and effects on special senses (e.g., sight, hearing and sense of smell);

(c) Any consistent and significant adverse change in clinical biochemistry, hematology, or urinalysis parameters;

(d) Significant organ damage that may be noted at necropsy and/or subsequently seen or confirmed at microscopic examination;

(e) Multi-focal or diffuse necrosis, fibrosis or granuloma formation in vital organs with regenerative capacity;

(f) Morphological changes that are potentially reversible but provide clear evidence of marked organ dysfunction (e.g., severe fatty change in the liver); and,

(g) Evidence of appreciable cell death (including cell degeneration and reduced cell number) in vital organs incapable of regeneration.

A.9.2.8 Effects considered not to support classification

Effects may be seen in humans and/or animals that do not justify classification. Such effects include, but are not limited to:

(a) Clinical observations or small changes in bodyweight gain, food consumption or water intake that may have some toxicological importance but that do not, by themselves, indicate "significant" toxicity;

(b) Small changes in clinical biochemistry, hematology or urinalysis parameters and /or transient effects, when such changes or effects are of doubtful or of minimal toxicological importance;

(c) Changes in organ weights with no evidence of organ dysfunction;

(d) Adaptive responses that are not considered toxicologically relevant;

(e) Substance-induced species-specific mechanisms of toxicity, i.e., demonstrated with reasonable certainty to be not relevant for human health, shall not justify classification.

A.9.2.9 Guidance values to assist with classification based on the results obtained from studies conducted in experimental animals

A.9.2.9.1 In studies conducted in experimental animals, reliance on observation of effects alone, without reference to the duration of experimental exposure and dose/concentration, omits a fundamental concept of toxicology, i.e., all substances are potentially toxic, and what determines the toxicity is a function of the dose/concentration and the duration of exposure. In most studies conducted in experimental animals the test guidelines use an upper limit dose value.

A.9.2.9.2 In order to help reach a decision about whether a substance shall be classified or not, and to what degree it shall be classified (Category 1 vs. Category 2), dose/concentration "guidance values" are provided in Table A.9.1 for consideration of the dose/concentration which has been shown to produce significant health effects. The principal argument for proposing such guidance values is that all chemicals are potentially toxic and there has to be a reasonable dose/concentration above which a degree of toxic effect is acknowledged. Also, repeated-dose studies conducted in experimental animals are designed to produce toxicity at the highest dose used in order to optimize the test objective and so most studies will reveal some toxic effect at least at this highest dose. What is therefore to be decided is not only what effects have been produced, but also at what dose/concentration they were produced and how relevant is that for humans.

A.9.2.9.3 Thus, in animal studies, when significant toxic effects are observed that indicate classification, consideration of the duration of experimental exposure and the dose/concentration at which these effects were seen, in relation to the suggested guidance values, provides useful information to help assess the need to classify (since the toxic effects are a consequence of the hazardous property(ies) and also the duration of exposure and the dose/concentration).

A.9.2.9.4 The decision to classify at all can be influenced by reference to the dose/concentration guidance values at or below which a significant toxic effect has been observed.

A.9.2.9.5 The guidance values refer to effects seen in a standard 90-day toxicity study conducted in rats. They can be used as a basis to extrapolate equivalent guidance values for toxicity studies of greater or lesser duration, using dose/exposure time extrapolation similar to Haber's rule for inhalation, which states essentially that the effective dose is directly proportional to the exposure concentration and the duration of exposure. The assessment should be done on a case-by-case basis; for example, for a 28-day study the guidance values below would be increased by a factor of three.

A.9.2.9.6 Thus for Category 1 classification, significant toxic effects observed in a 90-day repeated-dose study conducted in experimental animals and seen to occur at or below the (suggested) guidance values (C) as indicated in Table A.9.1 would justify classification:

Table A.9.1: Guidance values to assist in Category 1 classification (applicable to a 90-day study)

Route of exposure	Units	Guidance values (dose/concentration)
Oral (rat)	mg/kg body weight/day	$C \leq 10$
Dermal (rat or rabbit)	mg/kg body weight/day	$C \leq 20$
Inhalation (rat) gas	ppmV/6h/day	$C \leq 50$
Inhalation (rat) vapor	mg/liter/6h/day	$C \leq 0.2$
Inhalation (rat) dust/mist/fume	mg/liter/6h/day	$C \leq 0.02$

A.9.2.9.7 For Category 2 classification, significant toxic effects observed in a 90-day repeated-dose study conducted in experimental animals and seen to occur within the (suggested) guidance value ranges as indicated in Table A.9.2 would justify classification:

Table A.9.2: Guidance values to assist in Category 2 classification (applicable to a 90-day study)

Route of exposure	Units	Guidance values range (dose/concentration)
Oral (rat)	mg/kg body weight/day	$10 < C \leq 100$
Dermal (rat or rabbit)	mg/kg body weight/day	$20 < C \leq 200$
Inhalation (rat) gas	ppmV/6h/day	$50 < C \leq 250$
Inhalation (rat) vapor	mg/liter/6h/day	$0.2 < C \leq 1.0$
Inhalation (rat) dust/mist/fume	mg/liter/6h/day	$0.02 < C \leq 0.2$

A.9.2.9.8 The guidance values and ranges mentioned in A.2.9.9.6 and A.2.9.9.7 are intended only for guidance purposes, i.e., to be used as part of the weight of evidence approach, and to assist with decisions about classification. They are not intended as strict demarcation values.

A.9.2.9.9 Thus, it is possible that a specific profile of toxicity occurs in repeat-dose animal studies at a dose/concentration below the guidance value, e.g., < 100 mg/kg body weight/day by the oral route, however the nature of the effect, e.g., nephrotoxicity seen only in male rats of a particular strain known to be susceptible to this effect, may result in the decision not to classify. Conversely, a specific profile of toxicity may be seen in animal studies occurring at above a guidance value, e.g., ≥ 100 mg/kg body weight/day by the oral route, and in addition there is supplementary information from other sources, e.g., other long-term administration studies, or human case experience, which supports a conclusion that, in view of the weight of evidence, classification is prudent.

A.9.2.10 Other considerations

A.9.2.10.1 When a substance is characterized only by use of animal data the classification process includes reference to dose/concentration guidance values as one of the elements that contribute to the weight of evidence approach.

A.9.2.10.2 When well-substantiated human data are available showing a specific target organ toxic effect that can be reliably attributed to repeated or prolonged exposure to a substance, the substance shall be classified. Positive human data, regardless of probable dose, predominates over animal data. Thus, if a substance is unclassified because no specific target organ toxicity was seen at or below the dose/concentration guidance value for animal testing, if subsequent human incident data become available showing a specific target organ toxic effect, the substance shall be classified.

A.9.2.10.3 A substance that has not been tested for specific target organ toxicity may in certain instances, where appropriate, be classified on the basis of data from a scientifically validated structure activity relationship and expert judgment-based extrapolation from a structural analogue that has previously been classified together with substantial support from consideration of other important factors such as formation of common significant metabolites.

A.9.3 Classification criteria for mixtures

A.9.3.1 Mixtures are classified using the same criteria as for substances, or alternatively as described below. As with substances, mixtures may be classified for specific target organ toxicity following single exposure, repeated exposure, or both.

A.9.3.2 Classification of mixtures when data are available for the complete mixture

When reliable and good quality evidence from human experience or appropriate studies in experimental animals, as described in the criteria for substances, is available for the mixture, then the mixture shall be classified by weight of evidence evaluation of these data. Care shall be exercised in evaluating data on mixtures, that the dose, duration, observation or analysis, do not render the results inconclusive.

A.9.3.3 Classification of mixtures when data are not available for the complete mixture: bridging principles

A.9.3.3.1 Where the mixture itself has not been tested to determine its specific target organ toxicity, but there are sufficient data on both the individual ingredients and similar tested mixtures to adequately characterize the hazards of the mixture, these data shall be used in accordance with the following bridging principles as found in paragraph A.0.5 of this Appendix: Dilution; Batching; Concentration of mixtures; Interpolation within one toxicity category; Substantially similar mixtures; and Aerosols.

A.9.3.4 Classification of mixtures when data are available for all ingredients or only for some ingredients of the mixture

A.9.3.4.1 Where there is no reliable evidence or test data for the specific mixture itself, and the bridging principles cannot be used to enable classification, then classification of the mixture is based on the classification of the ingredient substances. In this case, the mixture shall be classified as a specific target organ toxicant (specific organ specified), following single exposure, repeated exposure, or both when at least one ingredient has been classified as a Category 1 or Category 2 specific target organ toxicant and is present at or above the appropriate cut-off value/concentration limit specified in Table A.9.3 for Category 1 and 2 respectively.

Table A.9.3: Cut-off value/concentration limits of ingredients of a mixture classified as a specific target organ toxicant that would trigger classification of the mixture as Category 1 or 2

Ingredient classified as:	Cut-off values/concentration limits triggering classification of a mixture as:	
	Category 1	Category 2
Category 1 Target organ toxicant	≥ 1.0%	
Category 2 Target organ toxicant		≥ 1.0%

A.9.3.4.2 These cut-off values and consequent classifications shall be applied equally and appropriately to both single- and repeated-dose target organ toxicants.

A.9.3.4.3 Mixtures shall be classified for either or both single- and repeated-dose toxicity independently.

A.9.3.4.4 Care shall be exercised when toxicants affecting more than one organ system are combined that the potentiation or synergistic interactions are considered, because certain substances can cause specific target organ toxicity at < 1% concentration when other ingredients in the mixture are known to potentiate its toxic effect.

A.10 ASPIRATION HAZARD

A.10.1 Definitions and general and specific considerations

A.10.1.1 *Aspiration* means the entry of a liquid or solid chemical directly through the oral or nasal cavity, or indi-

rectly from vomiting, into the trachea and lower respiratory system.

A.10.1.2 Aspiration toxicity includes severe acute effects such as chemical pneumonia, varying degrees of pulmonary injury or death following aspiration.

A.10.1.3 Aspiration is initiated at the moment of inspiration, in the time required to take one breath, as the causative material lodges at the crossroad of the upper respiratory and digestive tracts in the laryngopharyngeal region.

A.10.1.4 Aspiration of a substance or mixture can occur as it is vomited following ingestion. This may have consequences for labeling, particularly where, due to acute toxicity, a recommendation may be considered to induce vomiting after ingestion. However, if the substance/mixture also presents an aspiration toxicity hazard, the recommendation to induce vomiting may need to be modified.

A.10.1.5 Specific considerations

A.10.1.5.1 The classification criteria refer to kinematic viscosity. The following provides the conversion between dynamic and kinematic viscosity:

$$\frac{\text{Dynamic viscosity (mPa·s)}}{\text{Density (g/cm}^3\text{)}} = \text{Kinematic viscosity (mm}^2\text{/s)}$$

A.10.1.5 Specific Considerations

A.10.1.5.2 Although the definition of aspiration in A.10.1.1 includes the entry of solids into the respiratory system, classification according to (b) in table A.10.1 for Category 1 is intended to apply to liquid substances and mixtures only.

A.10.1.5.3 Classification of aerosol/mist products

Aerosol and mist products are usually dispensed in containers such as self-pressurized containers, trigger and pump sprayers. Classification for these products shall be considered if their use may form a pool of product in the mouth, which then may be aspirated. If the mist or aerosol from a pressurized container is fine, a pool may not be formed. On the other hand, if a pressurized container dispenses product in a stream, a pool may be formed that may then be aspirated. Usually, the mist produced by trigger and pump sprayers is coarse and therefore, a pool may be formed that then may be aspirated. When the pump mechanism may be removed and contents are available to be swallowed then the classification of the products should be considered.

A.10.2 Classification criteria for substances

Table A.10.1: Criteria for aspiration toxicity

Category	Criteria
Category 1: Chemicals known to cause human aspiration toxicity hazards or to be regarded as if they cause human aspiration toxicity hazard	A substance shall be classified in Category 1: (a) If reliable and good quality human evidence indicates that it causes aspiration toxicity (See note); or (b) If it is a hydrocarbon and has a kinematic viscosity ≤20.5 mm²/s, measured at 40°C.

Note: Examples of substances included in Category 1 are certain hydrocarbons, turpentine and pine oil.

A.10.3 Classification criteria for mixtures

A.10.3.1 Classification when data are available for the complete mixture

A mixture shall be classified in Category 1 based on reliable and good quality human evidence.

A.10.3.2 Classification of mixtures when data are not available for the complete mixture: bridging principles

A.10.3.2.1 Where the mixture itself has not been tested to determine its aspiration toxicity, but there are sufficient data on both the individual ingredients and similar tested mixtures to adequately characterize the hazard of the mixture, these data shall be used in accordance with the following bridging principles as found in paragraph A.0.5 of this Appendix: Dilution; Batching; Concentration of mixtures; Interpolation within one toxicity category; and Substantially similar mixtures. For application of the dilution bridging principle, the concentration of aspiration toxicants shall not be less than 10%.

A.10.3.3 Classification of mixtures when data are available for all ingredients or only for some ingredients of the mixture

A.10.3.3.1 A mixture which contains ≥ 10% of an ingredient or ingredients classified in Category 1, and has a kinematic viscosity ≤ 20.5 mm²/s, measured at 40˚C, shall be classified in Category 1.

A.10.3.3.2 In the case of a mixture which separates into two or more distinct layers, one of which contains ≥ 10% of an ingredient or ingredients classified in Category 1 and has a kinematic viscosity ≤ 20.5 mm²/s, measured at 40˚C, then the entire mixture shall be classified in Category 1.

AMENDATORY SECTION (Amending WSR 13-06-050, filed 3/5/13, effective 4/15/13)

WAC 296-901-14024 Appendix B—Physical hazard criteria.

B.1 EXPLOSIVES

B.1.1 Definitions and general considerations.

B.1.1.1 An *explosive chemical* is a solid or liquid chemical which is in itself capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings. Pyrotechnic chemicals are included even when they do not evolve gases.

A *pyrotechnic chemical* is a chemical designed to produce an effect by heat, light, sound, gas or smoke or a combination of these as the result of non-detonative self-sustaining exothermic chemical reactions.

An *explosive item* is an item containing one or more explosive chemicals.

A *pyrotechnic item* is an item containing one or more pyrotechnic chemicals.

An *unstable explosive* is an explosive which is thermally unstable and/or too sensitive for normal handling, transport, or use.

An *intentional explosive* is a chemical or item which is manufactured with a view to produce a practical explosive or pyrotechnic effect.

B.1.1.2 The class of explosives comprises:

(a) Explosive chemicals;

(b) Explosive items, except devices containing explosive chemicals in such quantity or of such a character that their inadvertent or accidental ignition or initiation must not cause any effect external to the device either by projection, fire, smoke, heat or loud noise; and

(c) Chemicals and items not included under (a) and (b) above which are manufactured with the view to producing a practical explosive or pyrotechnic effect.

B.1.2 Classification criteria

Chemicals and items of this class must be classified as unstable explosives or must be assigned to one of the following six divisions depending on the type of hazard they present:

(a) Division 1.1 - Chemicals and items which have a mass explosion hazard (a mass explosion is one which affects almost the entire quantity present virtually instantaneously);

(b) Division 1.2 - Chemicals and items which have a projection hazard but not a mass explosion hazard;

(c) Division 1.3 - Chemicals and items which have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard:

(i) Combustion of which gives rise to considerable radiant heat; or

(ii) Which burn one after another, producing minor blast or projection effects or both;

(d) Division 1.4 - Chemicals and items which present no significant hazard: chemicals and items which present only a small hazard in the event of ignition or initiation. The effects are largely confined to the package and no projection of fragments of appreciable size or range is to be expected. An external fire must not cause virtually instantaneous explosion of almost the entire contents of the package;

(e) Division 1.5 - Very insensitive chemicals which have a mass explosion hazard: chemicals which have a mass explosion hazard but are so insensitive that there is very little probability of initiation or of transition from burning to detonation under normal conditions;

(f) Division 1.6 - Extremely insensitive items which do not have a mass explosion hazard: Items which contain only extremely insensitive detonating chemicals and which demonstrate a negligible probability of accidental initiation or propagation.

B.1.3 Additional classification considerations

B.1.3.1 Explosives must be classified as unstable explosives or must be assigned to one of the six divisions identified in B.1.2 in accordance with the three step procedure in Part I of the UN ST/SG/AC.10/Rev. 4, The UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Fourth Revised Edition, 2003. The first step is to ascertain whether the substance or mixture has explosive effects (Test Series 1). The second step is the acceptance procedure (Test Series 2 to 4) and the third step is the assignment to a hazard division (Test Series 5 to 7). The assessment whether a candidate for "ammonium nitrate emulsion or suspension or gel, intermediate for blasting explosives (ANE)" is insensitive enough for inclusion as an oxidizing liquid (See B.13) or an oxidizing solid (See B.14) is determined by Test Series 8 tests.

NOTE: Classification of solid chemicals must be based on tests performed on the chemical as presented. If, for example, for the purposes of supply or transport, the same chemical is to be presented in a physical form different from that which was tested and which is considered likely to materially alter its performance in a classification test, classification must be based on testing of the chemical in the new form

B.1.3.2 Explosive properties are associated with the presence of certain chemical groups in a molecule which can react to produce very rapid increases in temperature or pressure. The screening procedure in B.1.3.1 is aimed at identifying the presence of such reactive groups and the potential for rapid energy release. If the screening procedure identifies the chemical as a potential explosive, the acceptance procedure (See section 10.3 of the UN ST/SG/AC.10 (incorporated by reference; See §1910.6)) is necessary for classification.

NOTE: Neither a Series 1 type (a) propagation of detonation test nor a Series 2 type (a) test of sensitivity to detonative shock is necessary if the exothermic decomposition energy of organic materials is less than 800 J/g.

B.1.3.3 If a mixture contains any known explosives, the acceptance procedure is necessary for classification.

B.1.3.4 A chemical is not classified as explosive if:

(a) There are no chemical groups associated with explosive properties present in the molecule. Examples of groups which may indicate explosive properties are given in Table A6.1 in Appendix 6 of the UN ST/SG/AC.10/Rev. 4, The UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Fourth Revised Edition, 2003; or

(b) The substance contains chemical groups associated with explosive properties which include oxygen and the calculated oxygen balance is less than -200.

The oxygen balance is calculated for the chemical reaction:

$$C_xH_yO_z + [x + (y/4)-(z/2)]O_2 \rightarrow x.CO_2 + (y/2)H_2O$$

using the formula: oxygen balance = -1600[2x + (y/2)-z]/ molecular weight; or

(c) The organic substance or a homogenous mixture of organic substances contains chemical groups associated with explosive properties but the exothermic decomposition energy is less than 500 J/g and the onset of exothermic decomposition is below 500°C (932°F). The exothermic decomposition energy may be determined using a suitable calorimetric technique; or

(d) For mixtures of inorganic oxidizing substances with organic material(s), the concentration of the inorganic oxidizing substance is:

(i) less than 15%, by mass, if the oxidizing substance is assigned to Category 1 or 2;

(ii) less than 30%, by mass, if the oxidizing substance is assigned to Category 3.

B.2 FLAMMABLE GASES

B.2.1 Definition

Flammable gas means a gas having a flammable range with air at 20°C (68°F) and a standard pressure of 101.3 kPa (14.7 psi).

B.2.2 Classification criteria

A flammable gas must be classified in one of the two categories for this class in accordance with Table B.2.1:

TABLE B.2.1—CRITERIA FOR FLAMMABLE GASES

Category	Criteria
1	Gases, which at 20°C (68°F) and a standard pressure of 101.3 kPa (14.7 psi): (a) are ignitable when in a mixture of 13% or less by volume in air; or (b) have a flammable range with air of at least 12 percentage points regardless of the lower flammable limit.
2	Gases, other than those of Category 1, which, at 20°C (68°F) and a standard pressure of 101.3 kPa (14.7 psi), have a flammable range while mixed in air.

NOTE: Aerosols must not be classified as flammable gases. See B.3.

B.2.3 Additional classification considerations

Flammability must be determined by tests or by calculation in accordance with ISO 10156:1996 (E), Gases and Gas Mixtures—Determination of Fire Potential and Oxidizing Ability for the Selection of Cylinder Valve Outlets, Second Edition, Feb. 15, 1996, ISO 10156-2:2005 (E), Gas Cylinders—Gases and Gas Mixtures—Part 2: Determination of Oxidizing Ability of Toxic and Corrosive Gases and Gas Mixtures, First Edition Aug. 1, 2005. Where insufficient data are available to use this method, equivalent validated methods may be used.

B.3 FLAMMABLE AEROSOLS

B.3.1 Definition

Aerosol means any non-refillable receptacle containing a gas compressed, liquefied or dissolved under pressure, and fitted with a release device allowing the contents to be ejected as particles in suspension in a gas, or as a foam, paste, powder, liquid or gas.

B.3.2 Classification criteria

B.3.2.1 Aerosols must be considered for classification as flammable if they contain any component which is classified as flammable in accordance with this Appendix, i.e.:

Flammable liquids (See B.6);

Flammable gases (See B.2);

Flammable solids (See B.7).

NOTE 1: Flammable components do not include pyrophoric, self-heating or water-reactive chemicals.

NOTE 2: Flammable aerosols do not fall additionally within the scope of flammable gases, flammable liquids, or flammable solids.

B.3.2.2 A flammable aerosol must be classified in one of the two categories for this class in accordance with Table B.3.1.

TABLE B.3.1—CRITERIA FOR FLAMMABLE AEROSOLS

Category	Criteria
1	Contains ≥85% flammable components and the chemical heat of combustion is ≥30 kJ/g; or (a) For spray aerosols, in the ignition distance test, ignition occurs at a distance ≥75 cm (29.5 in), or (b) For foam aerosols, in the aerosol foam flammability test (i) the flame height is ≥20 cm (7.87 in) and the flame duration ≥2 s; or (ii) the flame height is ≥4 cm (1.57 in) and the flame duration ≥7 s.
2	Contains > 1% flammable components, or the heat of combustion is ≥20 kJ/g; and (a) For spray aerosols, in the ignition distance test, ignition occurs at a distance ≥15 cm (5.9 in), or in the enclosed space ignition test, the (i) time equivalent is ((≥)) ≤300 s/m^3; or (ii) deflagration density is ((≥)) ≤300 g/m^3 (b) For foam aerosols, in the aerosol foam flammability test, the flame height is ≥4 cm and the flame duration is ≥2 s and it does not meet the criteria for Category 1

NOTE: Aerosols not submitted to the flammability classification procedures in this Appendix must be classified as extremely flammable (Category 1).

B.3.3 Additional classification considerations

B.3.3.1 To classify a flammable aerosol, data on its flammable components, on its chemical heat of combustion and, if applicable, the results of the aerosol foam flammability test (for foam aerosols) and of the ignition distance test and enclosed space test (for spray aerosols) are necessary.

B.3.3.2 The chemical heat of combustion (ΔHc), in kilojoules per gram (kJ/g), is the product of the theoretical heat of combustion (ΔHcomb), and a combustion efficiency, usually less than 1.0 (a typical combustion efficiency is 0.95 or 95%).

For a composite aerosol formulation, the chemical heat of combustion is the summation of the weighted heats of combustion for the individual components, as follows:

$$\Delta Hc\,(product) = \sum_{i}^{n} [\,wi\% \times \Delta Hc(i)]$$

where:

ΔHc = chemical heat of combustion (kJ/g);

wi% = mass fraction of component i in the product;

ΔHc(i) = specific heat of combustion (kJ/g) of component i in the product;

The chemical heats of combustion must be found in literature, calculated or determined by tests (See ASTM D240-02 (Reapproved 2007), Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter, ISO 13943:2000 (E/F), Fire Safety—Vocabulary, First Edition, April 15, 2000, Sections 86.1 to 86.3, and NFPA 30B, Code for the Manufacture and Storage of Aerosol Products, 2007 Edition).

B.3.3.3 The Ignition Distance Test, Enclosed Space Ignition Test and Aerosol Foam Flammability Test must be performed in accordance with sub-sections 31.4, 31.5 and 31.6 of the of the UN ST/SG/AC.10/Rev. 4, The UN Recommendations of the Transport of Dangerous Goods, Manual of Tests and Criteria, Fourth Revised Edition, 2003.

B.4 OXIDIZING GASES

B.4.1 Definition

Oxidizing gas means any gas which may, generally by providing oxygen, cause or contribute to the combustion of other material more than air does.

NOTE: "Gases which cause or contribute to the combustion of other material more than air does" means pure gases or gas mixtures with an oxidizing power greater than 23.5% (as determined by a method specified in ISO 10156:1996 (E), Gases and Gas Mixtures—Determination of Fire Potential and Oxidizing Ability for the Selection of Cylinder Valve Outlets, Second Edition, Feb. 15, 1996, 10156-2:2005 (E), Gas Cylinders—Gases and Gas Mixtures—Part 2:Determination of Oxidizing Ability of Toxic and Corrosive Gases and Gas Mixtures, First Edition Aug. 1, 2005 or an equivalent testing method).

B.4.2 Classification criteria

An oxidizing gas must classified in a single category for this class in accordance with Table B.4.1:

TABLE B.4.1—CRITERIA FOR OXIDIZING GASES

Category	Criteria
1	Any gas which may, generally by providing oxygen, cause or contribute to the combustion of other material more than air does.

B.4.3 Additional classification considerations

Classification must be in accordance with tests or calculation methods as described in ISO 10156:1996 (E), Gases and Gas Mixtures—Determination of Fire Potential and Oxidizing Ability for the Selection of Cylinder Valve Outlets, Second Edition, Feb. 15, 1996 and ISO 10156-2:2005 (E), Gas Cylinders—Gases and Gas Mixtures—Part 2: Determination of Oxidizing Ability of Toxic and Corrosive Gases and Gas Mixtures, First Edition Aug. 1, 2005.

B.5 GASES UNDER PRESSURE

B.5.1 Definition

Gases under pressure are gases which are contained in a receptacle at a pressure of 200 kPa (29 psi) (gauge) or more, or which are liquefied or liquefied and refrigerated.

They comprise compressed gases, liquefied gases, dissolved gases and refrigerated liquefied gases.

B.5.2 Classification criteria

Gases under pressure must be classified in one of four groups in accordance with Table B.5.1:

TABLE B.5.1—CRITERIA FOR GASES UNDER PRESSURE

Group	Criteria
Compressed gas	A gas which when under pressure is entirely gaseous at -50°C (-58°F), including all gases with a critical temperature[1] ≤ 50°C (-58°F).
Liquefied gas	A gas which when under pressure is partially liquid at temperatures above -50°C (-58°F). A distinction is made between: (a) High pressure liquefied gas: a gas with a critical temperature[1] between -50°C (-58°F) and +65°C (149°F); and (b) Low pressure liquefied gas: a gas with a critical temperature[1] above +65°C (149°F).
Refrigerated liquefied gas	A gas which is made partially liquid because of its low temperature.
Dissolved gas	A gas which when under pressure is dissolved in a liquid phase solvent.

[1] *The critical temperature is the temperature above which a pure gas cannot be liquefied, regardless of the degree of compression.*

B.6 FLAMMABLE LIQUIDS

B.6.1 Definition

Flammable liquid means a liquid having a flash point of not more than 93°C (199.4°F).

Flash point means the minimum temperature at which a liquid gives off vapor in sufficient concentration to form an ignitable mixture with air near the surface of the liquid, as determined by a method identified in Section B.6.3.

B.6.2 Classification criteria

A flammable liquid must be classified in one of four categories in accordance with Table B.6.1:

TABLE B.6.1—CRITERIA FOR FLAMMABLE LIQUIDS

Category	Criteria
1	Flash point < 23°C (73.4°F) and initial boiling point ≤ 35°C (95°F)
2	Flash point < 23°C (73.4°F) and initial boiling point > 35°C (95°F)
3	Flash point ≥ 23°C (73.4°F) and ≤ 60°C (140°F)
4	Flash point > 60°C (140°F) and ≤ 93°C (199.4°F)

B.6.3 Additional classification considerations

The flash point must be determined in accordance with ASTM D56-05, Standard Test Method for Flash Point by Tag Closed Cup Tester, ASTM D3278-96 (Reapproved 2004) E1, Standard Test Methods for Flash Point of Liquids by Small Scale Closed-Cup Apparatus, ASTM D3828-07a, Standard Test Methods for Flash Point by Small Scale Closed Cup Tester, Approved, ASTM D93-08, Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester, or any other method specified in GHS Revision 3, Chapter 2.6.

The initial boiling point must be determined in accordance with ASTM D86-07a, Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure or ASTM D1078-05, Standard Test Method for Distillation Range of Volatile Organic Liquids.

B.7 FLAMMABLE SOLIDS

B.7.1 Definitions

Flammable solid means a solid which is a readily combustible solid, or which may cause or contribute to fire through friction.

Readily combustible solids are powdered, granular, or pasty chemicals which are dangerous if they can be easily ignited by brief contact with an ignition source, such as a burning match, and if the flame spreads rapidly.

B.7.2 Classification criteria

B.7.2.1 Powdered, granular or pasty chemicals must be classified as flammable solids when the time of burning of one or more of the test runs, performed in accordance with the test method described in the UN ST/SG/AC.10/Rev. 4, The UN Recommendations of the Transport of Dangerous Goods, Manual of Tests and Criteria, Fourth Revised Edition, 2003, Part III, sub-section 33.2.1, is less than 45 s or the rate of burning is more than 2.2 mm/s (0.0866 in/s).

B.7.2.2 Powders of metals or metal alloys must be classified as flammable solids when they can be ignited and the reaction spreads over the whole length of the sample in 10 min or less.

B.7.2.3 Solids which may cause fire through friction must be classified in this class by analogy with existing entries (e.g., matches) until definitive criteria are established.

B.7.2.4 A flammable solid must be classified in one of the two categories for this class using Method N.1 as described in Part III, sub-section 33.2.1 of the UN ST/SG/AC.10/Rev. 4, The UN Recommendations of the Transport of Dangerous Goods, Manual of Tests and Criteria, Fourth Revised Edition, 2003, in accordance with Table B.7.1:

TABLE B.7.1—CRITERIA FOR FLAMMABLE SOLIDS

Category	Criteria
1	Burning rate test: Chemicals other than metal powders: (a) wetted zone does not stop fire; and ((~~>~~)) (b) burning time <45 s or burning rate >2.2 mm/s Metal powders: burning time ≤5 min
2	Burning rate test: Chemicals other than metal powders: (a) wetted zone stops the fire for at least 4 min; and > (b) burning time <45 s or burning rate >2.2 mm/s Metal powders: burning time >5 min and ≤10 min

NOTE: *Classification of solid chemicals must be based on tests performed on the chemical as presented. If, for example, for the purposes of supply or transport, the same chemical is to be presented in a physical form different from that which was tested and which is considered likely to materially alter its performance in a classification test, classification must be based on testing of the chemical in the new form.*

B.8 SELF-REACTIVE CHEMICALS

B.8.1 Definitions

Self-reactive chemicals are thermally unstable liquid or solid chemicals liable to undergo a strongly exothermic decomposition even without participation of oxygen (air). This definition excludes chemicals classified under this section as explosives, organic peroxides, oxidizing liquids or oxidizing solids.

A self-reactive chemical is regarded as possessing explosive properties when in laboratory testing the formulation is liable to detonate, to deflagrate rapidly or to show a violent effect when heated under confinement.

B.8.2 Classification criteria

B.8.2.1 A self-reactive chemical must be considered for classification in this class unless:

(a) It is classified as an explosive according to B.1 of this appendix;

(b) It is classified as an oxidizing liquid or an oxidizing solid according to B.13 or B.14 of this appendix, except that a mixture of oxidizing substances which contains 5% or more of combustible organic substances must be classified as a self-reactive chemical according to the procedure defined in B.8.2.2;

(c) It is classified as an organic peroxide according to B.15 of this appendix;

(d) Its heat of decomposition is less than 300 J/g; or

(e) Its self-accelerating decomposition temperature (SADT) is greater than 75°C (167°F) for a 50 kg (110 lb) package.

B.8.2.2 Mixtures of oxidizing substances, meeting the criteria for classification as oxidizing liquids or oxidizing solids, which contain 5% or more of combustible organic substances and which do not meet the criteria mentioned in B.8.2.1 (a), (c), (d) or (e), must be subjected to the self-reactive chemicals classification procedure in B.8.2.3. Such a mixture showing the properties of a self-reactive chemical type B to F must be classified as a self-reactive chemical.

B.8.2.3 Self-reactive chemicals must be classified in one of the seven categories of "types A to G" for this class, according to the following principles:

(a) Any self-reactive chemical which can detonate or deflagrate rapidly, as packaged, will be defined as self-reactive chemical TYPE A;

(b) Any self-reactive chemical possessing explosive properties and which, as packaged, neither detonates nor deflagrates rapidly, but is liable to undergo a thermal explosion in that package will be defined as self-reactive chemical TYPE B;

(c) Any self-reactive chemical possessing explosive properties when the chemical as packaged cannot detonate or deflagrate rapidly or undergo a thermal explosion will be defined as self-reactive chemical TYPE C;

(d) Any self-reactive chemical which in laboratory testing meets the criteria in (d)(i), (ii), or (iii) will be defined as self-reactive chemical TYPE D:

(i) Detonates partially, does not deflagrate rapidly and shows no violent effect when heated under confinement; or

(ii) Does not detonate at all, deflagrates slowly and shows no violent effect when heated under confinement; or

(iii) Does not detonate or deflagrate at all and shows a medium effect when heated under confinement;

(e) Any self-reactive chemical which, in laboratory testing, neither detonates nor deflagrates at all and shows low or no effect when heated under confinement will be defined as self-reactive chemical TYPE E;

(f) Any self-reactive chemical which, in laboratory testing, neither detonates in the cavitated state nor deflagrates at all and shows only a low or no effect when heated under confinement as well as low or no explosive power will be defined as self-reactive chemical TYPE F;

(g) Any self-reactive chemical which, in laboratory testing, neither detonates in the cavitated state nor deflagrates at all and shows no effect when heated under confinement nor any explosive power, provided that it is thermally stable (self-accelerating decomposition temperature is 60°C (140°F) to 75°C (167°F) for a 50 kg (110 lb) package), and, for liquid mixtures, a diluent having a boiling point greater than or equal to 150°C (302°F) is used for desensitization will be defined as self-reactive chemical TYPE G. If the mixture is not thermally stable or a diluent having a boiling point less than 150°C (302°F) is used for desensitization, the mixture must be defined as self-reactive chemical TYPE F.

B.8.3 Additional classification considerations

B.8.3.1 For purposes of classification, the properties of self-reactive chemicals must be determined in accordance with test series A to H as described in Part II of the UN ST/SG/AC.10/Rev. 4, The UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Fourth Revised Edition, 2003.

B.8.3.2 Self-accelerating decomposition temperature (SADT) must be determined in accordance with the UN ST/SG/AC.10/Rev. 4, The UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Fourth Revised Edition, 2003.

B.8.3.3 The classification procedures for self-reactive substances and mixtures need not be applied if:

(a) There are no chemical groups present in the molecule associated with explosive or self-reactive properties; examples of such groups are given in Tables A6.1 and A6.2 in the Appendix 6 of the UN ST/SG/AC.10/Rev. 4, The UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Fourth Revised Edition, 2003; or

(b) For a single organic substance or a homogeneous mixture of organic substances, the estimated SADT is greater than 75°C (167°F) or the exothermic decomposition energy is less than 300 J/g. The onset temperature and decomposition energy may be estimated using a suitable calorimetric technique (See 20.3.3.3 in Part II of the UN ST/SG/AC.10/Rev. 4, the UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Fourth Revised Edition, 2003).

B.9 PYROPHORIC LIQUIDS

B.9.1 Definition

Pyrophoric liquid means a liquid which, even in small quantities, is liable to ignite within five minutes after coming into contact with air.

B.9.2 Classification criteria

A pyrophoric liquid must be classified in a single category for this class using test N.3 in Part III, sub-section 33.3.1.5 of the UN ST/SG/AC.10/Rev. 4, The UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Fourth Revised Edition, 2003, in accordance with Table B.9.1:

TABLE B.9.1—CRITERIA FOR PYROPHORIC LIQUIDS

Category	Criteria
1	The liquid ignites within 5 min when added to an inert carrier and exposed to air, or it ignites or chars a filter paper on contact with air within 5 min.

B.9.3 Additional classification considerations

The classification procedure for pyrophoric liquids need not be applied when experience in production or handling shows that the chemical does not ignite spontaneously on coming into contact with air at normal temperatures (i.e., the substance is known to be stable at room temperature for prolonged periods of time (days)).

B.10 PYROPHORIC SOLIDS

B.10.1 Definition

Pyrophoric solid means a solid which, even in small quantities, is liable to ignite within five minutes after coming into contact with air.

B.10.2 Classification criteria

A pyrophoric solid must be classified in a single category for this class using test N.2 in Part III, sub-section 33.3.1.4 of the UN ST/SG/AC.10/Rev. 4, The UN Recommendations of the Transport of Dangerous Goods, Manual of Tests and Criteria, Fourth Revised Edition, 2003, in accordance with Table B.10.1:

TABLE B.10.1—CRITERIA FOR PYROPHORIC SOLIDS

Category	Criteria
1	The solid ignites within 5 min of coming into contact with air.

NOTE: Classification of solid chemicals must be based on tests performed on the chemical as presented. If, for example, for the purposes of supply or transport, the same chemical is to be presented in a physical form different from that which was tested and which is considered likely to materially alter its performance in a classification test, classification must be based on testing of the chemical in the new form.

B.10.3 Additional classification considerations

The classification procedure for pyrophoric solids need not be applied when experience in production or handling shows that the chemical does not ignite spontaneously on coming into contact with air at normal temperatures (i.e., the chemical is known to be stable at room temperature for prolonged periods of time (days)).

B.11 SELF-HEATING CHEMICALS

B.11.1 Definition

A *self-heating chemical* is a solid or liquid chemical, other than a pyrophoric liquid or solid, which, by reaction with air and without energy supply, is liable to self-heat; this chemical differs from a pyrophoric liquid or solid in that it will ignite only when in large amounts (kilograms) and after long periods of time (hours or days).

NOTE: Self-heating of a substance or mixture is a process where the gradual reaction of that substance or mixture with oxygen (in air) generates heat. If the rate of heat production exceeds the rate of heat loss, then the temperature of the substance or mixture will rise which, after an induction time, may lead to self-ignition and combustion.

B.11.2 Classification criteria

B.11.2.1 A self-heating chemical must be classified in one of the two categories for this class if, in tests performed in accordance with test method N.4 in Part III, sub-section 33.3.1.6 of the UN ST/SG/AC.10/Rev. 4, The UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Fourth Revised Edition, 2003, the result meets the criteria shown in Table B.11.1.

TABLE B.11.1—CRITERIA FOR SELF-HEATING CHEMICALS

Category	Criteria
1	A positive result is obtained in a test using a 25 mm sample cube at 140°C (284°F)
2	A negative result is obtained in a test using a 25 mm cube sample at 140°C (284°F), a positive result is obtained in a test using a 100 mm sample cube at 140°C (284°F), and: (a) The unit volume of the chemical is more than 3 m^3; or (b) A positive result is obtained in a test using a 100 mm cube sample at 120°C (248°F) and the unit volume of the chemical is more than 450 liters; or (c) A positive result is obtained in a test using a 100 mm cube sample at 100°C (212°F).

B.11.2.2 Chemicals with a temperature of spontaneous combustion higher than 50°C (122°F) for a volume of 27 m^3 must not be classified as self-heating chemicals.

B.11.2.3 Chemicals with a spontaneous ignition temperature higher than 50°C (122°F) for a volume of 450 liters must not be classified in Category 1 of this class.

B.11.3 Additional classification considerations

B.11.3.1 The classification procedure for self-heating chemicals need not be applied if the results of a screening test can be adequately correlated with the classification test and an appropriate safety margin is applied.

B.11.3.2 Examples of screening tests are:

(a) The Grewer Oven test (VDI guideline 2263, part 1, 1990, Test methods for the Determination of the Safety Characteristics of Dusts) with an onset temperature 80°K above the reference temperature for a volume of 1 *l*;

(b) The Bulk Powder Screening Test (Gibson, N. Harper, D. J. Rogers, R. Evaluation of the fire and explosion risks in drying powders, Plant Operations Progress, 4 (3), 181-189, 1985) with an onset temperature 60°K above the reference temperature for a volume of 1 *l*.

B.12 CHEMICALS WHICH, IN CONTACT WITH WATER, EMIT FLAMMABLE GASES

B.12.1 Definition

Chemicals which, in contact with water, emit flammable gases are solid or liquid chemicals which, by interaction with water, are liable to become spontaneously flammable or to give off flammable gases in dangerous quantities.

B.12.2 Classification criteria

B.12.2.1 A chemical which, in contact with water, emits flammable gases must be classified in one of the three categories for this class, using test N.5 in Part III, sub-section 33.4.1.4 of the UN ST/SG/AC.10/Rev. 4, The UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Fourth Revised Edition, 2003, in accordance with Table B.12.1:

TABLE B.12.1—CRITERIA FOR CHEMICALS WHICH, IN CONTACT WITH WATER, EMIT FLAMMABLE GASES

Category	Criteria
1	Any chemical which reacts vigorously with water at ambient temperatures and demonstrates generally a tendency for the gas produced to ignite spontaneously, or which reacts readily with water at ambient temperatures such that the rate of evolution of flammable gas is equal to or greater than 10 liters per kilogram of chemical over any one minute.
2	Any chemical which reacts readily with water at ambient temperatures such that the maximum rate of evolution of flammable gas is equal to or greater than 20 liters per kilogram of chemical per hour, and which does not meet the criteria for Category 1.
3	Any chemical which reacts slowly with water at ambient temperatures such that the maximum rate of evolution of flammable gas is equal to or greater than 1 liter per kilogram of chemical per hour, and which does not meet the criteria for Categories 1 and 2.

NOTE: Classification of solid chemicals must be based on tests performed on the chemical as presented. If, for example, for the purposes of supply or transport, the same chemical is to be presented in a physical form different from that which was tested and which is considered likely to materially alter its performance in a classification test, classification must be based on testing of the chemical in the new form.

B.12.2.2 A chemical is classified as a chemical which, in contact with water, emits flammable gases if spontaneous ignition takes place in any step of the test procedure.

B.12.3 Additional classification considerations

The classification procedure for this class need not be applied if:

(a) The chemical structure of the chemical does not contain metals or metalloids;

(b) Experience in production or handling shows that the chemical does not react with water, (e.g., the chemical is manufactured with water or washed with water); or

(c) The chemical is known to be soluble in water to form a stable mixture.

B.13 OXIDIZING LIQUIDS

B.13.1 Definition

Oxidizing liquid means a liquid which, while in itself not necessarily combustible, may, generally by yielding oxygen, cause, or contribute to, the combustion of other material.

B.13.2 Classification criteria

An oxidizing liquid must be classified in one of the three categories for this class using test O.2 in Part III, sub-section 34.4.2 of the UN ST/SG/AC.10/Rev. 4, The UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Fourth Revised Edition, 2003, in accordance with Table B.13.1:

TABLE B.13.1—CRITERIA FOR OXIDIZING LIQUIDS

Category	Criteria
1	Any chemical which, in the 1:1 mixture, by mass, of chemical and cellulose tested, spontaneously ignites; or the mean pressure rise time of a 1:1 mixture, by mass, of chemical and cellulose is less than that of a 1:1 mixture, by mass, of 50% perchloric acid and cellulose;
2	Any chemical which, in the 1:1 mixture, by mass, of chemical and cellulose tested, exhibits a mean pressure rise time less than or equal to the mean pressure rise time of a 1:1 mixture, by mass, of 40% aqueous sodium chlorate solution and cellulose; and the criteria for Category 1 are not met;
3	Any chemical which, in the 1:1 mixture, by mass, of chemical and cellulose tested, exhibits a mean pressure rise time less than or equal to the mean pressure rise time of a 1:1 mixture, by mass, of 65% aqueous nitric acid and cellulose; and the criteria for Categories 1 and 2 are not met.

B.13.3 Additional classification considerations

B.13.3.1 For organic chemicals, the classification procedure for this class must not be applied if:

(a) The chemical does not contain oxygen, fluorine or chlorine; or

(b) The chemical contains oxygen, fluorine or chlorine and these elements are chemically bonded only to carbon or hydrogen.

B.13.3.2 For inorganic chemicals, the classification procedure for this class must not be applied if the chemical does not contain oxygen or halogen atoms.

B.13.3.3 In the event of divergence between test results and known experience in the handling and use of chemicals which shows them to be oxidizing, judgments based on known experience must take precedence over test results.

B.13.3.4 In cases where chemicals generate a pressure rise (too high or too low), caused by chemical reactions not characterizing the oxidizing properties of the chemical, the test described in Part III, sub-section 34.4.2 of the UN ST/SG/AC.10/Rev. 4, The UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Fourth Revised Edition, 2003, must be repeated with an inert substance (e.g., diatomite (kieselguhr in place of the cellulose) in order to clarify the nature of the reaction).

B.14 OXIDIZING SOLIDS

B.14.1 Definition

Oxidizing solid means a solid which, while in itself is not necessarily combustible, may, generally by yielding oxygen, cause, or contribute to, the combustion of other material.

B.14.2 Classification criteria

An oxidizing solid must be classified in one of the three categories for this class using test O.1 in Part III, sub-section 34.4.1 of the UN ST/SG/AC.10/Rev. 4, The UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Fourth Revised Edition, 2003, in accordance with Table B.14.1:

TABLE B.14.1—CRITERIA FOR OXIDIZING SOLIDS

Category	Criteria
1	Any chemical which, in the 4:1 or 1:1 sample-to-cellulose ratio (by mass) tested, exhibits a mean burning time less than the mean burning time of a 3:2 mixture, by mass, of potassium bromate and cellulose.
2	Any chemical which, in the 4:1 or 1:1 sample-to-cellulose ratio (by mass) tested, exhibits a mean burning time equal to or less than the mean burning time of a 2:3 mixture (by mass) of potassium bromate and cellulose and the criteria for Category 1 are not met.
3	Any chemical which, in the 4:1 or 1:1 sample-to-cellulose ratio (by mass) tested, exhibits a mean burning time equal to or less than the mean burning time of a 3:7 mixture (by mass) of potassium bromate and cellulose and the criteria for Categories 1 and 2 are not met.

NOTE 1: Some oxidizing solids may present explosion hazards under certain conditions (e.g., when stored in large quantities). For example, some types of ammonium nitrate may give rise to an explosion hazard under extreme conditions and the "Resistance to detonation test" (IMO: Code of Safe Practice for Solid Bulk Cargoes, 2005, Annex 3, Test 5) may be used to assess this hazard. When information indicates that an oxidizing solid may present an explosion hazard, it must be indicated on the Safety Data Sheet.

NOTE 2: Classification of solid chemicals must be based on tests performed on the chemical as presented. If, for example, for the purposes of supply or transport, the same chemical is to be presented in a physical form different from that which was tested and which is considered likely to materially alter its performance in a classification test, classification must be based on testing of the chemical in the new form.

B.14.3 Additional classification considerations

B.14.3.1 For organic chemicals, the classification procedure for this class must not be applied if:

(a) The chemical does not contain oxygen, fluorine or chlorine; or

(b) The chemical contains oxygen, fluorine or chlorine and these elements are chemically bonded only to carbon or hydrogen.

B.14.3.2 For inorganic chemicals, the classification procedure for this class must not be applied if the chemical does not contain oxygen or halogen atoms.

B.14.3.3 In the event of divergence between test results and known experience in the handling and use of chemicals which shows them to be oxidizing, judgements based on known experience must take precedence over test results.

B.15 ORGANIC PEROXIDES

B.15.1 Definition

B.15.1.1 *Organic peroxide* means a liquid or solid organic chemical which contains the bivalent -0-0- structure and as such is considered a derivative of hydrogen peroxide, where one or both of the hydrogen atoms have been replaced by organic radicals. The term organic peroxide includes organic peroxide mixtures containing at least one organic peroxide. Organic peroxides are thermally unstable chemicals, which may undergo exothermic self-accelerating decomposition. In addition, they may have one or more of the following properties:

(a) Be liable to explosive decomposition;

(b) Burn rapidly;

(c) Be sensitive to impact or friction;

(d) React dangerously with other substances.

B.15.1.2 An organic peroxide is regarded as possessing explosive properties when in laboratory testing the formulation is liable to detonate, to deflagrate rapidly or to show a violent effect when heated under confinement.

B.15.2 Classification criteria

B.15.2.1 Any organic peroxide must be considered for classification in this class, unless it contains:

(a) Not more than 1.0% available oxygen from the organic peroxides when containing not more than 1.0% hydrogen peroxide; or

(b) Not more than 0.5% available oxygen from the organic peroxides when containing more than 1.0% but not more than 7.0% hydrogen peroxide.

NOTE: The available oxygen content (%) of an organic peroxide mixture is given by the formula:

$$16 \times \sum_{i}^{n} \left(\frac{n_i \times c_i}{m_i} \right)$$

Where:

n_i = number of peroxygen groups per molecule of organic peroxide i;

c_i = concentration (mass %) of organic peroxide i;

m_i = molecular mass of organic peroxide i.

B.15.2.2 Organic peroxides must be classified in one of the seven categories of "Types A to G" for this class, according to the following principles:

(a) Any organic peroxide which, as packaged, can detonate or deflagrate rapidly must be defined as organic peroxide TYPE A;

(b) Any organic peroxide possessing explosive properties and which, as packaged, neither detonates nor deflagrates rapidly, but is liable to undergo a thermal explosion in that package must be defined as organic peroxide TYPE B;

(c) Any organic peroxide possessing explosive properties when the chemical as packaged cannot detonate or deflagrate rapidly or undergo a thermal explosion must be defined as organic peroxide TYPE C;

(d) Any organic peroxide which in laboratory testing meets the criteria in (d)(i), (ii), or (iii) must be defined as organic peroxide TYPE D:

(i) detonates partially, does not deflagrate rapidly and shows no violent effect when heated under confinement; or

(ii) does not detonate at all, deflagrates slowly and shows no violent effect when heated under confinement; or

(iii) does not detonate or deflagrate at all and shows a medium effect when heated under confinement;

(e) Any organic peroxide which, in laboratory testing, neither detonates nor deflagrates at all and shows low or no effect when heated under confinement must be defined as organic peroxide TYPE E;

(f) Any organic peroxide which, in laboratory testing, neither detonates in the cavitated state nor deflagrates at all and shows only a low or no effect when heated under confinement as well as low or no explosive power must be defined as organic peroxide TYPE F;

(g) Any organic peroxide which, in laboratory testing, neither detonates in the cavitated state nor deflagrates at all and shows no effect when heated under confinement nor any explosive power, provided that it is thermally stable (self-accelerating decomposition temperature is 60°C (140°F) or higher for a 50 kg (110 lb) package), and, for liquid mixtures, a diluent having a boiling point of not less than 150°C (302°F) is used for desensitization, must be defined as organic peroxide TYPE G. If the organic peroxide is not thermally stable or a diluent having a boiling point less than 150°C (302°F) is used for desensitization, it must be defined as organic peroxide TYPE F.

B.15.3 Additional classification considerations

B.15.3.1 For purposes of classification, the properties of organic peroxides must be determined in accordance with test series A to H as described in Part II of the UN ST/SG/AC.10/Rev. 4, The UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Fourth Revised Edition, 2003.

B.15.3.2 Self-accelerating decomposition temperature (SADT) must be determined in accordance with the UN ST/SG/AC.10/Rev. 4, The UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Fourth Revised Edition, 2003, Part II, section 28.

B.15.3.3 Mixtures of organic peroxides may be classified as the same type of organic peroxide as that of the most dangerous ingredient. However, as two stable ingredients can form a thermally less stable mixture, the SADT of the mixture must be determined.

B.16 CORROSIVE TO METALS

B.16.1 Definition

A *chemical which is corrosive to metals* means a chemical which by chemical action will materially damage, or even destroy, metals.

B.16.2 Classification criteria

A chemical which is corrosive to metals must be classified in a single category for this class, using the test in Part III, sub-section 37.4 of the UN ST/SG/AC.10/Rev. 4, The UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Fourth Revised Edition, 2003, in accordance with Table B.16.1:

TABLE B.16.1—CRITERIA FOR CHEMICALS CORROSIVE TO METAL

Category	Criteria
1	Corrosion rate on either steel or aluminium surfaces exceeding 6.25 mm per year at a test temperature of 55°C (131°F) when tested on both materials.

NOTE: Where an initial test on either steel or aluminium indicates the chemical being tested is corrosive the follow-up test on the other metal is not necessary.

B.16.3 Additional classification considerations

The specimen to be used for the test must be made of the following materials:

(a) For the purposes of testing steel, steel types S235JR+CR (1.0037 resp.St 37-2), S275J2G3+CR (1.0144 resp.St 44-3), ISO 3574, Unified Numbering System (UNS) G 10200, or SAE 1020;

(b) For the purposes of testing aluminium: non-clad types 7075-T6 or AZ5GU-T6.

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

AMENDATORY SECTION (Amending WSR 13-06-050, filed 3/5/13, effective 4/15/13)

WAC 296-901-14026 Appendix C—Allocation of label elements.

C.1 The label for each hazardous chemical must include the product identifier used on the safety data sheet.

C.1.1 The labels on shipped containers must also include the name, address, and telephone number of the chemical manufacturer, importer, or responsible party.

C.2 The label for each hazardous chemical that is classified must include the signal word, hazard statement(s), pictogram(s), and precautionary statement(s) specified in C.4 for each hazard class and associated hazard category, except as provided for in C.2.1 through C.2.4.

C.2.1 Precedence of hazard information

C.2.1.1 If the signal word "Danger" is included, the signal word "Warning" must not appear.

C.2.1.2 If the skull and crossbones pictogram is included, the exclamation mark pictogram must not appear where it is used for acute toxicity.

C.2.1.3 If the corrosive pictogram is included, the exclamation mark pictogram must not appear where it is used for skin or eye irritation.

C.2.1.4 If the health hazard pictogram is included for respiratory sensitization, the exclamation mark pictogram must not appear where it is used for skin sensitization or for skin or eye irritation.

C.2.2 Hazard statement text

C.2.2.1 The text of all applicable hazard statements must appear on the label, except as otherwise specified. The information in italics must be included as part of the hazard statement as provided. For example: "causes damage to organs (state all organs affected) through prolonged or repeated exposure (state route of exposure if no other routes of exposure cause the hazard)". Hazard statements may be combined where appropriate to reduce the information on the label and improve readability, as long as all of the hazards are conveyed as required.

C.2.2.2 If the chemical manufacturer, importer, or responsible party can demonstrate that all or part of the hazard statement is inappropriate to a specific substance or mixture, the corresponding statement may be omitted from the label.

C.2.3 Pictograms

C.2.3.1 Pictograms must be in the shape of a square set at a point and must include a black hazard symbol on a white background with a red frame sufficiently wide to be clearly visible. A square red frame set at a point without a hazard symbol is not a pictogram and is not permitted on the label.

C.2.3.2 One of eight standard hazard symbols must be used in each pictogram. The eight hazard symbols are depicted in Figure C.1. A pictogram using the exclamation mark symbol is presented in Figure C.2, for the purpose of illustration.

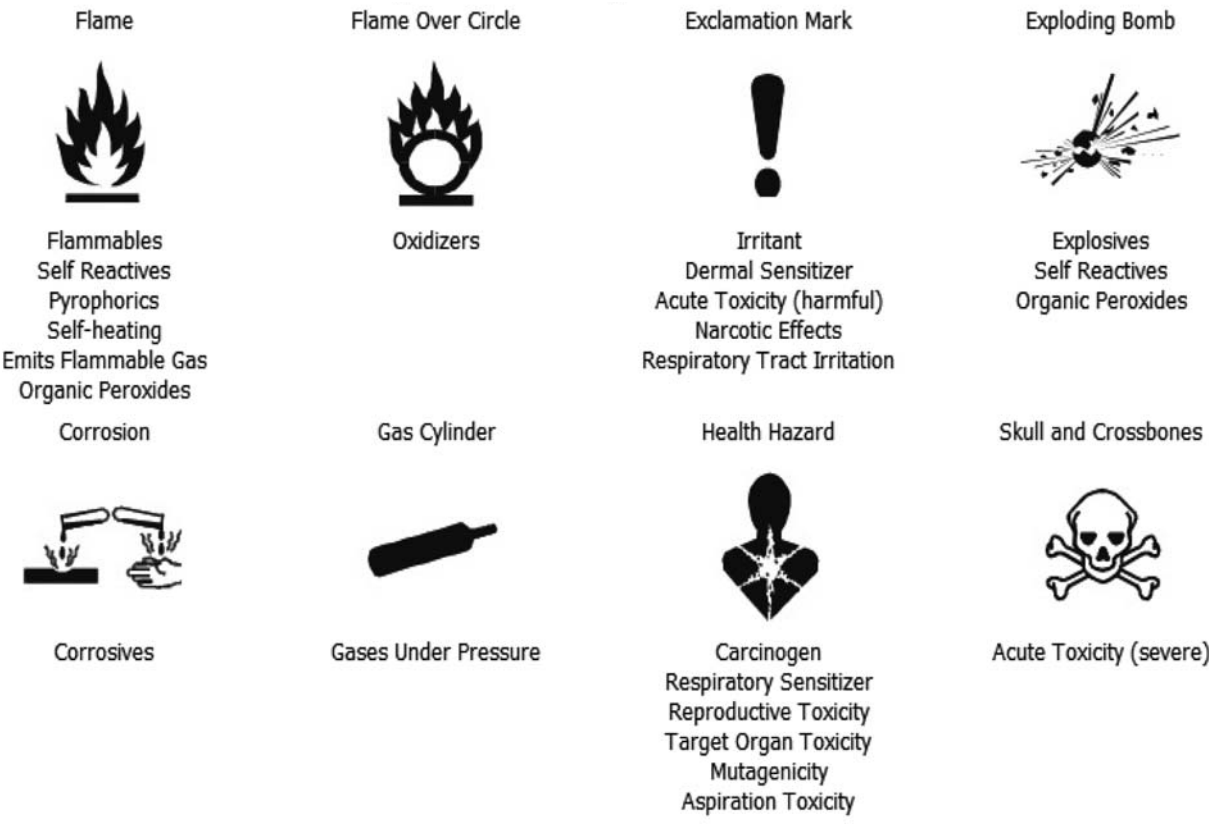


Figure C.2 – Exclamation Mark Pictogram

C.2.3.3 Where a pictogram required by the Department of Transportation under Title 49 of the Code of Federal Regulations appears on a shipped container, the pictogram specified in C.4 for the same hazard must not appear.

C.2.4 Precautionary statement text

C.2.4.1 There are four types of precautionary statements presented, "prevention," "response," "storage," and "disposal." The core part of the precautionary statement is presented in bold print. This is the text, except as otherwise specified, that must appear on the label. Where additional information is required, it is indicated in plain text.

C.2.4.2 When a backslash or diagonal mark (/) appears in the precautionary statement text, it indicates that a choice has to be made between the separated phrases. In such cases, the chemical manufacturer, importer, or responsible party can choose the most appropriate phrase(s). For example, "Wear protective gloves/protective clothing/eye protection/face protection" could read "wear eye protection".

C.2.4.3 When three full stops (…) appear in the precautionary statement text, they indicate that all applicable conditions are not listed. For example, in "Use explosion-proof electrical/ventilating/lighting/…/equipment", the use of "…" indicates that other equipment may need to be specified. In such cases, the chemical manufacturer, importer, or responsible party can choose the other conditions to be specified.

C.2.4.4 When text in italics is used in a precautionary statement, this indicates specific conditions applying to the use or allocation of the precautionary statement. For example, "Use explosion-proof electrical/ventilating/lighting/…/equipment" is only required for flammable solids "if dust clouds can occur". Text in italics is intended to be an explanatory, conditional note and is not intended to appear on the label.

C.2.4.5 Where square brackets ([ ]) appear around text in a precautionary statement, this indicates that the text in square brackets is not appropriate in every case and must be used only in certain circumstances. In these cases, conditions for use explaining when the text must be used are provided. For example, one precautionary statement states: "[In case of inadequate ventilation] wear respiratory protection." This statement is given with the condition for use "- text in square brackets may be used if additional information is provided with the chemical at the point of use that explains what type of ventilation would be adequate for safe use". This means that, if additional information is provided with the chemical explaining what type of ventilation would be adequate for safe use, the text in square brackets must be used and the statement would read: "In case of inadequate ventilation wear respiratory protection." However, if the chemical is supplied without such ventilation information, the text in square brackets must not be used, and the precautionary statement must read: "Wear respiratory protection."

C.2.4.6 Precautionary statements may be combined or consolidated to save label space and improve readability. For example, "Keep away from heat, sparks and open flame," "Store in a well-ventilated place" and "Keep cool" can be combined to read "Keep away from heat, sparks and open flame and store in a cool, well-ventilated place."

C.2.4.7 In most cases, the precautionary statements are independent (e.g., the phrases for explosive hazards do not modify those related to certain health hazards, and products that are classified for both hazard classes must bear appropriate precautionary statements for both). Where a chemical is classified for a number of hazards, and the precautionary statements are similar, the most stringent must be included on the label (this will be applicable mainly to preventive measures). An order of precedence may be imposed by the chemical manufacturer, importer or responsible party in situations where phrases concern "Response." Rapid action may be crucial. For example, if a chemical is carcinogenic and acutely toxic, rapid action may be crucial, and first aid measures for acute toxicity will take precedence over those for long-term effects. In addition, medical attention to delayed health effects may be required in cases of incidental exposure, even if not associated with immediate symptoms of intoxication.

C.2.4.8 If the chemical manufacturer, importer, or responsible party can demonstrate that a precautionary statement is inappropriate to a specific substance or mixture, the precautionary statement may be omitted from the label.

C.3 Supplementary hazard information

C.3.1 To ensure that non-standardized information does not lead to unnecessarily wide variation or undermine the required information, supplementary information on the label is limited to when it provides further detail and does not contradict or cast doubt on the validity of the standardized hazard information.

C.3.2 Where the chemical manufacturer, importer, or distributor chooses to add supplementary information on the label, the placement of supplemental information must not impede identification of information required by this section.

C.3.3 Where an ingredient with unknown acute toxicity is used in a mixture at a concentration ≥ 1%, and the mixture is not classified based on testing of the mixture as a whole, a statement that X% of the mixture consists of ingredient(s) of unknown acute toxicity is required on the label.

C.4 REQUIREMENTS FOR SIGNAL WORDS, HAZARD STATEMENTS, PICTOGRAMS, AND PRECAUTIONARY STATEMENTS

C.4.1 ACUTE TOXICITY – ORAL
(Classified in Accordance with WAC 296-901-14022(A.1))

Pictogram
Skull and crossbones

Hazard category	Signal word	Hazard statement
1	Danger	Fatal if swallowed
2	Danger	Fatal if swallowed

Precautionary statements

Prevention	Response	Storage	Disposal
Wash ...thoroughly after handling. ... Chemical manufacturer, importer, or distributor to specify parts of the body to be washed after handling. **Do not eat, drink or smoke when using this product.**	**If swallowed: Immediately call a poison center/doctor/...** ... Chemical manufacturer, importer, or distributor to specify the appropriate source of emergency medical advice. **Specific treatment (see ... on this label)** ... Reference to supplemental first aid instruction. *- if immediate administration of antidote is required.* **Rinse mouth.**	**Store locked up.**	**Dispose of contents/container to...** ... in accordance with local/regional/national/international regulations (to be specified).

C.4.1 ACUTE TOXICITY – ORAL (CONTINUED)
(Classified in Accordance with Appendix A.1)

Hazard category	Signal word	Hazard statement	Pictogram
3	Danger	Toxic if swallowed	Skull and crossbones 

Precautionary statements

Prevention	Response	Storage	Disposal
Wash ... thoroughly after handling. ... Chemical manufacturer, importer, or distributor to specify parts of the body to be washed after handling. **Do not eat, drink or smoke when using this product.**	**If swallowed: Immediately call a poison center/doctor/...** ... Chemical manufacturer, importer, or distributor to specify the appropriate source of emergency medical advice. **Specific treatment (see ... on this label)** ... Reference to supplemental first aid instruction. *- if immediate administration of antidote is required.* **Rinse mouth.**	**Store locked up.**	**Dispose of contents/container to...** ... in accordance with local/regional/national/international regulations (to be specified).

C.4.1 ACUTE TOXICITY – ORAL (CONTINUED)
(Classified in Accordance with WAC 296-901-14022(A.1))

Hazard category	Signal word	Hazard statement	Pictogram
4	Warning	Harmful if swallowed	Exclamation mark 

Precautionary statements

Prevention	Response	Storage	Disposal
Wash ... thoroughly after handling. ... Chemical manufacturer, importer, or distributor to specify parts of the body to be washed after handling. **Do not eat, drink or smoke when using this product.**	**If swallowed: Call a poison center/doctor/.../ if you feel unwell.** ... Chemical manufacturer, importer, or distributor to specify the appropriate source of emergency medical advice. **Rinse mouth.**		**Dispose of contents/container to...** ... in accordance with local/regional/national/international regulations (to be specified).

C.4.2 ACUTE TOXICITY - DERMAL
(Classified in Accordance with WAC 296-901-14022(A.1))

Hazard category	Signal word	Hazard statement	Pictogram
1	Danger	Fatal in contact with skin	Skull and crossbones
2	Danger	Fatal in contact with skin	

Precautionary statements

Prevention	Response	Storage	Disposal
Do not get in eyes, on skin, or on clothing. **Wash ... thoroughly after handling.** ... Chemical manufacturer, importer, or distributor to specify parts of the body to be washed after handling. **Do not eat, drink or smoke when using this product.** **Wear protective gloves/protective clothing.** Chemical manufacturer, importer, or distributor to specify type of equipment. If on skin:	**Wash with plenty of water/...** ... Chemical manufacturer, importer, or distributor may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate. **Immediately call a poison center/doctor/...** ... Chemical manufacturer, importer, or distributor to specify the appropriate source of emergency medical advice. **Specific treatment (see ... on this label)** ... Reference to supplemental first aid instruction. *- if immediate measures such as specific cleansing agent is advised.* **Take off immediately all contaminated clothing and wash it before reuse.**	**Store locked up.**	**Dispose of contents/container to...** ... in accordance with local/regional/national/international regulations (to be specified).

C.4.2 ACUTE TOXICITY - DERMAL (CONTINUED)
(Classified in Accordance with WAC 296-901-14022(A.1))

Hazard category	Signal word	Hazard statement	Pictogram
3	Danger	Toxic in contact with skin	Skull and crossbones 

Precautionary statements

Prevention	Response	Storage	Disposal
Wear protective gloves/protective clothing. Chemical manufacturer, importer, or distributor to specify type of equipment.	**If on skin: Wash with plenty of water/...** ... Chemical manufacturer, importer, or distributor may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate. **Call a poison center/doctor/.../if you feel unwell.** ... Chemical manufacturer, importer, or distributor to specify the appropriate source of emergency medical advice. **Specific treatment (see ... on this label)** ... Reference to supplemental first aid instruction. *- if measures such as specific cleansing agent is advised.* **Take off immediately all contaminated clothing and wash it before reuse.**	**Store locked up.**	**Dispose of contents/container to...** ... in accordance with local/regional/national/international regulations (to be specified).

C.4.2 ACUTE TOXICITY – DERMAL (CONTINUED)
(Classified in Accordance with WAC 296-901-14022(A.1))

Hazard category	Signal word	Hazard statement	Pictogram
4	Warning	Harmful in contact with skin	Exclamation mark 

Precautionary statements

Prevention	Response	Storage	Disposal
Wear protective gloves/protective clothing Chemical manufacturer, importer, or distributor to specify type of equipment.	**If on skin: Wash with plenty of water/...** ... Chemical manufacturer, importer, or distributor may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate. **Call a poison center/doctor/.../if you feel unwell.** ... Chemical manufacturer, importer, or distributor to specify the appropriate source of emergency medical advice. **Specific treatment (see ... on this label)** ... Reference to supplemental first aid instruction. *- if measures such as specific cleansing agent is advised.* **Take off contaminated clothing and wash it before reuse.**		**Dispose of contents/container to...** ... in accordance with local/regional/national/international regulations (to be specified).

C.4.3 ACUTE TOXICITY - INHALATION
(Classified in Accordance with WAC 296-901-14022(A.1))

Hazard category	Signal word	Hazard statement	Pictogram
1	Danger	Fatal if inhaled	Skull and crossbones 
2	Danger	Fatal if inhaled	

Precautionary statements

Prevention	Response	Storage	Disposal
Do not breathe dust/fume/gas/mist/ vapors/spray. Chemical manufacturer, importer, or distributor to specify applicable conditions. **Use only outdoors or in a well-ventilated area.** **[In case of inadequate ventilation] wear respiratory protection.** Chemical manufacturer, importer, or distributor to specify equipment. *- Text in square brackets may be used if additional information is provided with the chemical at the point of use that explains what type of ventilation would be adequate for safe use.*	**If inhaled: Remove person to fresh air and keep comfortable for breathing.** **Immediately call a poison center/doctor/...** ... Chemical manufacturer, importer, or distributor to specify the appropriate source of emergency medical advice. **Specific treatment is urgent (see ... on this label)** ... Reference to supplemental first aid instruction. *- if immediate administration of antidote is required.*	**Store in a well-ventilated place. Keep container tightly closed.** *- if product is volatile as to generate hazardous atmosphere.* **Store locked up.**	**Dispose of contents/container to...** ... in accordance with local/regional/national/international regulations (to be specified).

C.4.3 ACUTE TOXICITY – INHALATION (CONTINUED)
(Classified in Accordance with WAC 296-901-14022(A.1))

Hazard category	Signal word	Hazard statement	Pictogram
3	Danger	Toxic if inhaled	Skull and crossbones 

Precautionary statements

Prevention	Response	Storage	Disposal
Avoid breathing dust/fume/gas/mist/ vapors/spray. Chemical manufacturer, importer, or distributor to specify applicable conditions. **Use only outdoors or in a well-ventilated area.**	**If inhaled: Remove person to fresh air and keep comfortable for breathing.** **Call a poison center/doctor/...** ... Chemical manufacturer, importer, or distributor to specify the appropriate source of emergency medical advice. **Specific treatment (see ... on this label)** ... Reference to supplemental first aid instruction. *- if immediate specific measures are required.*	**Store in a well-ventilated place. Keep container tightly closed.** *- if product is volatile so as to generate hazardous atmosphere.* **Store locked up.**	**Dispose of content/container to...** ... in accordance with local/regional/national/international regulations (to be specified).

C.4.3 ACUTE TOXICITY – INHALATION (CONTINUED)
(Classified in Accordance with WAC 296-901-14022(A.1))

Hazard category	Signal word	Hazard statement	Pictogram
4	Warning	Harmful if inhaled	Exclamation mark 

Precautionary statements

Prevention	Response	Storage	Disposal
Avoid breathing dust/fume/gas/mist/ vapors/spray. Chemical manufacturer, importer, or distributor to specify applicable conditions. **Use only outdoors or in a well-ventilated area.**	**If inhaled: Remove person to fresh air and keep comfortable for breathing.** **Call a poison center/doctor/.../if you feel unwell.** ... Chemical manufacturer, importer, or distributor to specify the appropriate source of emergency medical advice.		

C.4.4 SKIN CORROSION/IRRITATION
(Classified in Accordance with WAC 296-901-14022(A.2))

Hazard category	Signal word	Hazard statement	Pictogram
1A to 1C	Danger	Causes severe skin burns and eye damage	Corrosion 

Precautionary statements

Prevention	Response	Storage	Disposal
Do not breathe dusts or mists. *- if inhalable particles of dusts or mists may occur during use.*	**If swallowed: Rinse mouth. Do NOT induce vomiting.**	**Store locked up.**	**Dispose of contents/container to...** ... in accordance with local/regional/national/international regulations (to be specified).
Wash ...thoroughly after handling. ...Chemical manufacturer, importer, or distributor to specify parts of the body to be washed after handling.	**If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.**		
Wear protective gloves/protective clothing/eye protection/face protection. Chemical manufacturer, importer, or distributor to specify type of equipment.	**Wash contaminated clothing before reuse.**		
	If inhaled: Remove person to fresh air and keep comfortable for breathing.		
	Immediately call a poison center/doctor/... ... Chemical manufacturer, importer, or distributor to specify the appropriate source of emergency medical advice.		
	Specific treatment (see ... on this label) ... Reference to supplemental first aid instruction. *- Manufacturer, importer, or distributor may specify a cleansing agent if appropriate.*		
	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.		

C.4.4 SKIN CORROSION/IRRITATION (CONTINUED)
(Classified in Accordance with WAC 296-901-14022(A.2))

Hazard category	Signal word	Hazard statement	Pictogram
2	Warning	Causes skin irritation	Exclamation mark 

Precautionary statements

Prevention	Response	Storage	Disposal
Wash ... thoroughly after handling. ... Chemical manufacturer, importer, or distributor to specify parts of the body to be washed after handling. **Wear protective gloves.** Chemical manufacturer, importer, or distributor to specify type of equipment.	**If on skin: Wash with plenty of water/...** ... Chemical manufacturer, importer, or distributor may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate. **Specific treatment (see ... on this label)** ... Reference to supplemental first aid instruction. *- Manufacturer, importer, or distributor may specify a cleansing agent if appropriate.* **If skin irritation occurs: Get medical advice/attention.** **Take off contaminated clothing and wash it before reuse.**		

C.4.5 EYE DAMAGE/IRRITATION
(Classified in Accordance with WAC 296-901-14022(A.3))

Hazard category	Signal word	Hazard statement	Pictogram Corrosion
1	Danger	Causes serious eye damage	

Precautionary statements

Prevention	Response	Storage	Disposal
Wear eye protection/face protection. Chemical manufacturer, importer, or distributor to specify type of equipment.	**If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.** **Immediately call a poison center/doctor/...** ... Chemical manufacturer, importer, or distributor to specify the appropriate source of emergency medical advice.		

C.4.5 EYE DAMAGE/IRRITATION (CONTINUED)
(Classified in Accordance with WAC 296-901-14022(A.3))

Pictogram
Exclamation mark

Hazard category	Signal word	Hazard statement
2A	Warning	Causes serious eye irritation

Precautionary statements

Prevention	Response	Storage	Disposal
Wash ... thoroughly after handling. ... Chemical manufacturer, importer, or distributor to specify parts of the body to be washed after handling.	**If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.**		
Wear eye protection/face protection. Chemical manufacturer, importer, or distributor to specify type of equipment.	**If eye irritation persists: Get medical advice/attention.**		

Pictogram
No Pictogram

Hazard category	Signal word	Hazard statement
2B	Warning	Causes eye irritation

Precautionary statements

Prevention	Response	Storage	Disposal
Wash ... thoroughly after handling. ... Chemical manufacturer, importer, or distributor to specify parts of the body to be washed after handling.	**If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.** **If eye irritation persists: Get medical advice/attention.**		

C.4.6 SENSITIZATION - RESPIRATORY
(Classified in Accordance with WAC 296-901-14022(A.4))

Hazard category	Signal word	Hazard statement	Pictogram Health hazard
1 (including both sub-categories 1A and 1B)	Danger	May cause allergy or asthma symptoms or breathing difficulties if inhaled	

Precautionary statements

Prevention	Response	Storage	Disposal
Avoid breathing dust/fume/gas/mist/ vapors/spray. Chemical manufacturer, importer, or distributor to specify applicable conditions. **[In case of inadequate ventilation] wear respiratory protection.** Chemical manufacturer, importer, or distributor to specify equipment *- Text in square brackets may be used if additional information is provided with the chemical at the point of use that explains what type of ventilation would be adequate for safe use.*	**If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.** **If experiencing respiratory symptoms: Call a poison center/doctor/...** ... Chemical manufacturer, importer, or distributor to specify the appropriate source of emergency medical advice.		**Dispose of contents/container to...** ... in accordance with local/regional/national/international regulations (to be specified).

C.4.7 SENSITIZATION - SKIN
(Classified in Accordance with WAC 296-901-14022(A.4))

Hazard category	Signal word	Hazard statement	Pictogram
1 (including both sub-categories 1A and 1B)	Warning	May cause an allergic skin reaction	Exclamation mark 

Precautionary statements

Prevention	Response	Storage	Disposal
Avoid breathing dust/fume/gas/mist/ vapors/spray. Chemical manufacturer, importer, or distributor to specify applicable conditions. **Contaminated work clothing must not be allowed out of the workplace.** **Wear protective gloves.** Chemical manufacturer, importer, or distributor to specify type of equipment.	**If on skin: Wash with plenty of water/...** ... Chemical manufacturer, importer, or distributor may specify a cleansing agent if appropriate, or may recommend an alternative agent in exceptional cases if water is clearly inappropriate. **If skin irritation or rash occurs: Get medical advice/attention.** **Specific treatment (see ... on this label)** ... Reference to supplemental first aid instruction. *- Manufacturer, importer, or distributor may specify a cleansing agent if appropriate.* **Wash contaminated clothing before reuse.**		**Dispose of contents/container to...** ... in accordance with local/regional/national/international regulations (to be specified).

C.4.8 GERM CELL MUTAGENICITY
(Classified in Accordance with Appendix A.5)

Pictogram
Health hazard

Hazard category	Signal word	Hazard statement
1A and 1B	Danger	May cause genetic defects <...>
2	Warning	Suspected of causing genetic defects <...>
		(state route of exposure if no other routes of exposure cause the hazard)

Precautionary statements

Prevention	Response	Storage	Disposal
Obtain special instructions before use. **Do not handle until all safety precautions have been read and understood.** **Wear protective gloves/protective clothing/eye protection/face protection.** Chemical manufacturer, importer, or distributor to specify type of equipment, as required.	**If exposed or concerned: Get medical advice/attention.**	**Store locked up.**	**Dispose of contents/container to...** ... in accordance with local/regional/national/international regulations (to be specified).

C.4.9 CARCINOGENICITY
(Classified in Accordance with Appendix A.6)

Pictogram
Health hazard

Hazard category	Signal word	Hazard statement
1A and 1B	Danger	May cause cancer <...>
2	Warning	Suspected of causing cancer <...>
		(state route of exposure if no other routes of exposure cause the hazard)

Precautionary statements

Prevention	Response	Storage	Disposal
Obtain special instructions before use. **Do not handle until all safety precautions have been read and understood.** **Wear protective gloves/protective clothing/eye protection/face protection.** Chemical manufacturer, importer, or distributor to specify type of equipment, as required.	**If exposed or concerned: Get medical advice/attention.**	**Store locked up.**	**Dispose of contents/container to...** ... in accordance with local/regional/national/international regulations (to be specified).

Note: If a Category 2 carcinogen ingredient is present in the mixture at a concentration between 0.1% and 1%, information is required on the SDS for a product; however, a label warning is optional. If a Category 2 carcinogen ingredient is present in the mixture at a concentration of ³ 1%, both an SDS and a label is required and the information must be included on each.

C.4.10 TOXIC TO REPRODUCTION
(Classified in Accordance with Appendix A.7)

Pictogram
Health hazard

Hazard category	Signal word	Hazard statement
1A and 1B	Danger	May damage fertility or the unborn child <...> <<...>>
2	Warning	Suspected of damaging fertility or the unborn child <...> <<...>> *(state specific effect if known)* *(state route of exposure if no other routes of exposure cause the hazard)*

Precautionary statements

Prevention	Response	Storage	Disposal
Obtain special instructions before use. **Do not handle until all safety precautions have been read and understood.** **Wear protective gloves/protective clothing/eye protection/face protection.** Chemical manufacturer, importer, or distributor to specify type of equipment, as required.	**If exposed or concerned: Get medical advice/attention.**	**Store locked up.**	**Dispose of contents/container to...** ... in accordance with local/regional/national/international regulations (to be specified).

C.4.10 TOXIC TO REPRODUCTION (CONTINUED)
(Classified in Accordance with Appendix A.7)
(EFFECTS ON OR VIA LACTATION)

Pictogram
No Pictogram

Hazard category	Signal word	Hazard statement
No designated number	*No signal word*	May cause harm to breast-fed children

(See Table A.7.1 in Appendix A.7)

Precautionary statements

Prevention	Response	Storage	Disposal
Obtain special instructions before use. **Do not breathe dusts or mists.** *- if inhalable particles of dusts or mists may occur during use.* **Avoid contact during pregnancy/while nursing.** **Wash ... thoroughly after handling.** ...Chemical manufacturer, importer, or distributor to specify parts of the body to be washed after handling. **Do not eat, drink or smoke when using this product.**	**If exposed or concerned: Get medical advice/attention.**		

C.4.11 SPECIFIC TARGET ORGAN TOXICITY (Single Exposure) (Classified in Accordance with WAC 296-901-14022(A.8))

Pictogram
Health hazard

Hazard category	Signal word	Hazard statement
1	Danger	Causes damage to organs <...> <<...>> *<...> (or state all organs affected if known)* *<<...>> (state route of exposure if no other routes of exposure cause the hazard)*

Precautionary statements

Prevention	Response	Storage	Disposal
Do not breathe dust/fume/gas/mist/ vapors/spray. Chemical manufacturer, importer, or distributor to specify applicable conditions. **Wash ...thoroughly after handling.** ... Chemical manufacturer, importer, or distributor to specify parts of the body to be washed after handling. **Do not eat, drink or smoke when using this product.**	**If exposed: Call a poison center/doctor/...** ... Chemical manufacturer, importer, or distributor to specify the appropriate source of emergency medical advice. **Specific treatment (see ... on this label)** ... Reference to supplemental first aid instruction. *- if immediate measures are required.*	**Store locked up.**	**Dispose of contents/container to...** ... in accordance with local/regional/national/international regulations (to be specified).

C.4.11 SPECIFIC TARGET ORGAN TOXICITY (Single Exposure) (CONTINUED)
(Classified in Accordance with WAC 296-901-14022(A.8))

Pictogram
Health hazard

Hazard category	Signal word	Hazard statement
2	Warning	May cause damage to organs <...> <<...>> <...> *(or state all organs affected, if known)* <<...>> *(state route of exposure if no other routes of exposure cause the hazard)*

Precautionary statements

Prevention	Response	Storage	Disposal
Do not breathe dust/fume/gas/mist/ vapors/spray. Chemical manufacturer, importer, or distributor to specify applicable conditions. **Wash ... thoroughly after handling.** ... Chemical manufacturer, importer, or distributor to specify parts of the body to be washed after handling. **Do not eat, drink or smoke when using this product.**	**If exposed or concerned: Call a poison center/doctor/...** ... Chemical manufacturer, importer, or distributor to specify the appropriate source of emergency medical advice.	**Store locked up.**	**Dispose of contents/container to...** ... in accordance with local/regional/national/international regulations (to be specified).

C.4.11 SPECIFIC TARGET ORGAN TOXICITY (Single Exposure) (CONTINUED)
(Classified in Accordance with WAC 296-901-14022(A.8))

Pictogram
Exclamation mark

Hazard category	Signal word	Hazard statement
3	Warning	May cause respiratory irritation; or May cause drowsiness or dizziness

Precautionary statements

Prevention	Response	Storage	Disposal
Avoid breathing dust/fume/gas/mist/ vapors/spray. Chemical manufacturer, importer, or distributor to specify applicable conditions. **Use only outdoors or in a well-ventilated area.**	**If inhaled: Remove person to fresh air and keep comfortable for breathing.** **Call a poison center/doctor/.../if you feel unwell.** ... Chemical manufacturer, importer, or distributor to specify the appropriate source of emergency medical advice.	**Store in a well-ventilated place. Keep container tightly closed.** *- if product is volatile so as to generate hazardous atmosphere.* **Store locked up.**	**Dispose of contents/container to...** ... in accordance with local/regional/national/international regulations (to be specified).

C.4.12 SPECIFIC TARGET ORGAN TOXICITY (Repeated Exposure) (Classified in Accordance with WAC 296-901-14022(A.9))

Hazard category	Signal word	Hazard statement	Pictogram Health hazard
1	Danger	Causes damage to organs <...> through prolonged or repeated exposure <<...>> <...> *(state all organs affected, if known)* <<...>> *(state route of exposure if no other routes of exposure cause the hazard)*	

Precautionary statements

Prevention	Response	Storage	Disposal
Do not breathe dust/fume/gas/mist/ vapors/spray. Chemical manufacturer, importer, or distributor to specify applicable conditions.	**Get medical advice/attention if you feel unwell.**		**Dispose of contents/container to...** ... in accordance with local/regional/national/international regulations (to be specified).
Wash ... thoroughly after handling. ...Chemical manufacturer, importer, or distributor to specify parts of the body to be washed after handling.			
Do not eat, drink or smoke when using this product.			

C.4.12 SPECIFIC TARGET ORGAN TOXICITY (Repeated Exposure) (CONTINUED)
(Classified in Accordance with WAC 296-901-14022(A.9))

Hazard category	Signal word	Hazard statement	Pictogram Health hazard
2	Warning	May cause damage to organs <...> through prolonged or repeated exposure <<...>> <...> *(state all organs affected, if known)* <<...>> *(state route of exposure if no other routes of exposure cause the hazard)*	

Precautionary statements

Prevention	Response	Storage	Disposal
Do not breathe dust/fume/gas/mist/ vapors/spray. Chemical manufacturer, importer, or distributor to specify applicable conditions.	**Get medical advice/attention if you feel unwell.**		**Dispose of contents/container to...** ... in accordance with local/regional/national/international regulations (to be specified).

C.4.13 ASPIRATION HAZARD
(Classified in Accordance with WAC 296-901-14022(A.10))

Hazard category	Signal word	Hazard statement	Pictogram Health hazard
1	Danger	May be fatal if swallowed and enters airways	

Precautionary statements

Prevention	Response	Storage	Disposal
	If swallowed: Immediately call a poison center/doctor/... ... Chemical manufacturer, importer, or distributor to specify the appropriate source of emergency medical advice. **Do NOT induce vomiting.**	**Store locked up.**	**Dispose of contents/container to...** ... in accordance with local/regional/national/international regulations (to be specified).

C.4.14 EXPLOSIVES
(Classified in Accordance with WAC 296-901-14024(B.1))

Hazard category	Signal word	Hazard statement	Pictogram
Unstable explosive	Danger	Unstable explosive	Exploding bomb 

Precautionary statements

Prevention	Response	Storage	Disposal
Obtain special instructions before use. **Do not handle until all safety precautions have been read and understood.** **Wear personal protective equipment/face protection.** Chemical manufacturer, importer, or distributor to specify type of equipment, as required.	**Explosion risk in case of fire.** **Do NOT fight fire when fire reaches explosives.** **Evacuate area.**	**Store ...** ...in accordance with local/regional/ national/international regulations (to be specified).	**Dispose of contents/container to ...** ...in accordance with local/regional/ national/international regulations (to be specified).

C.4.14 EXPLOSIVES (CONTINUED)
(Classified in Accordance with WAC 296-901-14024(B.1))

Hazard category	Signal word	Hazard statement	Pictogram Exploding bomb
Division 1.1	Danger	Explosive; mass explosion hazard	
Division 1.2	Danger	Explosive; severe projection hazard	
Division 1.3	Danger	Explosive; fire, blast or projection	

Precautionary statements

Prevention	Response	Storage	Disposal
Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Chemical manufacturer, importer, or distributor to specify applicable ignition source(s). **Keep wetted with...** ... Chemical manufacturer, importer, or distributor to specify appropriate material. *- if drying out increases explosion hazard, except as needed for manufacturing or operating processes (e.g., nitrocellulose).* **Ground/bond container and receiving equipment.** *- if the explosive is electrostatically sensitive.* **Do not subject to grinding/shock/.../friction.** ...Chemical manufacturer, importer, or distributor to specify applicable rough handling. **Wear face protection**. Chemical manufacturer, importer, or distributor to specify type of equipment.	**In case of fire: evacuate area.** **Explosion risk in case of fire.** **Do NOT fight fire when fire reaches explosives.**	**Store ...** ...in accordance with local/regional/national/ international regulations (to be specified).	**Dispose of contents/container to ...** ... in accordance with local/ regional/national/ international regulations (to be specified).

Note: Unpackaged explosives or explosives repacked in packagings other than the original or similar packaging shall have the label elements assigned to Division 1.1 unless the hazard is shown to correspond to one of the hazard categories in Appendix B.1, in which case the corresponding symbol, signal word and/or the hazard statement shall be assigned.

C.4.14 EXPLOSIVES (CONTINUED)
(Classified in Accordance with WAC 296-901-14024(B.1))

Hazard category	Signal word	Hazard statement	Pictogram Exploding bomb[1]
Division 1.4	Warning	Fire or projection hazard	

Precautionary statements[1]

Prevention	Response	Storage	Disposal
Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Chemical manufacturer, importer, or distributor to specify applicable ignition source(s). **Ground/bond container and receiving equipment.** *- if the explosive is electrostatically sensitive.* **Do not subject to grinding/shock/.../friction.** Chemical manufacturer, importer, or distributor to specify applicable rough handling. **Wear face protection.** Chemical manufacturer, importer, or distributor to specify type of equipment.	**In case of fire: Evacuate area.** **Explosion risk in case of fire.** *- except if explosives are 1.4S ammunition and components thereof.* **Do NOT fight fire when fire reaches explosives.** **Fight fire with normal precautions from a reasonable distance** *- if explosives are 1.4S ammunition and components thereof.*	**Store ...** ...in accordance with local/regional/ national/international regulations (to be specified).	**Dispose of contents/container to...** ... in accordance with local/regional/national/international regulations (to be specified).

Note: Unpackaged explosives or explosives repacked in packagings other than the original or similar packaging shall have the label elements assigned to Division 1.1 unless the hazard is shown to correspond to one of the hazard categories in Appendix B.1, in which case the corresponding symbol, signal word and/or the hazard statement shall be assigned.[1]

C.4.14 EXPLOSIVES (CONTINUED)
(Classified in Accordance with WAC 296-901-14024(B.1))

Pictogram
No Pictogram

Hazard category	Signal word	Hazard statement
Division 1.5	Danger	May mass explode in fire

Precautionary statements

Prevention	Response	Storage	Disposal
Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Chemical manufacturer, importer, or distributor to specify applicable ignition source(s). **Keep wetted with...** ... Chemical manufacturer, importer, or distributor to specify appropriate material. *- if drying out increases explosion hazard, except as needed for manufacturing or operating processes (e.g., nitrocellulose).* **Ground/bond container and receiving equipment** *- if the explosive is electrostatically sensitive.* **Do not subject to grinding/shock/.../friction.** ...Chemical manufacturer, importer, or distributor to specify applicable rough handling. **Wear face protection.** Chemical manufacturer, importer, or distributor to specify type of equipment.	**In case of fire: Evacuate area.** **Explosion risk in case of fire.** **Do NOT fight fire when fire reaches explosives.**	**Store ...** ...in accordance with local/regional/ national/international regulations (to be specified).	**Dispose of contents/container to ...** ... in accordance with local/regional/ national/international regulations (to be specified).

Note: Unpackaged explosives or explosives repacked in packagings other than the original or similar packaging shall have the label elements assigned to Division 1.1 unless the hazard is shown to correspond to one of the hazard categories in Appendix B.1, in which case the corresponding symbol, signal word and/or the hazard statement shall be assigned.

C.4.14 EXPLOSIVES (CONTINUED)
(Classified in Accordance with WAC 296-901-14024(B.1))

Pictogram
No Pictogram

Hazard category	Signal word	Hazard statement
Division 1.6	*No signal word*	*No hazard statement*

Precautionary statements

Prevention	Response	Storage	Disposal
None assigned	None assigned	None assigned	None assigned

Note: Unpackaged explosives or explosives repacked in packagings other than the original or similar packaging shall have the label elements assigned to Division 1.1 unless the hazard is shown to correspond to one of the hazard categories in Appendix B.1, in which case the corresponding symbol, signal word and/or the hazard statement shall be assigned.

C.4.15 FLAMMABLE GASES
(Classified in Accordance with WAC 296-901-14024(B.2))

Hazard category	Signal word	Hazard statement	Pictogram
1	Danger	Extremely flammable gas	Flame 

Precautionary statements

Prevention	Response	Storage	Disposal
Keep away from heat/sparks/open flames/hot surfaces. -No smoking. Chemical manufacturer, importer, or distributor to specify applicable ignition source(s).	**Leaking gas fire: Do not extinguish, unless leak can be stopped safely.** **Eliminate all ignition sources if safe to do so.**	**Store in well-ventilated place.**	

Hazard category	Signal word	Hazard statement	Pictogram
2	Warning	Flammable gas	*No Pictogram*

Precautionary statements

Prevention	Response	Storage	Disposal
Keep away from heat/sparks/open flames/hot surfaces. -No smoking. Chemical manufacturer, importer, or distributor to specify applicable ignition sources(s).	**Leaking gas fire: Do not extinguish, unless leak can be stopped safely.** **Eliminate all ignition sources if safe to do so.**	**Store in well-ventilated place.**	

C.4.16 FLAMMABLE AEROSOLS
(Classified in Accordance with WAC 296-901-14024(B.3))

Hazard category	Signal word	Hazard statement	Pictogram
1	Danger	Extremely flammable aerosol	Flame
2	Warning	Flammable aerosol	

Precautionary statements

Prevention	Response	Storage	Disposal
Keep away from heat/sparks/open flames/hot surfaces. -No smoking. Chemical manufacturer, importer, or distributor to specify applicable ignition sources(s). **Do not spray on an open flame or other ignition source.** **Pressurized container: Do not pierce or burn, even after use.**		**Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.**	

C.4.17 OXIDIZING GASES
(Classified in Accordance with WAC 296-901-14024(B.4))

Hazard category	Signal word	Hazard statement	Pictogram
1	Danger	May cause or intensify fire; oxidizer	Flame over circle

Precautionary statements

Prevention	Response	Storage	Disposal
Keep/Store away from clothing/.../combustible materials. ...Chemical manufacturer, importer, or distributor to specify other incompatible materials. **Keep reduction valves/valves and fittings free from oil and grease.**	**In case of fire: Stop leak if safe to do so.**	**Store in well-ventilated place.**	

C.4.18 GASES UNDER PRESSURE
(Classified in Accordance with WAC 296-901-14024(B.5))

Pictogram
Gas cylinder

Hazard category	Signal word	Hazard statement
Compressed gas	Warning	Contains gas under pressure; may explode if heated
Liquefied gas	Warning	Contains gas under pressure; may explode if heated
Dissolved gas	Warning	Contains gas under pressure; may explode if heated

Precautionary statements

Prevention	Response	Storage	Disposal
		Protect from sunlight. Store in a well-ventilated place.	

Pictogram
Gas cylinder

Hazard category	Signal word	Hazard statement
Refrigerated liquefied gas	Warning	Contains refrigerated gas; may cause cryogenic burns or injury

Precautionary statements

Prevention	Response	Storage	Disposal
Wear cold insulating gloves/face shield/eye protection.	**Thaw frosted parts with lukewarm water. Do not rub affected area.** **Get immediate medical advice/attention.**	**Store in well-ventilated place.**	

C.4.19 FLAMMABLE LIQUIDS
(Classified in Accordance with WAC 296-901-14024(B.6))

Hazard category	Signal word	Hazard statement	Pictogram
1	Danger	Extremely flammable liquid and vapor	Flame
2	Danger	Highly flammable liquid and vapor	
3	Warning	Flammable liquid and vapor	

Precautionary statements

Prevention	Response	Storage	Disposal
Keep away from heat/sparks/open flames/hot surfaces.– No smoking. Chemical manufacturer, importer, or distributor to specify applicable ignition source(s).	**If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.**	**Store in a well-ventilated place. Keep cool.**	**Dispose of contents/container to...** ... in accordance with local/regional/national/ international regulations (to be specified).
Keep container tightly closed.	**In case of fire: Use ... to extinguish.** ... Chemical manufacturer, importer, or distributor to specify appropriate media. *- if water increases risk.*		
Ground/Bond container and receiving equipment *- if electrostatically sensitive material is for reloading. - if product is volatile so as to generate hazardous atmosphere.*			
Use explosion-proof electrical/ventilating/ lighting/.../equipment. ... Chemical manufacturer, importer, or distributor to specify other equipment.			
Use only non-sparking tools.			
Take precautionary measures against static discharge.			
Wear protective gloves/eye protection/face protection Chemical manufacturer, importer, or distributor to specify type of equipment.			

C.4.19 FLAMMABLE LIQUIDS (CONTINUED)
(Classified in Accordance with WAC 296-901-14024(B.6))

Pictogram
No Pictogram

Hazard category	Signal word	Hazard statement
4	Warning	Combustible liquid

Precautionary statements

Prevention	Response	Storage	Disposal
Keep away from flames and hot surfaces. – No smoking. **Wear protective gloves/eye protection/face protection** Chemical manufacturer, importer, or distributor to specify type of equipment.	**In case of fire: Use ... to extinguish.** ... Chemical manufacturer, importer, or distributor to specify appropriate media. *- if water increases risk.*	**Store in a well-ventilated place. Keep cool.**	**Dispose of contents/container to...** in accordance with local/regional/ national/international regulations (to be specified).

C.4.20 FLAMMABLE SOLIDS
(Classified in Accordance with WAC 296-901-14024(B.7))

Hazard category	Signal word	Hazard statement	Pictogram Flame
1	Danger	Flammable solid	
2	Warning	Flammable solid	

Precautionary statements

Prevention	Response	Storage	Disposal
Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Chemical manufacturer, importer, or distributor to specify applicable ignition source(s).	**In case of fire: Use ... to extinguish** ... Chemical manufacturer, importer, or distributor to specify appropriate media. *- if water increases risk.*		
Ground/Bond container and receiving equipment. *- if electrostatically sensitive material is for reloading.*			
Use explosion-proof electrical/ventilating/ lighting/... /equipment. ... Chemical manufacturer, importer, or distributor to specify other equipment. *- if dust clouds can occur.*			
Wear protective gloves/eye protection/face protection Chemical manufacturer, importer, or distributor to specify type of equipment.			

C.4.21 SELF-REACTIVE SUBSTANCES AND MIXTURES (Classified in Accordance with WAC 296-901-14024(B.8))

Hazard category	Signal word	Hazard statement	Pictogram
Type A	Danger	Heating may cause an explosion	Flame Exploding bomb 

Precautionary statements

Prevention	Response	Storage	Disposal
Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Chemical manufacturer, importer, or distributor to specify applicable ignition source(s). **Keep/Store away from clothing/.../combustible materials.** ... Chemical manufacturer, importer, or distributor to specify other incompatible materials. **Keep only in original container.** **Wear protective gloves/eye protection/face protection.** Chemical manufacturer, importer, or distributor to specify type of equipment.	**In case of fire: Use ... to extinguish** ... Chemical manufacturer, importer, or distributor to specify appropriate media. *- if water increases risk.* **In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.**	**Store in a well-ventilated place. Keep cool.** **Store at temperatures not exceeding ...°C/...°F.** ... Chemical manufacturer, importer, or distributor to specify temperature. **Store away from other materials.**	**Dispose of contents/container to...** ... in accordance with local/regional/national/international regulations (to be specified).

C.4.21 SELF-REACTIVE SUBSTANCES AND MIXTURES (CONTINUED)
(Classified in Accordance with WAC 296-901-14024(B.8))

Hazard category	Signal word	Hazard statement	Pictogram
Type B	Danger	Heating may cause a fire or explosion	Exploding bomb and flame 

Precautionary statements

Prevention	Response	Storage	Disposal
Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Chemical manufacturer, importer, or distributor to specify applicable ignition source(s).	**In case of fire: Use ... to extinguish.** ... Chemical manufacturer, importer, or distributor to specify appropriate media. *- if water increases risk.*	**Store in a well-ventilated place. Keep cool.**	**Dispose of contents/container to...** ...in accordance with local/regional/national/international regulations (to be specified).
Keep/Store away from clothing/.../combustible materials. ... Chemical manufacturer, importer, or distributor to specify other incompatible materials.	**In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.**	**Store at temperatures not exceeding ...°C/...°F.** ... Chemical manufacturer, importer, or distributor to specify temperature.	
Keep only in original container.		**Store away from other materials.**	
Wear protective gloves/eye protection/face protection. Chemical manufacturer, importer, or distributor to specify type of equipment.			

C.4.21 SELF-REACTIVE SUBSTANCES AND MIXTURES (CONTINUED)
(Classified in Accordance with WAC 296-901-14024(B.8))

Hazard category	Signal word	Hazard statement	Pictogram
Type C	Danger	Heating may cause a fire	
Type D	Danger	Heating may cause a fire	
Type E	Warning	Heating may cause a fire	
Type F	Warning	Heating may cause a fire	

Precautionary statements

Prevention	Response	Storage	Disposal
Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Chemical manufacturer, importer, or distributor to specify applicable ignition source(s).	**In case of fire: Use ... to extinguish** ... Chemical manufacturer, importer, or distributor to specify appropriate media. *- if water increases risk.*	**Store in a well-ventilated place. Keep cool.**	**Dispose of contents/container to...** ...in accordance with local/regional/national/international regulations (to be specified).
Keep/Store away from clothing/.../combustible materials. ...Chemical manufacturer, importer, or distributor to specify other incompatible materials.		**Store at temperatures not exceeding ...°C/...°F.** ...Chemical manufacturer, importer, or distributor to specify temperature.	
Keep only in original container.		**Store away from other materials.**	
Wear protective gloves/eye protection/face protection. Chemical manufacturer, importer, or distributor to specify type of equipment.			

C.4.22 PYROPHORIC LIQUIDS
(Classified in Accordance with WAC 296-901-14024(B.9))

Hazard category	Signal word	Hazard statement	Pictogram
1	Danger	Catches fire spontaneously if exposed to air	Flame 

Precautionary statements

Prevention	Response	Storage	Disposal
Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Chemical manufacturer, importer, or distributor to specify applicable ignition sources(s). **Do not allow contact with air.** **Wear protective gloves/eye protection/face protection.** Chemical manufacturer, importer, or distributor to specify type of equipment.	**If on skin: Immerse in cool water/wrap with wet bandages** **In case of fire: Use ... to extinguish** ... Chemical manufacturer, importer, or distributor to specify appropriate media. *- if water increases risk.*	**Store contents under ...** ... Chemical manufacturer, importer, or distributor to specify appropriate liquid or inert gas.	

C.4.23 PYROPHORIC SOLIDS
(Classified in Accordance with WAC 296-901-14024(B.10))

Hazard category	Signal word	Hazard statement	Pictogram
1	Danger	Catches fire spontaneously if exposed to air	Flame 

Precautionary statements

Prevention	Response	Storage	Disposal
Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Chemical manufacturer, importer, or distributor to specify applicable ignition source(s).	**Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages.**	**Store contents under ...** ...Chemical manufacturer, importer, or distributor to specify appropriate liquid or inert gas.	
Do not allow contact with air.	**In case of fire: Use ... to extinguish** ... Chemical manufacturer, importer, or distributor to specify appropriate media. *- if water increases risk.*		
Wear protective gloves/eye protection/face protection Chemical manufacturer, importer, or distributor to specify type of equipment.			

C.4.24 SELF-HEATING SUBSTANCES AND MIXTURES (Classified in Accordance with WAC 296-901-14024(B.11))

Hazard category	Signal word	Hazard statement
1	Danger	Self-heating; may catch fire
2	Warning	Self-heating in large quantities; may catch fire

Pictogram
Flame

Precautionary statements

Prevention	Response	Storage	Disposal
Keep cool. Protect from sunlight. **Wear protective gloves/eye protection/face protection.** Chemical manufacturer, importer, or distributor to specify type of equipment.		**Maintain air gap between stacks/pallets.** **Store bulk masses greater than ... kg/...lbs at temperatures not exceeding ...°C/...°F.** ... Chemical manufacturer, importer, or distributor to specify mass and temperature. **Store away from other materials.**	

C.4.25 SUBSTANCES AND MIXTURES WHICH, IN CONTACT WITH WATER, EMIT FLAMMABLE GASES
(Classified in Accordance with WAC 296-901-14024(B.12))

Hazard category	Signal word	Hazard statement	Pictogram: Flame
1	Danger	In contact with water releases flammable gases, which may ignite spontaneously	
2	Danger	In contact with water releases flammable gas	

Precautionary statements

Prevention	Response	Storage	Disposal
Do not allow contact with water. **Handle under inert gas. Protect from moisture.** **Wear protective gloves/eye protection/face protection.** Chemical manufacturer, importer, or distributor to specify type of equipment.	**Brush off loose particles from skin and immerse in cool water/wrap in wet bandages.** **In case of fire: Use ... to extinguish** ... Chemical manufacturer, importer, or distributor to specify appropriate media. *- if water increases risk.*	**Store in a dry place. Store in a closed container.**	**Dispose of contents/container to...** ...in accordance with local/regional/national/international regulations (to be specified).

C.4.25 SUBSTANCES AND MIXTURES WHICH, IN CONTACT WITH WATER, EMIT FLAMMABLE GASES (CONTINUED)
(Classified in Accordance with WAC 296-901-14024(B.12))

Hazard category	Signal word	Hazard statement	Pictogram
3	Warning	In contact with water releases flammable gas	Flame 

Precautionary statements

Prevention	Response	Storage	Disposal
Handle under inert gas. Protect from moisture. **Wear protective gloves/eye protection/face protection.** Chemical manufacturer, importer, or distributor to specify type of equipment.	**In case of fire: Use ... to extinguish.** ... Chemical manufacturer, importer, or distributor to specify appropriate media. *- if water increases risk.*	**Store in a dry place. Store in a closed container.**	**Dispose of contents/container to...** ...in accordance with local/regional/national/ international regulations (to be specified).

C.4.26 OXIDIZING LIQUIDS
(Classified in Accordance with WAC 296-901-14024(B.13))

Hazard category	Signal word	Hazard statement	Pictogram
1	Danger	May cause fire or explosion; strong oxidizer	Flame over circle 

Precautionary statements

Prevention	Response	Storage	Disposal
Keep away from heat. **Keep/Store away from clothing and other combustible materials.** **Take any precaution to avoid mixing with combustibles/...** ... Chemical manufacturer, importer, or distributor to specify other incompatible materials. **Wear protective gloves /eye protection/face protection.** Chemical manufacturer, importer, or distributor to specify type of equipment. **Wear fire/flame resistant/retardant clothing.**	**If on clothing: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes.** **In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.** **In case of fire: Use ... to extinguish.** ... Chemical manufacturer, importer, or distributor to specify appropriate media. *- if water increases risk.*		**Dispose of contents/container to...** ...in accordance with local/regional/ national/international regulations (to be specified).

C.4.26 OXIDIZING LIQUIDS (CONTINUED)
(Classified in Accordance with WAC 296-901-14024(B.13))

Hazard category	Signal word	Hazard statement
2	Danger	May intensify fire; oxidizer
3	Warning	May intensify fire; oxidizer

Pictogram
Flame over circle

Precautionary statements

Prevention	Response	Storage	Disposal
Keep away from heat.	**In case of fire: Use ... to extinguish.** ... Chemical manufacturer, importer, or distributor to specify appropriate media. - *if water increases risk.*		**Dispose of contents/container to...** ...in accordance with local/regional/ national/international regulations (to be specified).
Keep/Store away from clothing/.../combustible materials. ...Chemical manufacturer, importer, or distributor to specify other incompatible materials.			
Take any precaution to avoid mixing with combustibles/... ... Chemical manufacturer, importer, or distributor to specify other incompatible materials.			
Wear protective gloves/eye protection/face protection. Chemical manufacturer, importer, or distributor to specify type of equipment.			

C.4.27 OXIDIZING SOLIDS
(Classified in Accordance with WAC 296-901-14024(B.14))

Hazard category	Signal word	Hazard statement	Pictogram
1	Danger	May cause fire or explosion; strong oxidizer	Flame over circle 

Precautionary statements

Prevention	Response	Storage	Disposal
Keep away from heat.	**If on clothing: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes.**		**Dispose of contents/container to...** ...in accordance with local/regional/ national/international regulations (to be specified).
Keep away from clothing and other combustible materials.	**In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.**		
Take any precaution to avoid mixing with combustibles/... ...Chemical manufacturer, importer, or distributor to specify other incompatible materials.	**In case of fire: Use ... to extinguish.** ... Chemical manufacturer, importer, or distributor to specify appropriate media. *- if water increases risk.*		
Wear protective gloves/eye protection/face protection. Chemical manufacturer, importer, or distributor to specify type of equipment.			
Wear fire/flame resistant/retardant clothing.			

C.4.27 OXIDIZING SOLIDS (CONTINUED)
(Classified in Accordance with WAC 296-901-14024(B.14))

Hazard category	Signal word	Hazard statement	Pictogram Flame over circle
2	Danger	May intensify fire; oxidizer	
3	Warning	May intensify fire; oxidizer	

Precautionary statements

Prevention	Response	Storage	Disposal
Keep away from heat. **Keep/Store away from clothing/.../ combustible materials.** ... Chemical manufacturer, importer, or distributor to specify incompatible materials. **Take any precaution to avoid mixing with combustibles/...** ...Chemical manufacturer, importer, or distributor to specify other incompatible materials. **Wear protective gloves/eye protection/face protection.** Chemical manufacturer, importer, or distributor to specify type of equipment.	**In case of fire: Use ... to extinguish.** ... Chemical manufacturer, importer, or distributor to specify appropriate media. *- if water increases risk.*		**Dispose of contents/container to...** ... in accordance with local/regional/national/international regulations (to be specified).

C.4.28 ORGANIC PEROXIDES
(Classified in Accordance with WAC 296-901-14024(B.15))

Hazard category	Signal word	Hazard statement	Pictogram
Type A	Danger	Heating may cause an explosion	Exploding bomb 

Precautionary statements

Prevention	Response	Storage	Disposal
Keep away from heat/sparks/open flames/hot surfaces.- No smoking. Chemical manufacturer, importer, or distributor to specify applicable ignition source(s). **Keep/Store away from clothing/.../combustible materials.** ... Chemical manufacturer, importer, or distributor to specify incompatible materials. **Keep only in original container.** **Wear protective gloves/eye protection/face protection.** Chemical manufacturer, importer, or distributor to specify type of equipment.		**Store at temperatures not exceeding ...°C/...°F. Keep cool.** ... Chemical manufacturer, importer, or distributor to specify temperature. **Protect from sunlight.** **Store away from other materials.**	**Dispose of contents/container to...** ... in accordance with local/regional/national/international regulations (to be specified).

C.4.28 ORGANIC PEROXIDES (CONTINUED)
(Classified in Accordance with WAC 296-901-14024(B.15))

Hazard category	Signal word	Hazard statement	Pictogram
Type B	Danger	Heating may cause an explosion	Exploding bomb and flame 

Precautionary statements

Prevention	Response	Storage	Disposal
Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Chemical manufacturer, importer, or distributor to specify applicable ignition source(s).		**Store at temperatures not exceeding ...°C/...°F. Keep cool.** Chemical manufacturer, importer, or distributor to specify temperature.	**Dispose of contents/container to...** ... in accordance with local/regional/national/international regulations (to be specified).
Keep /Store away from clothing/.../combustible materials. ... Chemical manufacturer, importer, or distributor to specify incompatible materials.		**Protect from sunlight.**	
Keep only in original container.		**Store away from other materials.**	
Wear protective gloves/eye protection/face protection. Chemical manufacturer, importer, or distributor to specify type of equipment.			

C.4.28 ORGANIC PEROXIDES (CONTINUED)
(Classified in Accordance with Appendix B.15)

Pictogram
Flame

Hazard category	Signal word	Hazard statement
Type C	Danger	Heating may cause a fire
Type D	Danger	Heating may cause a fire
Type E	Warning	Heating may cause a fire
Type F	Warning	Heating may cause a fire

Precautionary statements

Prevention	Response	Storage	Disposal
Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Chemical manufacturer, importer, or distributor to specify applicable ignition source(s).		**Store at temperatures not exceeding ...°C/...°F. Keep cool.** Chemical manufacturer, importer, or distributor to specify temperature.	**Dispose of contents/container to...** ... in accordance with local/regional/national/international regulations (to be specified).
Keep /Store away from clothing/.../combustible materials. ... Chemical manufacturer, importer, or distributor to specify incompatible materials.		**Protect from sunlight.**	
Keep only in original container.		**Store away from other materials.**	
Wear protective gloves/eye protection/face protection. Chemical manufacturer, importer, or distributor to specify type of equipment.			

C.4.29 CORROSIVE TO METALS
(Classified in Accordance with WAC 296-901-14024(B.16))

Pictogram
Corrosion

Hazard category	Signal word	Hazard statement
1	Warning	May be corrosive to metals

Precautionary statements

Prevention	Response	Storage	Disposal
Keep only in original container.	**Absorb spillage to prevent material damage.**	**Store in corrosive resistant/... container with a resistant inner liner.** ... Chemical manufacturer, importer, or distributor to specify other compatible materials.	

C.4.30 Label elements for OSHA defined hazards

Hazard category	Signal word	Hazard statement	Pictogram
Pyrophoric Gas	Danger	Catches fire spontaneously if exposed to air	Flame
Simple Asphyxiant	Warning	May displace oxygen and cause rapid suffocation	No Pictogram
Combustible Dust[2]	Warning	May form combustible dust concentrations in air	No Pictogram

1 *Except no pictogram is required for explosives that are 1.4S small arms ammunition and components thereof. Labels for 1.4S small arms ammunition and components shall include appropriate precautionary statements.*

2 *The chemical manufacturer or importer shall label chemicals that are shipped in dust form, and present a combustible dust hazard in that form when used downstream, under ((~~paragraph (f)(1)~~)) WAC 296-901-14012(1); 2) the chemical manufacturer or importer shipping chemicals that are in a form that is not yet a dust must provide a label to customers under ((~~paragraph (f)(4)~~)) WAC 296-901-14012(4) if, under normal conditions of use, the chemicals are processed in a downstream workplace in such a way that they present a combustible dust hazard((~~.~~)); and 3) the employer shall follow the workplace labeling requirements under ((~~paragraph (f)(6)~~)) WAC 296-901-14012(6) where combustible dust hazards are present.*

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

AMENDATORY SECTION (Amending WSR 13-06-050, filed 3/5/13, effective 4/15/13)

WAC 296-901-14028 Appendix D—Safety data sheets. A safety data sheet (SDS) must include the information specified in Table D.1 under the section number and heading indicated for sections 1-11 and 16. If no relevant information is found for any given subheading within a section, the SDS must clearly indicate that no applicable information is available. Sections 12-15 may be included in the SDS, but are not mandatory.

Table D.1. Minimum Information for an SDS

	Heading	Subheading
1.	**Identification**	(a) Product identifier used on the label; (b) Other means of identification; (c) Recommended use of the chemical and restrictions on use; (d) Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party; (e) Emergency phone number.
2.	**Hazard(s) identification**	(a) Classification of the chemical in accordance with WAC 296-901-14008; (b) Signal word, hazard statement(s), symbol(s) and precautionary statement(s) in accordance with WAC 296-901-14012. (Hazard symbols may be provided as graphical reproductions in black and white or the name of the symbol, e.g., flame, skull and crossbones);

	Heading	Subheading
		(c) Describe any hazards not otherwise classified that have been identified during the classification process; (d) Where an ingredient with unknown acute toxicity is used in a mixture at a concentration ((=)) ≥ 1% and the mixture is not classified based on testing of the mixture as a whole, a statement that X% of the mixture consists of ingredient(s) of unknown acute toxicity is required.
3.	**Composition/information on ingredients**	Except as provided for in WAC 296-901-14018 on trade secrets: **For Substances** (a) Chemical name; (b) Common name and synonyms; (c) CAS number and other unique identifiers; (d) Impurities and stabilizing additives which are themselves classified and which contribute to the classification of the substance. **For Mixtures** In addition to the information required for substances: (a) The chemical name and concentration (exact percentage) or concentration ranges of all ingredients which are classified as health hazards in accordance with WAC 296-901-14008 and (1) are present above their cut-off/concentration limits; or (2) present a health risk below the cut-off/concentration limits. (b) The concentration (exact percentage) must be specified unless a trade secret claim is made in accordance with WAC 296-901-14018, when there is batch-to-batch variability in the production of a mixture, or for a group of substantially similar mixtures (See WAC 296-901-14022 (A.0.5.1.2)) with similar chemical composition. In these cases, concentration ranges may be used. **For All Chemicals Where a Trade Secret is Claimed** Where a trade secret is claimed in accordance with WAC 296-901-14018, a statement that the specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret is required.
4.	**First-aid measures**	(a) Description of necessary measures, subdivided according to the different routes of exposure, i.e., inhalation, skin and eye contact, and ingestion; (b) Most important symptoms/effects, acute and delayed. (c) Indication of immediate medical attention and special treatment needed, if necessary.
5.	**Fire-fighting measures**	(a) Suitable (and unsuitable) extinguishing media. (b) Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products). (c) Special protective equipment and precautions for fire-fighters.
6.	**Accidental release measures**	(a) Personal precautions, protective equipment, and emergency procedures. (b) Methods and materials for containment and cleaning up.
7.	**Handling and storage**	(a) Precautions for safe handling. (b) Conditions for safe storage, including any incompatibilities.
8.	**Exposure controls/personal protection**	(a) DOSH permissible exposure limit (PEL), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV), and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available. (b) Appropriate engineering controls. (c) Individual protection measures, such as personal protective equipment.

	Heading	Subheading
9.	**Physical and chemical properties**	(a) Appearance (physical state, color, etc.); (b) Odor; (c) Odor threshold; (d) pH; (e) Melting point/freezing point; (f) Initial boiling point and boiling range; (g) Flash point; (h) Evaporation rate; (i) Flammability (solid, gas); (j) Upper/lower flammability or explosive limits; (k) Vapor pressure; (l) Vapor density; (m) Relative density; (n) Solubility(ies); (o) Partition coefficient: n-octanol/water; (p) Auto-ignition temperature; (q) Decomposition temperature; (r) Viscosity.
10.	**Stability and reactivity**	(a) Reactivity; (b) Chemical stability; (c) Possibility of hazardous reactions; (d) Conditions to avoid (e.g., static discharge, shock, or vibration); (e) Incompatible materials; (f) Hazardous decomposition products.
11.	**Toxicological information**	Description of the various toxicological (health) effects and the available data used to identify those effects, including: (a) Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact); (b) Symptoms related to the physical, chemical and toxicological characteristics; (c) Delayed and immediate effects and also chronic effects from short-and long-term exposure; (d) Numerical measures of toxicity (such as acute toxicity estimates). (e) Whether the hazardous chemical is listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition), or by DOSH.
12.	**Ecological information (Non-mandatory)**	(a) Ecotoxicity (aquatic and terrestrial, where available); (b) Persistence and degradability; (c) Bioaccumulative potential; (d) Mobility in soil; (e) Other adverse effects (such as hazardous to the ozone layer).
13.	**Disposal considerations (Non-mandatory)**	Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging.
14.	**Transport information (Non-mandatory)**	(a) UN number; (b) UN proper shipping name; (c) Transport hazard class(es); (d) Packing group, if applicable; (e) Environmental hazards (e.g., Marine pollutant (Yes/No)); (f) Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code); (g) Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises.

	Heading	Subheading
15.	**Regulatory information (Non-mandatory)**	Safety, health and environmental regulations specific for the product in question.
16.	**Other information, including date of preparation or last revision**	The date of preparation of the SDS or the last change to it.

AMENDATORY SECTION (Amending WSR 13-06-050, filed 3/5/13, effective 4/15/13)

WAC 296-901-14032 Appendix F—Guidance for hazard classifications regarding carcinogenicity. The mandatory criteria for classification of a chemical for carcinogenicity under HCS are found in WAC 296-901-14022 (A.6). This non-mandatory Appendix provides additional guidance on hazard classification for carcinogenicity. Part A of Appendix F includes background guidance provided by GHS based on the Preamble of the International Agency for Research on Cancer (IARC) "Monographs on the Evaluation of Carcinogenic Risks to Humans" (2006). Part B provides IARC classification information. Part C provides background guidance from the National Toxicology Program (NTP) "Report on Carcinogens" (RoC), and Part D is a table that compares GHS carcinogen hazard categories to carcinogen classifications under IARC and NTP, allowing classifiers to be able to use information from IARC and NTP RoC carcinogen classifications to complete their classifications under the GHS, and thus the HCS.

Part A: Background Guidance[1]

As noted in Footnote 6 of WAC 296-901-14022 (A.6)., the GHS includes as guidance for classifiers information taken from the Preamble of the International Agency for Research on Cancer (IARC) "Monographs on the Evaluation of Carcinogenic Risks to Humans" (2006), providing guidance on the evaluation of the strength and evidence of carcinogenic risks to humans. This guidance also discusses some additional considerations in classification and an approach to analysis, rather than hard-and-fast rules. Part A is consistent with WAC 296-901-14022 (A.6), and must help in evaluating information to determine carcinogenicity.

Carcinogenicity in humans:

The evidence relevant to carcinogenicity from studies in humans is classified into one of the following categories:

(a) ***Sufficient evidence of carcinogenicity*:** A causal relationship has been established between exposure to the agent and human cancer. That is, a positive relationship has been observed between the exposure and cancer in studies in which chance, bias and confounding could be ruled out with reasonable confidence.

(b) ***Limited evidence of carcinogenicity*:** A positive association has been observed between exposure to the agent and cancer for which a causal interpretation is considered by the Working Group to be credible, but chance, bias or confounding could not be ruled out with reasonable confidence.

In some instances, the above categories may be used to classify the degree of evidence related to carcinogenicity in specific organs or tissues.

Carcinogenicity in experimental animals:

The evidence relevant to carcinogenicity in experimental animals is classified into one of the following categories:

(a) **Sufficient evidence of carcinogenicity:** A causal relationship has been established between the agent and an increased incidence of malignant neoplasms or of an appropriate combination of benign and malignant neoplasms in (i) two or more species of animals or (ii) two or more independent studies in one species carried out at different times or in different laboratories or under different protocols. An increased incidence of tumors in both sexes of a single species in a well-conducted study, ideally conducted under Good Laboratory Practices, can also provide sufficient evidence.

Exceptionally, a single study in one species and sex might be considered to provide sufficient evidence of carcinogenicity when malignant neoplasms occur to an unusual degree with regard to incidence, site, type of tumor or age at onset, or when there are strong findings of tumors at multiple sites.

(a) **Limited evidence of carcinogenicity:** The data suggest a carcinogenic effect but are limited for making a definitive evaluation because, e.g. (i) the evidence of carcinogenicity is restricted to a single experiment; (ii) there are unresolved questions regarding the adequacy of the design, conduct or interpretation of the studies; (iii) the agent increases the incidence only of benign neoplasms or lesions of uncertain neoplastic potential; or (iv) the evidence of carcinogenicity is restricted to studies that demonstrate only promoting activity in a narrow range of tissues or organs.

Guidance on how to consider important factors in classification of carcinogenicity (See Reference Section)

The weight of evidence analysis called for in GHS and the HCS is an integrative approach that considers important factors in determining carcinogenic potential along with the strength of evidence analysis. The IPCS ***"Conceptual Framework for Evaluating a Mode of Action for Chemical Carcinogenesis"*** (2001), International Life Sciences Institute (ILSI) ***"Framework for Human Relevance Analysis of Information on Carcinogenic Modes of Action"*** (Meek, et al., 2003; Cohen et al., 2003, 2004), and Preamble to the IARC Monographs (2006; Section B.6. (Scientific Review and Evaluation; Evaluation and Rationale)) provide a basis for systematic assessments that may be performed in a consistent fashion. The IPCS also convened a panel in 2004 to further develop and clarify the human relevance framework.

However, the above documents are not intended to dictate answers, nor provide lists of criteria to be checked off.

Mode of action

Various documents on carcinogen assessment all note that mode of action in and of itself, or consideration of comparative metabolism, must be evaluated on a case-by-case basis and are part of an analytic evaluative approach. One must look closely at any mode of action in animal experiments, taking into consideration comparative toxicokinetics/toxicodynamics between the animal test species and humans to determine the relevance of the results to humans. This may lead to the possibility of discounting very specific effects of certain types of substances. Life stage-dependent effects on cellular differentiation may also lead to qualitative differences between animals and humans. Only if a mode of action of tumor development is conclusively determined not to be operative in humans may the carcinogenic evidence for that tumor be discounted. However, a weight of evidence evaluation for a substance calls for any other tumorigenic activity to be evaluated, as well.

Responses in multiple animal experiments

Positive responses in several species add to the weight of evidence that a substance is a carcinogen. Taking into account all of the factors listed in WAC 296-901-14022 (A.6.2.5.2) and more, such chemicals with positive outcomes in two or more species would be provisionally considered to be classified in GHS Category 1B until human relevance of animal results are assessed in their entirety. It must be noted, however, that positive results for one species in at least two independent studies, or a single positive study showing unusually strong evidence of malignancy may also lead to Category 1B.

Responses are in one sex or both sexes

Any case of gender-specific tumors must be evaluated in light of the total tumorigenic response to the substance observed at other sites (multi-site responses or incidence above background) in determining the carcinogenic potential of the substance.

If tumors are seen only in one sex of an animal species, the mode of action must be carefully evaluated to see if the response is consistent with the postulated mode of action. Effects seen only in one sex in a test species may be less convincing than effects seen in both sexes, unless there is a clear patho-physiological difference consistent with the mode of action to explain the single sex response.

Confounding effects of excessive toxicity or localized effects

Tumors occurring only at excessive doses associated with severe toxicity generally have doubtful potential for carcinogenicity in humans. In addition, tumors occurring only at sites of contact and/or only at excessive doses need to be carefully evaluated for human relevance for carcinogenic hazard. For example, forestomach tumors, following administration by gavage of an irritating or corrosive, non-mutagenic chemical, may be of questionable relevance. However, such determinations must be evaluated carefully in justifying the carcinogenic potential for humans; any occurrence of other tumors at distant sites must also be considered.

Tumor type, reduced tumor latency

Unusual tumor types or tumors occurring with reduced latency may add to the weight of evidence for the carcinogenic potential of a substance, even if the tumors are not statistically significant.

Toxicokinetic behavior is normally assumed to be similar in animals and humans, at least from a qualitative perspective. On the other hand, certain tumor types in animals may be associated with toxicokinetics or toxicodynamics that are unique to the animal species tested and may not be predictive of carcinogenicity in humans. Very few such examples have been agreed internationally. However, one example is the lack of human relevance of kidney tumors in male rats associated with compounds causing ((~~a2u-globulin~~)) α2u-globulin nephropathy (IARC, Scientific Publication N˚ 1472). Even when a particular tumor type may be discounted, expert judgment must be used in assessing the total tumor profile in any animal experiment.

Part B: International Agency for Research on Cancer (IARC)[3]

IARC Carcinogen Classification Categories:

Group 1: The agent is *carcinogenic to humans*.

This category is used when there is ***sufficient evidence of carcinogenicity*** in humans. Exceptionally, an agent may be placed in this category when evidence of carcinogenicity in humans is less than ***sufficient*** but there is ***sufficient evidence of carcinogenicity*** in experimental animals and strong evidence in exposed humans that the agent acts through a relevant mechanism of carcinogenicity.

Group 2:

This category includes agents for which, at one extreme, the degree of evidence of carcinogenicity in humans is almost ***sufficient***, as well as those for which, at the other extreme, there are no human data but for which there is evidence of carcinogenicity in experimental animals. Agents are assigned to either Group 2A **(*probably carcinogenic to humans*)** or Group 2B **(*possibly carcinogenic to humans*)** on the basis of epidemiological and experimental evidence of carcinogenicity and mechanistic and other relevant data. The terms ***probably carcinogenic*** and ***possibly carcinogenic*** have no quantitative significance and are used simply as descriptors of different levels of evidence of human carcinogenicity, with ***probably carcinogenic*** signifying a higher level of evidence than possibly carcinogenic.

Group 2A: *The agent is probably carcinogenic to humans.*

This category is used when there is ***limited evidence of carcinogenicity*** in humans and ***sufficient evidence of carcinogenicity*** in experimental animals. In some cases, an agent may be classified in this category when there is ***inadequate evidence of carcinogenicity*** in humans and ***sufficient evidence of carcinogenicity*** in experimental animals and strong evidence that the carcinogenesis is mediated by a mechanism

that also operates in humans. Exceptionally, an agent may be classified in this category solely on the basis of ***limited evidence of carcinogenicity*** in humans. An agent may be assigned to this category if it clearly belongs, based on mechanistic considerations, to a class of agents for which one or more members have been classified in Group 1 or Group 2A.

Group 2B: The agent is *possibly carcinogenic to humans*.

This category is used for agents for which there is ***limited evidence of carcinogenicity*** in humans and less than **sufficient evidence of carcinogenicity** in experimental animals. It may also be used when there is ***inadequate evidence of carcinogenicity*** in humans but there is ***sufficient evidence of carcinogenicity*** in experimental animals. In some instances, an agent for which there is ***inadequate evidence of carcinogenicity*** in humans and less than ***sufficient evidence of carcinogenicity*** in experimental animals together with supporting evidence from mechanistic and other relevant data may be placed in this group. An agent may be classified in this category solely on the basis of strong evidence from mechanistic and other relevant data.

Part C: National Toxicology Program (NTP), "Report on Carcinogens", Background Guidance

NTP Listing Criteria[4]:

The criteria for listing an agent, substance, mixture, or exposure circumstance in the Report on Carcinogens (RoC) are as follows:

Known To Be A Human Carcinogen: There is sufficient evidence of carcinogenicity from studies in humans that indicates a causal relationship between exposure to the agent, substance, or mixture, and human cancer.

Reasonably Anticipated To Be A Human Carcinogen: There is limited evidence of carcinogenicity from studies in humans that indicates that a causal interpretation is credible, but that alternative explanations, such as chance, bias, or confounding factors, could not adequately be excluded,

or

there is sufficient evidence of carcinogenicity from studies in experimental animals that indicates there is an increased incidence of malignant and/or a combination of malignant and benign tumors (1) in multiple species or at multiple tissue sites, or (2) by multiple routes of exposure, or (3) to an unusual degree with regard to incidence, site, or type of tumor, or age at onset,

or

there is less than sufficient evidence of carcinogenicity in humans or laboratory animals; however, the agent, substance, or mixture belongs to a well-defined, structurally-related class of substances whose members are listed in a previous Report on Carcinogens as either known to be a human carcinogen or reasonably anticipated to be a human carcinogen, or there is convincing relevant information that the agent acts through mechanisms indicating it would likely cause cancer in humans.

Conclusions regarding carcinogenicity in humans or experimental animals are based on scientific judgment, with consideration given to all relevant information. Relevant information includes, but is not limited to, dose response, route of exposure, chemical structure, metabolism, pharmacokinetics, sensitive sub-populations, genetic effects, or other data relating to mechanism of action or factors that may be unique to a given substance. For example, there may be substances for which there is evidence of carcinogenicity in laboratory animals, but there are compelling data indicating that the agent acts through mechanisms that do not operate in humans and would therefore not reasonably be anticipated to cause cancer in humans.

Part D. Table Relating Approximate Equivalences among IARC, NTP RoC, and GHS Carcinogenicity Classifications

The following table may be used to perform hazard classifications for carcinogenicity under the HCS. It relates the approximated GHS hazard categories for carcinogenicity to the classifications provided by IARC and NTP, as described in Parts B and C of this Appendix.

Approximate Equivalences Among Carcinogen Classification Schemes

IARC	GHS	NTP RoC
Group 1	Category 1A	Known.
Group 2A	Category 1B	Reasonably anticipated.
Group 2B	Category 2	(See Note 1).

Note 1:

1. Limited evidence of carcinogenicity from studies in humans (corresponding to IARC 2A/GHS 1B);

2. Sufficient evidence of carcinogenicity from studies in experimental animals (again, essentially corresponding to IARC 2A/GHS 1B);

3. Less than sufficient evidence of carcinogenicity in humans or laboratory animals; however:

a. The agent, substance, or mixture belongs to a well-defined, structurally-related class of substances whose members are listed in a previous RoC as either "Known" or "Reasonably Anticipated" to be a human carcinogen, or

b. There is convincing relevant information that the agent acts through mechanisms indicating it would likely cause cancer in humans.

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Footnote 1 The text of Appendix F, Part A, on the IARC Monographs, is paraphrased from the 2006 Preamble to the "Monographs on the Evaluation of Carcinogenic Risks to Humans" the Classifier is referred to the full IARC Preamble for the complete text. The text is not part of the agreed GHS text on the harmonized system developed by the OECD Task Force-HCL.

Footnote 2 While most international agencies do not consider kidney tumors coincident with ((~~a2u-globulin~~)) α2u-globulin nephropathy to be a predictor of risk in humans, this view is not universally held. (See: Doi et al., 2007)

Footnote 3 Preamble of the International Agency for Research on Cancer (IARC) "Monographs on the Evaluation of Carcinogenic Risks to Humans" (2006)

Footnote 4 See: http://ntp.niehs.nih.gov/go/15209

Footnote 5 This evidence can include traditional cancer epidemiology studies, data from clinical studies, and/or data derived from the study of tissues or cells from humans exposed to the substance in question that can be useful for evaluating whether a relevant cancer mechanism is operating in people.

WSR 14-08-002
PERMANENT RULES
GAMBLING COMMISSION

[Order 695—Filed March 20, 2014, 8:20 a.m., effective July 1, 2014]

Effective Date of Rule: July 1, 2014.

Purpose: We received a petition for rule change from the owner/operator of four commercial businesses operating pull-tabs. The petitioner's request to increase the threshold for recording winner identification information from more than $20 to more than $50 and to increase the threshold for retaining winning tickets from over $20 to over $50 was adopted at the March 2014 commission meeting.

Citation of Existing Rules Affected by this Order: Amending WAC 230-14-110 and 230-14-265.

Statutory Authority for Adoption: RCW 9.46.070, 9.46.110.

Adopted under notice filed as WSR 14-03-097 on January 17, 2014.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 2, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 2, Repealed 0.

Date Adopted: March 20, 2014.

Susan Newer
Rules Coordinator

AMENDATORY SECTION (Amending WSR 07-17-058, filed 8/10/07, effective 1/1/08)

WAC 230-14-110 Recording winners. When punch board or pull-tab players win more than ((~~twenty~~)) fifty dollars or merchandise prizes with a retail value over ((~~twenty~~)) fifty dollars, operators must make a record by:

(1) Having winners print their name and date of birth, in ink, on the side of the winning punch or tab opposite the winning symbol(s) and verifying the winner's identity and recording the current date and initialing the winning punch or tab; or

(2) Recording the required information on a sheet of paper at least three inches by five inches and stapling the winning tab or punch to the paper if the pull-tab or punch is constructed or printed so that recording the information required in a legible manner is not possible.

AMENDATORY SECTION (Amending WSR 09-17-077, filed 8/14/09, effective 1/1/10)

WAC 230-14-265 Retention requirements for punch boards and pull-tab series. (1) Punch board and pull-tab operators must keep all punch boards or pull-tab series removed from play, including, at least:

(a) All prize flares; and

(b) All unplayed tabs; and

(c) All winning punches or tabs.

(2) Operators must make the items in subsection (1) of this section available on the licensed premises for us, local law enforcement, or local tax agencies to inspect.

(3) If stored off premises, operators must produce the game for inspection on demand.

(4) Operators must retain punch board or pull-tab series removed from play for:

(a) **Charitable or nonprofit operators -** Four months following the last day of the month in which the board or series was removed from play; and

(b) **Commercial operators -**

(i) Two months following the last day of the month in which they removed the board or series from play; and

(ii) Three months following the day they removed the board or series from play for winning punches or pull-tabs over ((~~twenty~~)) fifty dollars. Operators must also retain the flare for these games; and

(c) **Carry-over jackpot series -** For four months after the last day of the month in which the carry-over jackpot was won; and

(d) **Progressive pull-tab series -** For one year. After the retention period, operators must destroy unsold progressive pull-tab series tabs in such a way that no one may find and use unopened winning tabs later; and

(e) **Cumulative prize pool pull-tab games -** for four months, following the last day of the month, in which the last seal is opened on the cumulative prize pull-tab game board.

WSR 14-08-009
PERMANENT RULES
OLYMPIC COLLEGE

[Filed March 20, 2014, 10:36 a.m., effective April 20, 2014]

Effective Date of Rule: Thirty-one days after filing.

Purpose: The purpose of the revisions to this policy is to bring it into compliance with federal legislation.

Citation of Existing Rules Affected by this Order: Amending WAC 132C-10-160.

Statutory Authority for Adoption: Chapter 28B.50 RCW.

Adopted under notice filed as WSR 14-06-055 on February 27, 2014.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 1, Repealed 0; Federal Rules or Standards: New 0, Amended 1, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 1, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 1, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

Date Adopted: March 18, 2014.

Thomas Oliver
Rules Coordinator

AMENDATORY SECTION (Amending WSR 12-08-034, filed 3/29/12, effective 4/29/12)

WAC 132C-10-160 Nondiscrimination policy. (1) Intent. The Olympic College board of trustees herein affirms its policy of equal opportunity to all individuals and all the communities we serve. Olympic College is committed to the principle of equal opportunity in all matters relating to employment, ((~~college-sponsored~~)) college activities, and education programs and will comply with all applicable laws prohibiting discrimination including Title((~~s~~)) VII ((~~and IX~~)) of the Civil Rights Act of 1964, and amendments; Title IX of the Education Amendments of 1972; the Age Discrimination in Employment Act of 1967; section 504 of the Rehabilitation Act of 1974; the Americans with Disabilities Act of 1990; the Genetic Information Nondiscrimination Act of 2008; and the Washington state laws against discrimination, chapter 49.60 RCW.

(2) Policy. Olympic College is committed to the principle of equal opportunity in education and employment. Harassment and/or discrimination directed toward any individual or group on the basis of race((~~, creed,~~)); color((~~,~~)); national origin((~~,~~)); sex, including pregnancy; genetic information((~~,~~)); honorably discharged veteran or military status((~~,~~)); age((~~,~~)); religious preference((~~,~~)); creed; sexual orientation((~~,~~)); gender identity; or the presence of any sensory, mental, or physical disability or the use of a trained dog guide or service animal by a person with a disability((~~,~~)); status as a disabled or Vietnam-era veteran((~~,~~)); or political opinions or affiliations((~~,~~)); or any other population designated by statute is a violation of the mission and purpose of Olympic College and will not be tolerated. The college is committed to preventing and stopping discrimination, including harassment, on any of these unlawful bases, and any associated retaliatory behavior. All employees and students shall be allowed to work and learn in an environment free from discrimination.

(a) This policy is based on the principle that all forms of harassment and/or discrimination are unacceptable and will be dealt with promptly and effectively. Students, faculty or staff who are determined to have violated this policy (following investigatory proceedings) are subject to disciplinary action up to and including termination of employment and permanent dismissal (students).

(b) Applicants for admission or employment or any employees, students, or participants in college activities or programs who believe that they have been discriminated against may pursue an institutional complaint and/or may pursue other remedies provided by law.

(c) Administrators, supervisors and faculty members shall assist in ensuring that no retaliation occurs against persons who make complaints, persons who are complained against or persons who are involved in the investigation of complaints.

(3) Responsibility.

(a) The president of the college, and all administrative employees shall have ultimate responsibility for overseeing compliance with this policy at his or her respective unit of the college.

(b) In addition, each vice-president, executive officer, administrative officer, faculty member or other person with supervisory responsibility shall be required to report any

complaint of discrimination, sexual harassment, or any harassment that violates this policy.

(c) All members of the college community are required to cooperate in any investigation of the discrimination/harassment complaint.

(4) Complaint procedure. Persons who believe that they have been the subject of unlawful discrimination or harassment are encouraged to bring such issues to the attention of their supervisor, instructor, or human resource services, or follow the established complaint procedures.

WSR 14-08-010

PERMANENT RULES

DEPARTMENT OF REVENUE

[Filed March 20, 2014, 11:29 a.m., effective April 20, 2014]

Effective Date of Rule: Thirty-one days after filing.

Purpose: Chapter 458-02 WAC provides the business licensing service (BLS) rules.

Chapter 298, Laws of 2011 and chapter 144, Laws of 2013 transferred the administration of the master license service (MLS) program from the department of licensing to the department of revenue, effective July 1, 2011, and renamed the master license service program to BLS program. *See* chapters 19.02, 19.80 RCW. The department of revenue adds new chapter 458-02 WAC to replace the former BLS rules under chapter 308-300 WAC and WAC 458-20-10101.

Citation of Existing Rules Affected by this Order: Repealing chapter 308-300 WAC, WAC 458-20-10101.

Statutory Authority for Adoption: RCW 82.32.300 and 82.01.060(2).

Adopted under notice filed as WSR 14-02-127 on January 2, 2014.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 5, Amended 0, Repealed 30.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

Date Adopted: March 20, 2014.

Dylan Waits
Rules Coordinator

Chapter 458-02 WAC

CONSOLIDATED LICENSING SYSTEM

NEW SECTION

WAC 458-02-100 Declaration of purpose and authority. This chapter is adopted to implement the authority granted by RCW 19.02.030 to administer the consolidated business license application process created under chapter 19.02 RCW, and the authority granted by RCW 19.80.045 to administer the registration of trade names under chapter 19.80 RCW.

NEW SECTION

WAC 458-02-200 Business licensing service—Applications, licenses, renewals—Fees—Posting. (1) **Introduction.** Information about the individual licenses that may be obtained from the business licensing service (BLS) of the department of revenue (the department) is available online at: http://bls.dor.wa.gov/.

(2) **What fee do I need to pay when applying for or renewing a license?** The fee payable is the total amount of all individual license fees, late filing fees, other penalty fees, and handling fees, and may include additional fees charged to cover credit or debit card processing. Licensing fees vary depending on the license(s) for which you are applying or renewing.

(3) **What does the department do with the fees?** The department will distribute the fees received for individual licenses to the respective regulatory agencies. The handling fees support the operation of the BLS.

(4) **When do I get my business license?** The business license will not be issued until the total fee payable is collected and all required information has been submitted. Some individual licenses require review and approval by the regulating authorities, and the business license will not be issued until the regulating authorities have approved them.

(5) **Can I get a refund?** The business license application and renewal handling fees collected under RCW 19.02.075 are not refundable. When a license is denied or when an applicant withdraws an application, a refund of any other refundable portion of the total payment will be made in accordance with the applicable licensing laws.

(6) **What are the handling fees?** The business license application handling fee amounts are:

Type of handling fee:	Fee amount:
Business license application filing	$19.00
Business renewal application filing	$11.00

(7) **What should I do with my business license?** The business license must be displayed in a conspicuous place at the business location for which the license is issued.

(8) **Do I need to renew my business license?**

(a) The various licenses displayed on the business license may each have a requirement to be renewed periodically. The department will prorate the individual license issuance fees as appropriate so that all requested licenses are renewed at the same time.

(b) Licenses requiring renewal must be renewed by the expiration date or the department will assess a delinquency fee. The regulatory agencies may also assess delinquency fees and/or penalties for late renewal, and may cancel the individual licenses for nonrenewal. Reissuance of individual licenses canceled for nonrenewal may require the filing of a new business license application.

NEW SECTION

WAC 458-02-201 Business licensing service—Business license transfer. Transfer of a business license is prohibited. Transfer of each individual license held under the business license is also prohibited, unless expressly permitted by the regulatory agency's applicable licensing law. In the event of proven incapacity, death, receivership, bankruptcy, or assignment for benefit of creditors of any licensee, the business license may be transferred to a court appointed or court confirmed guardian, executor or administrator, receiver, trustee, or assignee for the benefit of creditors, who may continue to operate or conduct the licensed business activities, subject to the rules of the individual agencies.

NEW SECTION

WAC 458-02-202 Business licensing service—Notification of changes. (1) When the information about a business that was submitted in a business license application changes, the applicant or the licensee must immediately notify the department of the change or correction. Notification must be made in advance of a change whenever possible.

(2) Where the rules of the granting regulatory agency require advanced notice of a change, and/or the approval of the granting agency before implementing the change, the licensee must comply with that requirement.

(3) Some changes must be reported on a specific form and may require the payment of a fee.

(4) If the change is significant, a new business license application may be required, and all licenses requested on that application will be reviewed and reapproved by the respective regulating authorities.

NEW SECTION

WAC 458-02-300 Trade names—Registration—Fees—Search—Changes. (1) **Introduction.**

(a) Any person or persons who carries on, conducts or transacts business under a name or names that do not include the true and real name of all persons conducting that business must register that name or names with the department as trade name(s).

(b) Trade name registrations are made by completing a business license application, payment of the appropriate fees, and providing the required information.

(c) A notice of change must be filed with the department when any information in the business license application relating to the trade name registration has changed.

(d) A trade name must be canceled with the department when use of the trade name is discontinued.

(2) For the purpose of this section, applicable terms have the meaning given in RCW 19.80.005.

(3) **Can I search for a trade name?**

(a) Free search of a particular trade name is available online at www.bls.dor.gov.

(b) Trade name registration does not afford any brand name protection or provide you with unlimited rights for the use of that name.

(4) **What are the fees related to the trade name registration?**

Type of fee:	Fee amount:
Trade name registration	$5.00 per name

(5) **Can I get a refund?** The fees related to trade name registrations are not refundable.

REPEALER

The following chapter of the Washington Administrative Code is repealed:

WAC 308-300-010	Declaration of purpose and authority.
WAC 308-300-020	Definitions.
WAC 308-300-030	Licenses which are included on the master license.
WAC 308-300-040	Businesses covered.
WAC 308-300-050	Qualified applicants.
WAC 308-300-060	Participation.
WAC 308-300-070	Authority to prepare forms.
WAC 308-300-080	Procedures for obtaining master application.
WAC 308-300-090	Transfer of master license.
WAC 308-300-100	Notification of changes.
WAC 308-300-110	Issuance of master license.
WAC 308-300-120	Assignment of renewal schedules.
WAC 308-300-130	Renewal notices and procedures.
WAC 308-300-140	Renewal of licenses.
WAC 308-300-150	Voiding notices and procedures.
WAC 308-300-170	Prorating of fees.
WAC 308-300-180	Late filing procedures.
WAC 308-300-190	Posting.
WAC 308-300-200	Misuse of master license.
WAC 308-300-210	Declaration of purpose and authority.
WAC 308-300-215	Master license service (MLS) state grant program.
WAC 308-300-220	Definitions.
WAC 308-300-230	Required registration of trade name.
WAC 308-300-240	Cancellation.
WAC 308-300-250	Forms.
WAC 308-300-260	Records—Transfer from counties to department.
WAC 308-300-270	Searches.

WAC 308-300-280 Fees and refunds.

WAC 308-300-290 Cross-referencing and public access.

REPEALER

The following section of the Washington Administrative Code is repealed:

WAC 458-20-10101 Business licensing service—Total fee payable—Handling of fees.

WSR 14-08-013
PERMANENT RULES
WENATCHEE VALLEY COLLEGE

[Filed March 20, 2014, 2:13 p.m., effective April 20, 2014]

Effective Date of Rule: Thirty-one days after filing.

Purpose: Amend existing rules to comply with college policies; adopt two new rules to comply with college policy.

Citation of Existing Rules Affected by this Order: Amending WAC 132W-105-020, 132W-112-040, 132W-112-050, 132W-112-060, 132W-115-070, 132W-115-080, 132W-115-090, 132W-115-100, 132W-117-020, 132W-117-100, 132W-117-110, 132W-117-120, 132W-117-130, 132W-117-150, 132W-117-180, 132W-117-210, 132W-117-220, 132W-117-240, 132W-117-260, 132W-134-010, 132W-141-010, 132W-141-020, 132W-141-030, 132W-141-040, 132W-141-060, 132W-141-070, 132W-141-080, 132W-141-090, 132W-277-010, 132W-277-050, 132W-277-060, 132W-277-080, 132W-277-100, and 132W-277-110.

Statutory Authority for Adoption: RCW 28B.50.140 (13).

Adopted under notice filed as WSR 13-21-086 on October 10 [18], 2013.

Changes Other than Editing from Proposed to Adopted Version: The agency is not amending WAC 132W-115-110 or 132W-115-130. In WAC 132W-112-060, the phrase "See college policy 000.330 and 000.340 and procedure 1000.350 for more information," is removed as being unnecessary and to avoid having to change the WAC if the college policy numbers change in the future. In WAC 132W-115-080(2) the phrase "See college policy 000.330 nondiscrimination and harassment and policy 000.340 sexual harassment" is removed as being unnecessary and to avoid having to change the WAC if the college policy numbers change in the future. In WAC 132W-115-080(3) "See college policy 500.450 violence in the workplace" is removed as unnecessary. In WAC 132W-115-080(9), "see college policy 500.475 alcohol and drug-free workplace" is removed as unnecessary. In WAC 132W-115-080(13), "Unauthorized" was added immediately before "possession" and inserted (licensed or unlicensed) immediately after "firearm" in order to clarify that all firearms and named weapons are prohibited on campus whether licensed or not. In this section the word "policy" was replaced with the word "rule" to correctly reflect that this is a rule and not policy. In addition the phrase, "see college policy 000.270 weapons on campus" is removed as being unnecessary and to avoid having to change the WAC if the college policy numbers change in the future. In WAC 132W-115-080(14), a comma was inserted immediately after "computing equipment." In WAC 132W-115-090(2), the phrase "See college policy 500.450 violence in the workplace" is removed as being unnecessary and having to avoid changing the WAC in the future if the college policy numbers change. In WAC 132W-115(3) [132W-115-100(3)], added the phrase "or his/her designee" immediately after the phrase, "president of the college" in order to clarify that the president's designee also would have the power to act under this section. In WAC 132W-141-080(2), the word "Manager" is removed immediately after the phrase "Food Services" and replaced with the word "Provider" since the provider may designate who the cancellation notice should go to. In WAC 132W-145-010, "Unauthorized" was added immediately before "possession" and inserted (licensed or unlicensed) immediately after "firearm" in order to clarify that all firearms and named weapons are prohibited on campus whether licensed or not. In this section the word "policy" was replaced with the word "rule" to correctly reflect that this is a rule and not policy.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 2, Amended 36, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 2, Amended 36, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

Date Adopted: February 26, 2014.

Jim Richardson
President

Reviser's note: Chapter 132W-115 WAC is referenced above, but was not filed by the agency. The agency will file chapter 132W-115 WAC in a separate filing.

AMENDATORY SECTION (Amending WSR 01-12-015, filed 5/25/01, effective 6/25/01)

WAC 132W-105-020 Regular meetings. Regular meetings of the board shall be held each month((~~; the dates of the regular meetings shall be~~)), typically on the ((~~second~~)) third Wednesday of each month at ((~~3:00 p.m.~~)) such time and place as it may designate.

A regular meeting may be canceled by action of the board or the board chair. A special meeting may, however, be set for another date and time. When a special meeting is scheduled, notice thereof will be given in conformance with the notice requirements for special meetings contained in RCW 42.30.080.

The location of board meetings shall be ((~~held in the Wells Hall Board Room~~)) on one of the college campuses, 1300 Fifth St., Wenatchee, WA, or 116 West Apple Avenue,

Omak, WA or at such other places as the board shall determine. The location, including building and room will be included in public notices.

AMENDATORY SECTION (Amending WSR 01-12-015, filed 5/25/01, effective 6/25/01)

WAC 132W-112-040 Confidentiality of student records. Student records are managed in accordance with the Family Educational Rights and Privacy Act (FERPA). To minimize the risk of improper disclosure, academic and disciplinary records shall be separate. Transcripts of academic records shall contain only information about academic status, except when a student is dismissed for misconduct. Record of dismissal for misconduct shall be entered on a student transcript. Academic records, or information from disciplinary or counseling files, shall not be available to unauthorized persons on campus, or to individuals off campus, without the written consent of the student involved, except under legal compulsion or in cases where the safety of persons or property is involved. No records shall be kept which reflect the political activities or beliefs of students. Provision shall be made for the destruction of noncurrent disciplinary records after a period of three years. Administrative staff and faculty members shall respect confidential student information acquired in the course of their work.

AMENDATORY SECTION (Amending WSR 01-12-015, filed 5/25/01, effective 6/25/01)

WAC 132W-112-050 Freedom of association. Students are free to organize and to participate in voluntary associations of their own choosing. To be officially recognized, the associated students of Wenatchee Valley College must grant student organizations an official charter. Procedures for obtaining an official charter ((~~are published in the student handbook and~~)) can be found in the ASWVC bylaws. To receive or maintain official recognition, a student organization must be open to all students without regard to race, color, gender, creed, national origin, mental or physical handicaps, age, or sexual orientation.

AMENDATORY SECTION (Amending WSR 01-12-015, filed 5/25/01, effective 6/25/01)

WAC 132W-112-060 Freedom from sexual harassment. ((~~Students at~~)) It is the responsibility of Wenatchee Valley College ((~~shall be free from sexual harassment~~)) to provide and maintain a work and academic community which is free from sexual harassment. Sexual harassment violates federal and state law and will not be tolerated by Wenatchee Valley College. Any student or employee in violation of this policy and who engages in unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature, where such behavior offends the recipient, causes discomfort or humiliation, or interferes with job or academic performance, ((~~shall~~)) will be subject to disciplinary action((~~s~~)) up to and including expulsion from the school or dismissal from employment.

AMENDATORY SECTION (Amending WSR 01-12-015, filed 5/25/01, effective 6/25/01)

WAC 132W-117-020 Authority. Pursuant to RCW 28B.50.140(10), the board is granted authority to establish rules and regulations for pedestrians and vehicular and non-vehicular traffic over property owned, operated, and/or maintained by the college.

The enforcement of these rules and regulations shall be the responsibility of the ((~~plant office.~~)) security officer designated by the president.

The security officer or designees are authorized to issue parking and traffic citations, impound and/or immobilize vehicles, and control and regulate facilities use, traffic, and parking as prescribed in these rules and regulations.

Any person interfering with a college security officer or designees in the discharge of the provisions of these rules and regulations shall be in violation of RCW 9A.76.020, Obstructing governmental operation, and may be subject to arrest by a peace officer.

Failure by students to abide by these rules and regulations may be considered to be a violation of the code of student conduct.

AMENDATORY SECTION (Amending WSR 01-12-015, filed 5/25/01, effective 6/25/01)

WAC 132W-117-100 Report of accidents. The operator of any vehicle involved in an accident on campus where injury or death of any person results, or where either or both vehicles is damaged in any amount, shall within twenty-four hours make a written report of the accident to the ((~~dean~~)) vice-president of administrative services within one business day. This report does not relieve any person so involved in an accident from his or her responsibility to file a state of Washington motor vehicle accident report.

AMENDATORY SECTION (Amending WSR 01-12-015, filed 5/25/01, effective 6/25/01)

WAC 132W-117-110 Enforcement. (1) ((~~Enforcement of the parking rules and regulations will begin the first week of classes of fall quarter and will continue until the end of summer quarter.~~)) These rules and regulations will not be enforced Saturdays, Sundays and official college holidays.

(2) The security officer or his or her designee(s) shall be responsible for the enforcement of the rules and regulations contained in this chapter.

AMENDATORY SECTION (Amending WSR 01-12-015, filed 5/25/01, effective 6/25/01)

WAC 132W-117-120 Permits required for motor vehicles on campus. Students, ((~~faculty members, staff members~~)) employees, guests and visitors shall not stop, park or leave a vehicle whether attended or unattended upon the campus without a parking permit issued pursuant to this chapter; provided, the permit shall not be required of visitors who park in specifically marked visitor areas and the exemptions from traffic and parking restrictions set forth in this chapter.

AMENDATORY SECTION (Amending WSR 01-12-015, filed 5/25/01, effective 6/25/01)

WAC 132W-117-130 Authorization for issuance of permits. Parking permits shall be issued to students, ((~~faculty members, staff members~~)) employees, guests and visitors of the college pursuant to the following regulations:

(1) The ((~~dean~~)) vice-president of administrative services is authorized to issue parking permits to students upon the registration of their vehicle with the college at the beginning of each academic period.

(2) ((~~Faculty, staff, and~~)) Employees may be issued parking permits if they register their vehicle upon employment with the college.

(3) Temporary visitor parking permits or special parking permits may be issued by the ((~~dean~~)) vice-president of administrative services or his or her designee(s) if issuance enhances the business or operation of the college.

AMENDATORY SECTION (Amending WSR 01-12-015, filed 5/25/01, effective 6/25/01)

WAC 132W-117-150 Valid permits. The following are valid parking permits, provided they are properly displayed and unexpired:

A ((~~permanent~~)) student or employee permit.

A temporary permit.

A handicapped permit.

A visitor's permit.

AMENDATORY SECTION (Amending WSR 01-12-015, filed 5/25/01, effective 6/25/01)

WAC 132W-117-180 Permit revocation. Parking permits are the property of the college and may be recalled by the ((~~dean~~)) vice-president of administrative services or his or her designee(s) for any of the following reasons:

(1) When the purpose for which the permit was issued changes or no longer exists;

(2) When a permit is used by an unregistered vehicle or by an unauthorized individual;

(3) Falsification on a parking permit application;

(4) Continued violations of parking regulations; or

(5) Counterfeiting or altering a parking permit.

AMENDATORY SECTION (Amending WSR 01-12-015, filed 5/25/01, effective 6/25/01)

WAC 132W-117-210 Right to refuse permit. The ((~~dean~~)) vice-president of administrative services may refuse to issue a parking permit when it is deemed in the best interests of the college to do so.

AMENDATORY SECTION (Amending WSR 01-12-015, filed 5/25/01, effective 6/25/01)

WAC 132W-117-220 Allocation of parking spaces. The parking space available on campus shall be allocated by the ((~~dean~~)) vice-president of administrative services or his or her designee(s), in such a manner as will best effectuate the objectives ((~~[of]~~)) of this chapter.

(1) Faculty and staff reserved spaces will be so designated for their use; and

(2) Student and staff spaces will be so designated for their use; provided, physically handicapped students may be granted special permits to park in close proximity to the classrooms used by such students; and

(3) Parking space will be designated for use of visitors on campus.

AMENDATORY SECTION (Amending WSR 01-12-015, filed 5/25/01, effective 6/25/01)

WAC 132W-117-240 Special traffic and parking regulations authorized. Upon special occasions causing additional and/or heavy traffic and during emergencies, the ((~~dean~~)) vice-president of administrative services or his or her designee(s) is authorized to impose additional traffic and parking regulations to achieve the objectives of this chapter.

AMENDATORY SECTION (Amending WSR 01-12-015, filed 5/25/01, effective 6/25/01)

WAC 132W-117-260 Fines and penalties. The ((~~dean~~)) vice-president of administrative services or his or her designee(s) is authorized to impose fines and penalties for the violation of rules and regulations contained in this chapter.

(1) ((~~The following $5.00~~)) Citations will be issued for any of the following violations of the campus parking regulations. The ((~~fee will~~)) amount of the fines and penalties will be set annually by the board of trustees. Fines may be reduced ((~~to $2.50~~)) if paid within twenty-four hours.

(a) No valid parking permit displayed.

(b) Parking out of designated parking space.

(c) Overtime parking.

(d) Occupying more than one parking space.

(e) Blocking traffic.

(f) Parking in a reserved or restricted area.

(g) Parking in a driveway or walkway.

(h) Parking on grass or landscaped area.

(i) Failure to display handicapped permit.

(j) Use of forged, stolen, or transferred parking permits.

(k) Parking in a loading zone.

(l) Parked in any space designated as handicapped parking where the parked vehicle does not have a valid handicapped permit visible.

(m) Parked at an area designated as a fire lane.

(2) The ((~~dean~~)) vice-president of administrative services or his or her designee(s) shall be authorized to impound vehicles parked on college property.

(a) Vehicles left abandoned on college property for an unreasonable duration are subject to impoundment by the college, pursuant to state law. An unreasonable duration is a period greater than five working days.

(b) Vehicles involved in more than two violations of these regulations within a twelve-month period are subject to impoundment.

(c) Impoundment and storage expenses shall be borne by the owner of the impounded vehicle.

(d) The college shall not be liable for loss or damage of any kind resulting from such impoundment and storage.

(e) Impoundment of a vehicle does not remove the obligation for any fines associated with the citation.

(3) An accumulation of traffic violations by a student will be cause for disciplinary action, and the ((~~dean~~)) vice-president of administrative services shall initiate disciplinary proceedings against such student pursuant to WAC 132W-109-050.

(4) Fines will be paid at the cashier's office.

(5) Unpaid fines will be referred to the registration office for notation. When fines are unpaid, transcripts, quarterly grade reports, or permission to reregister may be withheld.

AMENDATORY SECTION (Amending WSR 01-12-015, filed 5/25/01, effective 6/25/01)

WAC 132W-125-010 Statement of policy. The college expects that students who receive services for which a financial obligation is incurred will exercise responsibility in meeting these obligations. Appropriate college staff ((~~is~~)) are empowered to act in accordance with regularly adopted procedures to carry out the intent of this policy, and if necessary to initiate legal action to insure that collection matters are brought to a timely and satisfactory conclusion.

Admission to or registration with the college, conferring of degrees and issuance of academic transcripts may be withheld for failure to meet financial obligations to the college.

AMENDATORY SECTION (Amending WSR 01-12-015, filed 5/25/01, effective 6/25/01)

WAC 132W-125-020 Withholding services for outstanding debts. (1) Upon receipt of a request for services where there is an outstanding debt owed to the college from the requesting person, the college shall notify the person((~~, in writing by certified mail to the last known address,~~)) by the most expedient means that the services will not be provided since there is an outstanding debt, and further that until that debt is satisfied, no such services will be provided to the individual. The notice shall include a statement to inform the college that he or she has a right to a hearing before a person designated by the president of the college if he or she believes that no debt is owed. The notice shall state that the request for the hearing must be made within twenty-one days from the date of notification.

(2) Upon receipt of a timely request for a hearing, the person designated by the president shall have the records and files of the college available for review and, at that time, shall hold a brief adjudicative proceeding concerning whether the individual owes or owed any outstanding debts to the institution. After the brief adjudicative proceeding, a decision shall be rendered by the president's designee indicating whether the college is correct in withholding services and/or applying offset for the outstanding debt.

(a) If the outstanding debt is found to be owed by the individual involved, no further services shall be provided.

(b) Notice of the decision shall be sent to the individual within five days after the hearing.

AMENDATORY SECTION (Amending WSR 01-14-016, filed 6/25/01, effective 7/26/01)

WAC 132W-134-010 Rules coordinator. The rules coordinator for Wenatchee Valley College as designated by the president is:

((~~Dean~~)) Vice President of Administrative Services
Wenatchee Valley College
1300 Fifth St.
Wenatchee, WA 98801

AMENDATORY SECTION (Amending WSR 01-14-016, filed 6/25/01, effective 7/26/01)

WAC 132W-141-010 Policy statement. The college is committed to providing quality educational and cultural services to the people of the college district. ((~~On this basis~~)) To that end, college facilities are made available for use by organizations conducting educational, cultural, civic, or community activities. College related activities of public educational, cultural or community service nature shall be given first priority consideration for the use of college facilities. Exemptions to the rental fee must be authorized by the president or designee, if deemed to further the best interests of the college, its ((~~faculty, staff~~)) employees or students.

The college reserves the right to deny an application by any group, organization, or individual which discriminates in their membership or limits participation in a manner inconsistent with the college's nondiscrimination policy.

College facilities may not be used for religious worship, exercise, or instruction (Washington State Constitution, Article 1, Section 11). College facilities may not be used in ways which interfere with the college's teaching, research, public service or support programs or interfere with the flow of pedestrian or vehicular traffic.

College facilities may be used for activities of a commercial nature or by commercial firms provided that the activity does not conflict with college functions and that charges are levied reflecting the full cost of the facility usage.

Unauthorized camping on Wenatchee Valley College District property is not permitted. "Camping" is defined to include use of tents, RVs, sleeping bags, or other outdoor sleeping arrangements (including overnight occupancy of a vehicle parked on college property). Exceptions to this policy can only be approved by the president or designee.

The college reserves the right to deny any application or to revoke any permit at any time if actions resulting from such application or permission constitute unlawful activity; or, if in the judgment of the administration, present imminent danger of unlawful activity, or if a prospective user has previously violated the provisions or rules and regulations of the college; or if activities which, in the judgment of the president or designee, conflict with, directly compete with, or are incompatible with the programs or mission of the college.

AMENDATORY SECTION (Amending WSR 01-14-016, filed 6/25/01, effective 7/26/01)

WAC 132W-141-020 Scheduling. (1) College facilities are made available for outside agencies or individuals by scheduling through the room ((~~calendar coordinator~~)) sched-

uler on each campus with approval by the ((~~dean~~)) vice-president of administrative services. Students must request facility usage with the student programs office, which will schedule requests through room scheduling. Any organization wishing to use college facilities on the college campus shall provide the following information:

(a) Name of sponsoring organization;

(b) Name of person in charge of arrangements;

(c) Number of participating individuals;

(d) Nature of proposed meeting;

(e) Desired dates and times;

(f) Type of facilities desired;

(g) Desired special optional equipment or arrangements.

(2) If the desired facility is available, a contract for the use of the facility is prepared by the office of the ((~~dean~~)) vice-president of administrative services and is to be completed and returned by the user group representative. Requests for scheduling will normally not be allowed more than two months in advance or beyond the end of the quarter in which a request is made. All applications shall be presented in time to allow consideration by the college board of trustees if needed.

(3) No publicity may be released until the college receives copy of the contract signed by the user. Publicity for all noncollege sponsored events must include the name of the sponsoring organization. This publicity must not imply Wenatchee Valley College sponsorship.

(4) The possession or consumption of alcoholic beverages on college premises or at college-related activities is prohibited except when preapproved by the board of trustees or the president in accordance with state board for liquor control regulations.

AMENDATORY SECTION (Amending WSR 01-14-016, filed 6/25/01, effective 7/26/01)

WAC 132W-141-030 Rental fees, additional charges, payment. The following fees and charges are applicable to all noncollege use of college facilities.

(1) Rental fees include routine custodial services during normal working hours. Any custodial/security/technical services required in addition to the routine service normally provided shall be paid by the user at current rates which may include overtime.

(2) User organizations using campus facilities ((~~after 10:00 p.m. on weekdays, or on weekends, or college holidays~~)) outside of regular public hours will be charged custodial/security/technical services at current hourly rates of time and one-half for a minimum of two hours.

(3) The rental schedule shall apply to ((~~by~~)) all noncollege groups. Exemption and/or reduction in fees are allowed under WAC 132W-141-090. The ((~~dean~~)) vice-president of administrative services is responsible for financial negotiations regarding custodial and rental expenses.

(4) The business office prepares and issues invoices for rental fees and any required guarantee or bond (WAC 132W-141-060). All fees will be made payable to Wenatchee Valley College at least one week before the use of the facility.

AMENDATORY SECTION (Amending WSR 01-14-016, filed 6/25/01, effective 7/26/01)

WAC 132W-141-040 Optional services. The user shall arrange food and beverage services in advance with the college food services ((~~manager~~)) provider. Outside food service is not permitted without prior written approval from the food services ((~~manager~~)) provider. For a fee, college-owned ((~~audio-visual~~)) equipment may be used on campus by any group using college facilities when arranged in advance through college media services.

AMENDATORY SECTION (Amending WSR 01-14-016, filed 6/25/01, effective 7/26/01)

WAC 132W-141-060 Liability. (1) The ((~~dean~~)) vice-president of administrative services may require that any user post ((~~of~~)) an adequate bond, deposit or a certificate of insurance before any rental agreement is consummated.

(2) The amount of the insurance for liability and property damage is at the discretion of the ((~~dean~~)) vice-president of administrative services((~~, proof of coverage must be presented to the dean at least fourteen days prior to the date of the event~~)). The college may request it be named as an additional insured on such liability insurance policy or certificate.

(3) In consideration of the permission granted to the user of college facilities, the user shall release the college and its agents, employees, or officers from all debts, claims, demands, damages, actions and causes of action whatsoever, which may occur as a result of the use of college facilities. The user shall further agree to protect, indemnify, and hold harmless the district, college, and its agents, employees, and officers from any claims, demands, actions, damages or causes of action directly or indirectly arising out of the use of the facilities or premises. Any group or individual applying for the use of a college facility shall accept financial responsibility and liability. Application for college facility use shall constitute acceptance by said group/individual of the responsibility stated above and willingness to comply with all rules and regulations regarding the use of college facilities.

AMENDATORY SECTION (Amending WSR 01-14-016, filed 6/25/01, effective 7/26/01)

WAC 132W-141-070 Damages. The user organization is responsible for and shall be liable for any repairs or replacement occasioned or made necessary by negligence or misuse of the facility. Repairs for damage to college equipment((~~, including stage, audio-visual, or lighting equipment,~~)) during and by reason of the occupancy of the premises by the user((~~,~~)) shall be ((~~paid from the guarantee deposit. The balance, if any, shall be returned to the organization making the deposit. If the guarantee deposit is not sufficient to cover the damage, the group using the facilities will be billed for the difference~~)) the responsibility of the user.

AMENDATORY SECTION (Amending WSR 01-14-016, filed 6/25/01, effective 7/26/01)

WAC 132W-141-080 Cancellations. (1) Cancellations for facility rentals should be made at least forty-eight hours in

advance. Notice of cancellation must be directed to the ((~~Dean~~)) vice-president of administrative services((~~, Wenatchee Valley College, 1300 Fifth Street, Wenatchee, WA 98801-1799, telephone number 509-662-1651 ext. 2133~~)) by telephone, e-mail, or mail. Failure to cancel at least forty-eight hours in advance may result in the forfeiture of rental fees.

(2) Cancellations for catering services are the responsibility of the applicant and must be made at least forty-eight hours in advance. Notice of cancellation must be directed to the Food Services ((~~Manager~~)) Provider, Wenatchee Valley College((~~, 1300 Fifth Street, Wenatchee, WA 98801-1799, telephone number 509-662-1651 ext. 2410~~)) by telephone, e-mail, or mail. Failure to cancel at least forty-eight hours in advance may require the user to reimburse the college for preparation and personnel expenses.

(3) Cancellations for audio/visual services are the responsibility of the applicant and must be made at least forty-eight hours in advance. Notice of cancellations must be directed to the Office of Media Services, ((~~Wenatchee Valley College, 1300 Fifth Street, Wenatchee, WA 98801-1799, telephone number 509-662-1651 ext. 2802~~)) by telephone, e-mail, or mail. Failure to cancel at least forty-eight hours in advance may result in the forfeiture of rental fees.

AMENDATORY SECTION (Amending WSR 01-14-016, filed 6/25/01, effective 7/26/01)

WAC 132W-141-090 Exemptions from or reduction in rental fees. (1) WAC 132W-141-010 allows for exemptions from rental fees. Such exemptions or reductions in rental fees must be authorized by the president or designee, if the planned use is deemed to further the best interests of the college ((~~and its~~)).

Applications for reductions or exemptions must be made in writing to the ((~~dean~~)) vice-president of administrative services two weeks prior to the event. The application must cite why the exemption meets the best interests and educational mission of the college.

(2) If space is available, exemptions for classroom use are normally granted to state-supported educational institutions with charges only to recover direct costs. A WVC facility use agreement addendum will outline such cost recoveries.

Chapter 132W-145 WAC

WEAPONS ON CAMPUS

NEW SECTION

WAC 132W-145-010 Weapons on campus. Wenatchee Valley College prohibits, on college property or in college facilities, the possession or use of firearms (licensed or unlicensed), explosives, dangerous chemicals, or other dangerous weapons or instruments. Legal defense sprays are not covered by this rule. Exceptions to this policy are permitted when the weapon is used in conjunction with an approved college instructional program or is carried by a duly commissioned law enforcement officer. Violators of this rule will be subject to appropriate disciplinary and/or legal action.

AMENDATORY SECTION (Amending WSR 01-12-015, filed 5/25/01, effective 6/25/01)

WAC 132W-277-010 Purpose. The purpose of this chapter is to ensure that Wenatchee Valley College complies with the provisions of chapter ((~~42.17~~)) 42.56 RCW and in particular with those sections of that chapter dealing with public records.

AMENDATORY SECTION (Amending WSR 01-12-015, filed 5/25/01, effective 6/25/01)

WAC 132W-277-050 Public records available. All public records of the district, as defined in this chapter, are deemed to be available for public inspection and copying pursuant to these rules, except as otherwise provided by RCW ((~~42.17.310~~)) 42.56.210 or other statutes.

AMENDATORY SECTION (Amending WSR 01-12-015, filed 5/25/01, effective 6/25/01)

WAC 132W-277-060 Public records officer. The district's public records shall be in the charge of the public records officer designated by the chief administrative officer of the district. The public records officer shall be responsible for implementation of the district's rules regarding release of public records, coordinating district employees in this regard, and generally ensuring compliance by district employees with the public records disclosure requirements in chapter ((~~42.17~~)) 42.56 RCW.

AMENDATORY SECTION (Amending WSR 01-12-015, filed 5/25/01, effective 6/25/01)

WAC 132W-277-080 Requests for public records. Requests for public records shall be made at the administrative office of the district at Wenatchee Valley College, 1300 5th St., Wenatchee, WA 98801. In accordance with the requirements of RCW ((~~42.17.290~~)) 42.56.100 that agencies prevent unreasonable invasions of privacy, protect public records from damage or disorganization, and prevent excessive interference with essential functions of the agency, public records are obtainable by members of the public only when those members of the public comply with the following procedures:

(1) A request shall be made in writing upon a form prescribed by the district which shall be available at the district administrative office. The form shall be presented to the public records officer or, if the public records officer is not available, to any member of the district's staff at the district administrative office during customary office hours. The request shall include the following information:

(a) The name of the person requesting the record;

(b) The time of day and calendar date on which the request was made;

(c) The nature of the request;

(d) If the information requested is referenced within the current index maintained by the public records officer, a reference to the requested record as it is described in such current index((~~.~~)); and

(e) If the requested information is not identifiable by reference to the current index, an appropriate description of the record requested.

(2) In all cases in which a member of the public is making a request, it shall be the obligation of the public records officer, or person to whom the request is made, to assist the member of the public in succinctly identifying the public record requested.

AMENDATORY SECTION (Amending WSR 01-12-015, filed 5/25/01, effective 6/25/01)

WAC 132W-277-100 Determination regarding exempt records. (1) The district reserves the right to determine that a public record requested in accordance with the procedures outlined in WAC 132W-277-080 is exempt pursuant to the provisions set forth in RCW ((~~42.17.310~~)) 42.56.210 or other statute. Such determination may be made in consultation with the public records officer, president of the college district, or an assistant attorney general assigned to the district.

(2) Pursuant to RCW ((~~42.17.260~~)) 42.56.070, the district reserves the right to delete identifying details when it makes available or publishes any public record when there is reason to believe that disclosure of such details would be an unreasonable invasion of personal privacy or impair a vital governmental interest: Provided, however, In each case, the justification for the deletion shall be explained fully in writing.

(3) Response to requests for a public record must be made promptly. For the purposes of this section, a prompt response occurs if the college, within five business days, either:

(a) Provides the record;

(b) Acknowledges receipt of the request and provides a reasonable estimate of the time the college will require to respond to the request; or

(c) Denies the request.

(4) All denials of request for public records must be accompanied by a written statement, signed by the public records officer or designee, specifying the reason for the denial, a statement of the specific exemption authorizing the withholding of the record and a brief explanation of how the exemption applies to the public record withheld.

AMENDATORY SECTION (Amending WSR 01-12-015, filed 5/25/01, effective 6/25/01)

WAC 132W-277-110 Review of denials of public records requests. (1) Any person who objects to the denial of a request for a public record may petition for prompt review of such decision by tendering a written request for review. The written request shall specifically refer to the written statement which constituted or accompanied the denial.

(2) The written request by a person demanding prompt review of a decision denying a public record shall be submitted to the president of the district or the president's designee.

(3) Within two business days after receiving the written request by a person petitioning for a prompt review of a decision denying a public record, the president or designee, shall complete such review.

(4) During the course of the review the president or designee shall consider the obligations of the district to comply with the intent of chapter ((~~42.17~~)) 42.56 RCW insofar as it requires providing full public access to official records, but shall also consider the exemptions provided in RCW ((~~42.17.310~~)) 42.56.210 or other pertinent statutes, and the provisions of the statute which require the district to protect public records from damage or disorganization, prevent excessive interference with essential functions of the agency, and prevent any unreasonable invasion of personal privacy by deleting identifying details.

Chapter 132W-280 WAC

VIOLENCE IN THE WORKPLACE

NEW SECTION

WAC 132W-280-010 Violence in the workplace. Wenatchee Valley College prohibits acts of intimidation as well as actual or threatened violence against co-workers, students, visitors, or any other persons who are either on campus or have contact with college employees in the course of their duties. The prohibited acts include behavior that interferes with an individual's legal rights of movement, or expression, disrupts the workplace, the academic environment or the college's ability to provide service to the public.

WSR 14-08-024
PERMANENT RULES
DEPARTMENT OF LABOR AND INDUSTRIES

[Filed March 24, 2014, 10:48 a.m., effective May 1, 2014]

Effective Date of Rule: May 1, 2014.

Purpose: This rule making adopts the amendment to chapter 296-52 WAC, Safety standards for possession and handling of explosives, to permit local law enforcement tactical response teams to store and transport explosive actuated tactical devices in accordance with Federal Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) regulations and rulings.

The Washington state legislature mandates that the division of occupational safety and health enact these rules. SSB 5264 directs the department to amend these rules. During the 2013 session, the legislature amended state law regarding the Washington State Explosives Act to exclude the transportation and storage of explosive actuated tactical devices, including noise and flash diversionary devices, by local law enforcement tactical response teams and officers in law enforcement department-issued vehicles designated for use by tactical response teams and officers, provided the explosive devices are stored and secured in compliance with regulations and rulings adopted by the ATF.

Citation of Existing Rules Affected by this Order: Amending WAC 296-52-60020.

Statutory Authority for Adoption: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060, and 70.74..020 [70.74.-020].

Other Authority: Chapters 49.17 and 70.74 RCW.

Adopted under notice filed as WSR 13-24-094 on December 3, 2013.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 1, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 1, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

Date Adopted: March 24, 2014.

Joel Sacks
Director

AMENDATORY SECTION (Amending WSR 06-19-074, filed 9/19/06, effective 12/1/06)

WAC 296-52-60020 Exemptions. (1) **The following are exempt from this chapter:**

(a) Explosives or blasting agents transported by railroad, water, highway, or air under the jurisdiction of the Federal Department of Transportation (DOT), the Washington state utilities and transportation commission, and the Washington state patrol.

(b) Laboratories of schools, colleges, and similar institutions if confined to the purpose of instruction or research and if the quantity does not exceed one pound.

(c) Explosives in the forms prescribed by the official United States Pharmacopoeia.

(d) The transportation, storage, and use of explosives or blasting agents in the normal and emergency operations of:

• The United States agencies and departments including the regular United States military departments on military reservations

• Arsenals, navy yards, depots, or other establishments owned by, operated by, or on behalf of, the United States

• The duly authorized militia of any state

• The emergency operations of any state department or agency, any police, or any municipality or county

(e) A hazardous devices technician when they are carrying out:

• Normal and emergency operations

• Handling evidence

• Operating and maintaining a specially designed emergency response vehicle that carries no more than ten pounds of explosive materials

• When conducting training and whose employer possesses the minimum safety equipment prescribed by the Federal Bureau of Investigation (FBI) for hazardous devices work

Note: A hazardous devices technician is a person who is a graduate of the FBI Hazardous Devices School and who is employed by a state, county, or municipality.

(f) The importation, sale, possession, and use of fireworks, signaling devices, flares, fuses, and torpedoes.

(g) Reserved.

(h) Any violation under this chapter if any existing ordinance of any city, municipality, or county is more stringent.

(i) The transportation and storage of explosive actuated tactical devices, including noise and flash diversionary devices, by local law enforcement tactical response teams and officers in law enforcement department-issued vehicles designated for use by tactical response teams and officers, provided the explosive devices are stored and secured in compliance with regulations and rulings adopted by the federal bureau of alcohol, tobacco, firearms, and explosives.

(2) **Noncommercial military explosives.** Storage, handling, and use of noncommercial military explosives are exempt from this chapter while they are under the control of the United States government or military authorities.

(3) **Import, sale, possession, or use of:**

• Consumer fireworks

• Signaling devices

• Flares

• Fuses

• Torpedoes

(4) **Consumer fireworks.** Fireworks classified as Division 1.4 explosives by U.S. DOT and regulated through the state fireworks law (chapter 70.77 RCW) and the fireworks administrative code (chapter 212-17 WAC) by the Washington state fire marshal.

Note: Consumer fireworks are classified as fireworks UN0336 and UN0337 by U.S. DOT (49 C.F.R. 72.101).

(5) **Partial exemption—Division 1.1, 1.2, or 1.3 display fireworks.** Display fireworks are fireworks classified as Division 1.1, 1.2, or 1.3 explosives by US DOT. Users of Division 1.1, 1.2, or 1.3 display fireworks must comply with all storage or storage related requirements (for example, licensing, construction, and use) of this chapter.

Note: Display fireworks are classified as fireworks UN0333, UN0334, or UN0335 by U.S. DOT (49 C.F.R. 172.101).

(6) **Conditional exemption small arms explosive materials.** Public consumers possessing and using:

• Black powder, under five pounds

• Smokeless powder, under fifty pounds

• Small arms ammunition

• Small arms ammunition primers

– Unless these materials are possessed or used illegally or for a purpose inconsistent with small arms use.

WSR 14-08-032
PERMANENT RULES
HEALTH CARE AUTHORITY
(Washington Apple Health)

[Filed March 25, 2014, 1:57 p.m., effective April 30, 2014]

Effective Date of Rule: April 30, 2014.

Purpose: (1) Restore the adult dental benefit (currently under emergency rule filing).

(2) Repeal oral health care services section from chapter 182-531 WAC, Physician services (*due to restoration of the adult dental benefit*).

(3) Add new section for medical care services clients (*due to restoration of adult dental benefit*).

(4) Add coverage for tobacco cessation for clients eighteen years of age and older and pregnant women any age.

(5) Correct discrepancies between covered and noncovered sections – cleaned up age limitations, etc.

(6) Add additional coverage for nursing facility clients to be consistent with those for client of the developmental disabilities administration.

(7) Remove general anesthesia from noncovered list for adults and added to covered list for all ages on a case-by-case basis and with prior authorization.

(8) Clarify treatment plan information required for orthodontic treatment, including when treatment is discontinued prior to completion.

(9) Clarify existing policies and updating other policy to align with industry standards.

The agency also made housekeeping changes such as cross references from Title 388 WAC to Title 182 WAC, medicaid to Washington apple health, and changing all references from department to agency.

Citation of Existing Rules Affected by this Order: Amending WAC 182-535-1050, 182-535-1060, 182-535-1070, 182-535-1079, 182-535-1080, 182-535-1082, 182-535-1084, 182-535-1086, 182-535-1088, 182-535-1090, 182-535-1092, 182-535-1094, 182-535-1096, 182-535-1098, 182-535-1099, 182-535-1100, 182-535-1220, 182-535-1245, 182-535-1350, 182-535-1400, 182-535-1550, 182-535A-0010, 182-535A-0020, 182-535A-0030, 182-535A-0040, 182-535A-0050, and 182-535A-0060.

Statutory Authority for Adoption: RCW 41.05.021, 3ESSB 5034 (section 213, chapter 4, Laws of 2013).

Adopted under notice filed as WSR 14-04-088 on February 3, 2014.

Changes Other than Editing from Proposed to Adopted Version: WAC 182-535-1086(3), struck the word "incisor" and the limitation to teeth "D, E, F, and G."

WAC 182-535-1086(6), corrected typo – Apexification/ apicoectomy.

WAC 182-535-1094 (1)(b), changed billing instructions to provider guide.

WAC 182-535-1098 (1)(c)(iii), struck age limit. "For clients from nine ~~through twenty years of age~~ years of age and older, deep sedation or general anesthesia services are covered …"

WAC 182-535-1099 (1)(c), added, "… per client, per provider or clinics" to end of sentence.

WAC 182-535-1100 (3)(d)(ii)(A), struck (A) ~~General.~~ General anesthesia is removed from list of noncovered items for clients twenty-one years of age and older.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 1, Amended 27, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 28, Repealed 0.

Date Adopted: March 25, 2014.

Kevin M. Sullivan
Rules Coordinator

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-535-1050 Dental-related services—Definitions. The following definitions and abbreviations and those found in chapter 182-500 WAC ((~~388-500-0005~~)) apply to this chapter. The ((~~department~~)) medicaid agency also uses dental definitions found in the American Dental Association's Current Dental Terminology (CDT) and the American Medical Association's Physician's Current Procedural Terminology (CPT). Where there is any discrepancy between the CDT or CPT and this section, this section prevails. (CPT is a trademark of the American Medical Association.)

"Access to baby and child dentistry (ABCD)" is a program to increase access to dental services in targeted areas for medicaid eligible infants, toddlers, and preschoolers up through the age of five. See WAC ((~~388-535-1300~~)) 182-535-1300 for specific information.

"American Dental Association (ADA)" is a national organization for dental professionals and dental societies.

"Anterior" refers to teeth (maxillary and mandibular incisors and canines) and tissue in the front of the mouth. Permanent maxillary anterior teeth include teeth six, seven, eight, nine, ten, and eleven. Permanent mandibular anterior teeth include teeth twenty-two, twenty-three, twenty-four, twenty-five, twenty-six, and twenty-seven. Primary maxillary anterior teeth include teeth C, D, E, F, G, and H. Primary mandibular anterior teeth include teeth M, N, O, P, Q, and R.

"Asymptomatic" means having or producing no symptoms.

"Base metal" means dental alloy containing little or no precious metals.

"Behavior management" means using the assistance of one additional dental professional staff to manage the behavior of a client to facilitate the delivery of dental treatment.

"By report" - A method of reimbursement in which the department determines the amount it will pay for a service

when the rate for that service is not included in the ((~~department's~~)) agency's published fee schedules. Upon request the provider must submit a "report" which describes the nature, extent, time, effort and/or equipment necessary to deliver the service.

"Caries" means carious lesions or tooth decay through the enamel or decay of the root surface.

"Comprehensive oral evaluation" means a thorough evaluation and documentation of a client's dental and medical history to include extra-oral and intra-oral hard and soft tissues, dental caries, missing or unerupted teeth, restorations, occlusal relationships, periodontal conditions (including periodontal charting), hard and soft tissue anomalies, and oral cancer screening.

"Conscious sedation" is a drug-induced depression of consciousness during which a client responds purposefully to verbal commands, either alone or accompanied by light tactile stimulation. No interventions are required to maintain a patent airway, spontaneous ventilation is adequate, and cardiovascular function is maintained.

"Core buildup" refers to building up of clinical crowns, including pins.

"Coronal" is the portion of a tooth that is covered by enamel.

"Coronal polishing" is a mechanical procedure limited to the removal of plaque and stain from exposed tooth surfaces.

"Crown" means a restoration covering or replacing part or the whole clinical crown of a tooth.

"Current dental terminology (CDT)" is a systematic listing of descriptive terms and identifying codes for reporting dental services and procedures performed by dental practitioners. CDT is published by the Council on Dental Benefit Programs of the American Dental Association (ADA).

"Current procedural terminology (CPT)" is a systematic listing of descriptive terms and identifying codes for reporting medical services, procedures, and interventions performed by physicians and other practitioners who provide physician-related services. CPT is copyrighted and published annually by the American Medical Association (AMA).

"Decay" is a term for caries or carious lesions and means decomposition of tooth structure.

"Deep sedation" is a drug-induced depression of consciousness during which a client cannot be easily aroused, ventilatory function may be impaired, but the client responds to repeated or painful stimulation.

"Dental general anesthesia" see **"general anesthesia."**

"Dentures" means an artificial replacement for natural teeth and adjacent tissues, and includes complete dentures, immediate dentures, overdentures, and partial dentures.

"Denturist" means a person licensed under chapter 18.30 RCW to make, construct, alter, reproduce, or repair a denture.

"Endodontic" means the etiology, diagnosis, prevention and treatment of diseases and injuries of the pulp and associated periradicular conditions.

"EPSDT" means the ((~~department's~~)) agency's early and periodic screening, diagnosis, and treatment program for clients twenty years of age and younger as described in chapter ((~~388-534~~)) 182-534 WAC.

"Extraction" see **"simple extraction"** and **"surgical extraction."**

"Flowable composite" is a diluted resin-based composite dental restorative material that is used in cervical restorations and small, low stress bearing occlusal restorations.

"Fluoride varnish, rinse, foam or gel" is a substance containing dental fluoride which is applied to teeth.

"General anesthesia" is a drug-induced loss of consciousness during which a client is not arousable even by painful stimulation. The ability to independently maintain ventilatory function is often impaired. Clients may require assistance in maintaining a patent airway, and positive pressure ventilation may be required because of depressed spontaneous ventilation or drug-induced depression of neuromuscular function. Cardiovascular function may be impaired.

"High noble metal" is a dental alloy containing at least sixty percent pure gold.

"Limited oral evaluation" is an evaluation limited to a specific oral health condition or problem. Typically a client receiving this type of evaluation has a dental emergency, such as trauma or acute infection.

"Limited visual oral assessment" is an assessment by a dentist or dental hygienist to determine the need for fluoride treatment and/or when triage services are provided in settings other than dental offices or dental clinics.

"Major bone grafts" is a transplant of solid bone tissue(s).

"Medically necessary" see WAC ((~~388-500-0005~~)) 182-500-0070.

"Minor bone grafts" is a transplant of nonsolid bone tissue(s), such as powdered bone, buttons, or plugs.

"Noble metal" is a dental alloy containing at least twenty-five percent but less than sixty percent pure gold.

"Oral evaluation" see **"comprehensive oral evaluation."**

"Oral hygiene instruction" means instruction for home oral hygiene care, such as tooth brushing techniques or flossing.

"Oral prophylaxis" is the dental procedure of scaling and polishing which includes removal of calculus, plaque, and stains from teeth.

"Partials" or **"partial dentures"** are a removable prosthetic appliance that replaces missing teeth in one arch.

"Periodic oral evaluation" is an evaluation performed on a patient of record to determine any changes in the client's dental or medical status since a previous comprehensive or periodic evaluation.

"Periodontal maintenance" is a procedure performed for clients who have previously been treated for periodontal disease with surgical or nonsurgical treatment. It includes the removal of supragingival and subgingival microorganisms and deposits with hand and mechanical instrumentation, an evaluation of periodontal conditions, and a complete periodontal charting as appropriate.

"Periodontal scaling and root planing" is a procedure to remove plaque, calculus, microorganisms, and rough cementum and dentin from tooth surfaces. This includes hand and mechanical instrumentation, an evaluation of periodontal

conditions, and a complete periodontal charting as appropriate.

"Posterior" refers to the teeth (maxillary and mandibular premolars and molars) and tissue towards the back of the mouth. Permanent maxillary posterior teeth include teeth one, two, three, four, five, twelve, thirteen, fourteen, fifteen, and sixteen. Permanent mandibular posterior teeth include teeth seventeen, eighteen, nineteen, twenty, twenty-one, twenty-eight, twenty-nine, thirty, thirty-one, and thirty-two. Primary maxillary posterior teeth include teeth A, B, I, and J. Primary mandibular posterior teeth include teeth K, L, S, and T.

"Proximal" is the surface of the tooth near or next to the adjacent tooth.

"Radiograph (X ray)" is an image or picture produced on a radiation sensitive film emulsion or digital sensor by exposure to ionizing radiation.

"Reline" means to resurface the tissue side of a denture with new base material or soft tissue conditioner in order to achieve a more accurate fit.

"Root canal" is the chamber within the root of the tooth that contains the pulp.

"Root canal therapy" is the treatment of the pulp and associated periradicular conditions.

"Root planing" is a procedure to remove plaque, calculus, microorganisms, and rough cementum and dentin from tooth surfaces. This includes hand and mechanical instrumentation.

"Scaling" is a procedure to remove plaque, calculus, and stain deposits from tooth surfaces.

"Sealant" is a dental material applied to teeth to prevent dental caries.

"Simple extraction" is the routine removal of a tooth.

"Standard of care" means what reasonable and prudent practitioners would do in the same or similar circumstances.

"Surgical extraction" is the removal of a tooth by cutting of the gingiva and bone. This includes soft tissue extractions, partial boney extractions, and complete boney extractions.

"Symptomatic" means having symptoms (e.g., pain, swelling, and infection).

"Temporomandibular joint dysfunction (TMJ/TMD)" is an abnormal functioning of the temporomandibular joint or other areas secondary to the dysfunction.

"Therapeutic pulpotomy" is the surgical removal of a portion of the pulp (inner soft tissue of a tooth), to retain the healthy remaining pulp.

"Usual and customary" means the fee that the provider usually charges nonmedicaid customers for the same service or item. This is the maximum amount that the provider may bill the ((~~department~~)) agency.

"Wisdom teeth" are the third molars, teeth one, sixteen, seventeen, and thirty-two.

"Xerostomia" is a dryness of the mouth due to decreased saliva.

AMENDATORY SECTION (Amending WSR 12-09-081, filed 4/17/12, effective 5/18/12)

WAC 182-535-1060 Dental-related services—Client((~~s who are eligible for dental-related services~~)) eligibility. (((~~(1) The clients described in this section are eligible to receive the dental-related services described in this chapter, subject to limitations, restrictions, and client age requirements identified for a specific service.~~

~~(a) Clients who are eligible under one of the following medical assistance programs:~~

~~(i) Categorically needy (CN);~~

~~(ii) Children's health care as described in WAC 388-505-0210;~~

~~(iii) Medically needy (MN);~~

~~(iv) Medical care services (MCS) as described in WAC 182-508-0005;~~

~~(v) Alcohol and Drug Abuse Treatment and Support Act (ADATSA).~~

~~(b) Clients who are eligible under one of the medical assistance programs in subsection (a) of this section and are one of the following:~~

~~(i) Twenty years of age and younger;~~

~~(ii) Twenty years of age and younger enrolled in an agency contracted managed care organization (MCO). MCO clients are eligible under fee-for-service for covered dental-related services not covered by their MCO plan, subject to the provisions of this chapter and other applicable agency rules;~~

~~(iii) For dates of service on and after July 1, 2011, clients who are verifiably pregnant;~~

~~(iv) For dates of service on and after July 1, 2011, clients residing in one of the following:~~

~~(A) Nursing home;~~

~~(B) Nursing facility wing of a state veteran's home;~~

~~(C) Privately operated intermediate care facility for the intellectually disabled (ICF/ID); or~~

~~(D) State-operated residential habilitation center (RHC).~~

~~(v) For dates of service on and after July 1, 2011, clients who are eligible under an Aging and Disability Services Administration (ADSA) 1915 (c) waiver program;~~

~~(vi) For dates of service prior to October 1, 2011, clients of the division of developmental disabilities; or~~

~~(vii) For dates of service on and after October 1, 2011, clients of the division of developmental disabilities who also qualify under (b)(i), (iii), (iv), or (v) of this subsection.~~)) (1) Refer to WAC 182-501-0060 to see which Washington apple health programs include dental-related services in their benefit package.

(2) Managed care clients are eligible under Washington apple health fee-for-service for covered dental-related services not covered by their MCO plan, subject to the provisions of this chapter and other applicable agency rules.

(3) See WAC ((~~388-438-0120~~)) 182-507-0115 for rules for clients eligible under an alien emergency medical program.

(((~~(3) The dental services discussed in this chapter are excluded from the benefit package for clients not eligible for comprehensive dental services as described in subsection (1) of this section. Clients who do not have these dental services in their benefit package may be eligible only for the emer-~~

~~gency oral health care benefit according to WAC 182-531-1025.~~))

(4) Exception to rule procedures as described in WAC 182-501-0169 are not available for services that are excluded from a client's benefit package.

NEW SECTION

WAC 182-535-1066 Dental-related services—Medical care services clients. (1) The agency covers the following dental-related services for a medical care services client as listed in WAC 182-501-0060 when the services are provided by a dentist to assess and treat pain, infection, or trauma of the mouth, jaw, or teeth, including treatment of post-surgical complications, such as dry socket:

(a) Limited oral evaluation;

(b) Periapical or bitewing radiographs (X rays) that are medically necessary to diagnose only the client's chief complaint;

(c) Palliative treatment to relieve dental pain;

(d) Pulpal debridement to relieve dental pain; and

(e) Tooth extraction.

(2) Tooth extractions require prior authorization when:

(a) The extraction of a tooth or teeth results in the client becoming edentulous in the maxillary arch or mandibular arch; or

(b) A full mouth extraction is necessary because of radiation therapy for cancer of the head and neck.

(3) Each dental-related procedure described under this section is subject to the coverage limitations listed in this chapter.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-535-1070 Dental-related services—Provider information. (1) The following providers are eligible to enroll with the ((~~medical assistance administration (MAA)~~)) medicaid agency to furnish and bill for dental-related services provided to eligible clients:

(a) Persons currently licensed by the state of Washington to:

(i) Practice dentistry or specialties of dentistry.

(ii) Practice as dental hygienists.

(iii) Practice as denturists.

(iv) Practice anesthesia by:

(A) Providing conscious sedation with parenteral or multiple oral agents, deep sedation, or general anesthesia as an anesthesiologist or dental anesthesiologist;

(B) Providing conscious sedation with parenteral or multiple oral agents, deep sedation, or general anesthesia as a certified registered nurse anesthetist (CRNA) under WAC 246-817-180; or

(C) Providing conscious sedation with parenteral or multiple oral agents as a dentist, when the dentist has a conscious sedation permit issued by the department of health (DOH) that is current at the time the billed service(s) is provided; or

(D) Providing deep sedation or general anesthesia as a dentist when the dentist has a general anesthesia permit issued by DOH that is current at the time the billed service(s) is provided.

(v) Practice medicine and osteopathy for:

(A) Oral surgery procedures; or

(B) Providing fluoride varnish under EPSDT.

(b) Facilities that are:

(i) Hospitals currently licensed by the DOH;

(ii) Federally qualified health centers (FQHCs);

(iii) Medicare-certified ambulatory surgical centers (ASCs);

(iv) Medicare-certified rural health clinics (RHCs); or

(v) Community health centers.

(c) Participating local health jurisdictions.

(d) Bordering city or out-of-state providers of dental-related services who are qualified in their states to provide these services.

(2) Subject to the restrictions and limitations in this section and other applicable WAC, ((~~MAA~~)) the agency pays licensed providers participating in the ((~~MAA~~)) agency's dental program for only those services that are within their scope of practice.

(3) For the dental specialty of oral and maxillofacial surgery((~~:~~

~~(a) MAA~~)), the agency requires a dentist to((~~:~~

~~(i) Be currently entitled to such specialty designation (to perform oral and maxillofacial surgery) under WAC 246-817-420; and~~

~~(ii)~~)) meet the following requirements in order to be reimbursed for oral and maxillofacial surgery:

(((~~(A) The dentist must have participated at least three years in a maxillofacial residency program; and~~

~~(B) The dentist must be board certified or designated as "board eligible" by the American Board of Oral and Maxillofacial Surgery.~~

~~(b) A dental provider who meets the requirements in (3)(a) of this section must bill claims using appropriate current dental terminology (CDT) codes or current procedural terminology (CPT) codes for services that are identified as covered in WAC and MAA's published billing instructions or numbered memoranda.~~)) (a) The provider's professional organization guidelines;

(b) The department of health (DOH) requirements in chapter 246-817 WAC; and

(c) Any applicable DOH medical, dental, and nursing anesthesia regulations.

(4) See WAC ((~~388-502-0020~~)) 182-502-0020 for provider documentation and record retention requirements. ((~~MAA~~)) The agency requires additional dental documentation under specific sections in this chapter and as required by DOH under chapter 246-817 WAC.

(5) See WAC ((~~388-502-0100 and 388-502-0150~~)) 182-502-0100 and 182-502-0150 for provider billing and payment requirements. Enrolled dental providers who do not meet the conditions in subsection (3)(((~~a~~))) of this section must bill all claims using only the CDT codes for services that are identified in WAC and ((~~MAA's~~)) the agency's published billing instructions ((~~or numbered memoranda. MAA~~)) and provider notices. The agency does not reimburse for billed CPT codes when the dental provider does not meet the requirements in subsection (3)(a) of this section.

(6) See WAC ((~~388-502-0160~~)) 182-502-0160 for regulations concerning charges billed to clients.

(7) See WAC ((~~388-502-0230~~)) 182-502-0230 for provider payment reviews and ((~~appeal~~)) dispute rights.

(8) See chapter 182-502A WAC ((~~388-502-0240~~)) for provider audits and the audit appeal process.

AMENDATORY SECTION (Amending WSR 12-09-081, filed 4/17/12, effective 5/18/12)

WAC 182-535-1079 Dental-related services—General. (1) Clients described in WAC 182-535-1060 are eligible to receive the dental-related services described in this chapter, subject to coverage limitations, restrictions, and ((~~client age~~)) client age requirements identified for a specific service. The agency pays for dental-related services and procedures provided to eligible clients when the services and procedures:

(a) Are part of the client's dental benefit package;

(b) Are within the scope of an eligible client's ((~~medical care~~)) Washington apple health (WAH) program;

(c) Are medically necessary;

(d) Meet the agency's prior authorization requirements, if any;

(e) Are documented in the client's record in accordance with chapter 182-502 WAC;

(f) Are within accepted dental or medical practice standards;

(g) Are consistent with a diagnosis of dental disease or condition;

(h) Are reasonable in amount and duration of care, treatment, or service; and

(i) Are listed as covered in the agency's rules and published billing instructions and fee schedules.

(2) For orthodontic services, see chapter 182-535A WAC.

(3) The agency requires site-of-service prior authorization, in addition to prior authorization of the procedure, if applicable, for nonemergency dental-related services performed in a hospital or an ambulatory surgery center when:

(a) A client is not a client of the ((~~division of~~)) developmental disabilities administration of the department of social and health services (DSHS) according to WAC 182-535-1099;

(b) A client is nine years of age or older;

(c) The service is not listed as exempt from the site-of-service authorization requirement in the agency's current published dental-related services fee schedule or billing instructions; and

(d) The service is not listed as exempt from the prior authorization requirement for deep sedation or general anesthesia (see WAC 182-535-1098 (1)(c)(v)).

(((~~3~~))) (4) To be eligible for payment, dental-related services performed in a hospital or an ambulatory surgery center must be listed in the agency's current published outpatient fee schedule or ambulatory surgery center fee schedule. The claim must be billed with the correct procedure code for the site-of-service.

(((~~4~~))) (5) Under the early periodic screening and diagnostic treatment (EPSDT) program, clients twenty years of age and younger may be eligible for dental-related services listed as noncovered.

(((~~5~~))) (6) The agency evaluates a request for dental-related services that are:

(a) In excess of the dental program's limitations or restrictions, according to WAC 182-501-0169; and

(b) Listed as noncovered, according to WAC 182-501-0160.

AMENDATORY SECTION (Amending WSR 12-09-081, filed 4/17/12, effective 5/18/12)

WAC 182-535-1080 ((~~Covered~~)) Dental-related services—Covered—Diagnostic. Clients described in WAC 182-535-1060 are eligible to receive the dental-related diagnostic services listed in this section, subject to coverage limitations, restrictions, and ((~~client age~~)) client age requirements identified for a specific service.

(1) **Clinical oral evaluations.** The agency covers((~~:~~

(~~a~~))) the following oral health evaluations and assessments((~~:~~

(~~b~~))), per client, per provider or clinic:

(a) Periodic oral evaluations as defined in WAC 182-535-1050, once every six months. Six months must elapse between the comprehensive oral evaluation and the first periodic oral evaluation.

(((~~c~~))) (b) Limited oral evaluations as defined in WAC 182-535-1050, only when the provider performing the limited oral evaluation is not providing routine scheduled dental services for the client on the same day. The limited oral evaluation:

(i) Must be to evaluate the client for a:

(A) Specific dental problem or oral health complaint;

(B) Dental emergency; or

(C) Referral for other treatment.

(ii) When performed by a denturist, is limited to the initial examination appointment. The agency does not cover any additional limited examination by a denturist for the same client until three months after a removable prosthesis has been ((~~seated~~)) delivered.

(((~~d~~))) (c) Comprehensive oral evaluations as defined in WAC 182-535-1050, once per client, per provider or clinic, as an initial examination. The agency covers an additional comprehensive oral evaluation if the client has not been treated by the same provider or clinic within the past five years.

(((~~e~~))) (d) Limited visual oral assessments as defined in WAC 182-535-1050, up to two ((~~per client,~~)) per year((~~, per provider~~)) only when the assessment is:

(i) Not performed in conjunction with other clinical oral evaluation services;

(ii) Performed by a licensed dentist or dental hygienist to determine the need for sealants or fluoride treatment and/or when triage services are provided in settings other than dental offices or clinics; and

(iii) Provided by a licensed dentist or licensed dental hygienist.

(2) **Radiographs (X rays).** The agency:

(a) Covers radiographs per client, per provider or clinic, that are of diagnostic quality, dated, and labeled with the client's name. The agency requires:

(i) Original radiographs to be retained by the provider as part of the client's dental record; and

(ii) Duplicate radiographs to be submitted:

(A) With requests for prior authorization; ((~~and~~)) or

(B) When the agency requests copies of dental records.

(b) Uses the prevailing standard of care to determine the need for dental radiographs.

(c) Covers an intraoral complete series once in a three-year period for clients fourteen years of age and older only if the agency has not paid for a panoramic radiograph for the same client in the same three-year period. The intraoral complete series includes at least fourteen ((~~through~~)) to twenty-two periapical and posterior bitewings. The agency limits reimbursement for all radiographs to a total payment of no more than payment for a complete series.

(d) Covers medically necessary periapical radiographs for diagnosis in conjunction with definitive treatment, such as root canal therapy. Documentation supporting medical necessity must be included in the client's record.

(e) Covers an occlusal intraoral radiograph once in a two-year period, for clients twenty years of age and younger.

(f) ((~~Covers oral facial photo images, only on a case-by-case basis when requested by the agency, for clients twenty years of age and younger.~~

~~(g)~~)) Covers a maximum of four bitewing radiographs (((~~once per quadrant~~))) once every twelve months.

(((~~h~~))) (g) Covers panoramic radiographs in conjunction with four bitewings, once in a three-year period, only if the agency has not paid for an intraoral complete series for the same client in the same three-year period.

((~~(i) May reimburse for panoramic radiographs for preoperative or postoperative surgery cases more than once in a three-year period, only on a case-by-case basis and when prior authorized, except when required by an oral surgeon.~~)) (h) Covers one preoperative and postoperative panoramic radiograph per surgery without prior authorization. The agency considers additional radiographs on a case-by-case basis with prior authorization. For orthodontic services, see chapter 182-535A WAC.

(((~~j~~))) (i) Covers ((~~cephalometric films once in a two-year period for clients twenty years of age and younger, only on a case-by-case basis and when prior authorized~~)) one preoperative and postoperative cephalometric film per surgery without prior authorization. The agency considers additional radiographs on a case-by-case basis with prior authorization. For orthodontic services, see chapter 182-535A WAC.

(((~~k~~))) (j) Covers radiographs not listed as covered in this subsection, only on a case-by-case basis and when prior authorized.

(((~~l~~))) (k) Covers oral and facial photographic images, only on a case-by-case basis and when requested by the agency.

(3) **Tests and examinations.** The agency covers the following for clients who are twenty years of age and younger:

(a) One pulp vitality test per visit (not per tooth):

(i) For diagnosis only during limited oral evaluations; and

(ii) When radiographs and/or documented symptoms justify the medical necessity for the pulp vitality test.

(b) Diagnostic casts other than those included in an orthodontic case study, on a case-by-case basis, and when requested by the agency.

AMENDATORY SECTION (Amending WSR 12-09-081, filed 4/17/12, effective 5/18/12)

WAC 182-535-1082 ((~~Covered~~)) Dental-related services—Covered—Preventive services. Clients described in WAC 182-535-1060 are eligible for the dental-related preventive services listed in this section, subject to coverage limitations and client-age requirements identified for a specific service.

(1) **Dental prophylaxis.** The agency covers prophylaxis as follows. Prophylaxis:

(a) Includes scaling and polishing procedures to remove coronal plaque, calculus, and stains when performed on primary or permanent dentition.

(b) Is limited to once every:

(i) Six months for clients eighteen years of age and younger; ((~~and~~))

(ii) Twelve months for clients nineteen years of age and older; or

(iii) Four months for a client residing in a nursing facility.

(c) Is reimbursed only when the service is performed:

(i) At least six months after periodontal scaling and root planing, or periodontal maintenance services, for clients from thirteen to eighteen years of age; ((~~and~~))

(ii) At least twelve months after periodontal scaling and root planing, periodontal maintenance services, for clients nineteen years of age and older; or

(iii) At least six months after periodontal scaling and root planing, or periodontal maintenance services for clients who reside in a nursing facility.

(d) Is not reimbursed for separately when performed on the same date of service as periodontal scaling and root planing, periodontal maintenance, gingivectomy, or gingivoplasty.

(e) Is covered for clients of the ((~~division of~~)) developmental disabilities administration of the department of social and health services (DSHS) according to (a), (c), and (d) of this subsection and WAC 182-535-1099.

(2) **Topical fluoride treatment.** The agency covers the following per client, per provider or clinic:

(a) Fluoride rinse, foam or gel, fluoride varnish, including disposable trays, for clients six years of age and younger, up to three times within a twelve-month period.

(b) Fluoride rinse, foam or gel, fluoride varnish, including disposable trays, for clients from seven ((~~to~~)) through eighteen years of age, up to two times within a twelve-month period.

(c) Fluoride rinse, foam or gel, fluoride varnish, including disposable trays, up to three times within a twelve-month period during orthodontic treatment.

(d) Fluoride rinse, foam or gel, fluoride varnish, including disposable trays, for clients ((~~from~~)) nineteen ((~~to sixty-four~~)) years of age and older, once within a twelve-month period.

(e) Fluoride rinse, foam or gel, fluoride varnish, including disposable trays, for clients ((~~sixty-five years of age and older~~)) who reside in alternate living facilities as defined in WAC 182-513-1301, up to three times within a twelve-month period.

(f) Additional topical fluoride applications only on a case-by-case basis and when prior authorized.

(g) Topical fluoride treatment for clients of the ((~~division of~~)) developmental disabilities administration of DSHS according to WAC 182-535-1099.

(3) **Oral hygiene instruction.** Includes individualized instruction for home care such as tooth brushing technique, flossing, and use of oral hygiene aids. The agency covers oral hygiene instruction as follows:

(a) ((~~Oral hygiene instruction only~~)) For clients eight years of age and younger. For clients nine years of age and older, oral hygiene instruction is included as part of the global fee for oral prophylaxis.

(b) ((~~Oral hygiene instruction, no more than~~)) Once every six months, up to two times within a twelve-month period.

(c) ((~~Individualized oral hygiene instruction for home care to include tooth brushing technique, flossing, and use of oral hygiene aides.~~

~~(d) Oral hygiene instruction~~)) Only when not performed on the same date of service as prophylaxis.

(((~~(c) Oral hygiene instruction~~)) (d) Only when provided by a licensed dentist or a licensed dental hygienist and the instruction is provided in a setting other than a dental office or clinic.

(4) **Tobacco cessation counseling for the control and prevention of oral disease.** The agency covers tobacco cessation counseling for pregnant women only. See WAC 182-531-1720.

(5) **Sealants.** The agency covers:

(a) Sealants for clients ((~~eighteen~~)) twenty years of age and younger and clients any age of the ((~~division of~~)) developmental disabilities ((~~of any age~~)) administration of DSHS.

(b) Sealants only when used on a mechanically and/or chemically prepared enamel surface.

(c) Sealants once per tooth:

(i) In a three-year period for clients ((~~eighteen~~)) twenty years of age and younger; and

(ii) In a two-year period for clients any age of the ((~~division of~~)) developmental disabilities administration of DSHS according to WAC 182-535-1099.

(d) Sealants only when used on the occlusal surfaces of:

(i) Permanent teeth two, three, fourteen, fifteen, eighteen, nineteen, thirty, and thirty-one; and

(ii) Primary teeth A, B, I, J, K, L, S, and T.

(e) Sealants on noncarious teeth or teeth with incipient caries.

(f) Sealants only when placed on a tooth with no preexisting occlusal restoration, or any occlusal restoration placed on the same day.

(g) Sealants are included in the agency's payment for occlusal restoration placed on the same day.

(h) Additional sealants not described in this subsection on a case-by-case basis and when prior authorized.

(((~~(5)~~))) (6) **Space maintenance.** The agency covers:

(a) ((~~Covers~~)) Fixed unilateral or fixed bilateral space maintainers ((~~for clients twelve years of age and younger~~)), including recementation, for missing primary molars A, B, I, J, K, L, S, and T, subject to the following:

(i) Only when there is evidence of pending permanent tooth eruption.

(ii) Only one space maintainer is covered per quadrant.

(((~~(ii) Space maintainers are covered only for missing primary molars A, B, I, J, K, L, S, and T.~~

~~(iii)~~))) Replacement space maintainers are covered only on a case-by-case basis and when prior authorized.

(b) ((~~Covers~~)) The removal of fixed space maintainers ((~~for clients eighteen years of age and younger~~)) when removed by a different provider. Allowed once per quadrant.

AMENDATORY SECTION (Amending WSR 12-09-081, filed 4/17/12, effective 5/18/12)

WAC 182-535-1084 ((~~Covered~~)) Dental-related services—Covered—Restorative services. Clients described in WAC 182-535-1060 are eligible for the dental-related restorative services listed in this section, subject to coverage limitations, restrictions, and ((~~client age~~)) client age requirements identified for a specific service.

(1) **Amalgam and resin restorations for primary and permanent teeth.** The agency considers:

(a) Tooth preparation, acid etching, all adhesives (including bonding agents), liners and bases, polishing, and curing as part of the restoration.

(b) Occlusal adjustment of either the restored tooth or the opposing tooth or teeth as part of the amalgam restoration.

(c) Restorations placed within six months of a crown preparation by the same provider or clinic to be included in the payment for the crown.

(2) **Limitations for all restorations.** The agency:

(a) Considers multiple restoration involving the proximal and occlusal surfaces of the same tooth as a multisurface restoration, and limits reimbursement to a single multisurface restoration.

(b) Considers multiple preventive restorative resins, flowable composite resins, or resin-based composites for the occlusal, buccal, lingual, mesial, and distal fissures and grooves on the same tooth as a one-surface restoration.

(c) Considers multiple restorations of fissures and grooves of the occlusal surface of the same tooth as a one-surface restoration.

(d) Considers resin-based composite restorations of teeth where the decay does not penetrate the dentoenamel junction (DEJ) to be sealants. (See WAC 182-535-1082(4) for sealant coverage.)

(e) Reimburses proximal restorations that do not involve the incisal angle on anterior teeth as a two-surface restoration.

(f) Covers only one buccal and one lingual surface per tooth. The agency reimburses buccal or lingual restorations, regardless of size or extension, as a one-surface restoration.

(g) Does not cover preventive restorative resin or flowable composite resin on the interproximal surfaces (mesial or

distal) when performed on posterior teeth or the incisal surface of anterior teeth.

(h) Does not pay for replacement restorations within a two-year period unless the restoration has an additional adjoining carious surface. The agency pays for the replacement restoration as one multisurface restoration per client, per provider or clinic. The client's record must include X rays and documentation supporting the medical necessity for the replacement restoration.

(3) **Additional limitations on restorations on primary teeth.** The agency covers:

(a) A maximum of two surfaces for a primary first molar. (See subsection (6) of this section for a primary first molar that requires a restoration with three or more surfaces.) The agency does not pay for additional restorations on the same tooth.

(b) A maximum of three surfaces for a primary second molar. (See subsection (6) of this section for a primary posterior tooth that requires a restoration with four or more surfaces.) The agency does not pay for additional restorations on the same tooth.

(c) A maximum of three surfaces for a primary anterior tooth. (See subsection (6) of this section for a primary anterior tooth that requires a restoration with four or more surfaces.) The agency does not pay for additional restorations on the same tooth after three surfaces.

(d) Glass ionomer restorations for primary teeth, only for clients five years of age and younger. The agency pays for these restorations as a one-surface, resin-based composite restoration.

(4) **Additional limitations on restorations on permanent teeth.** The agency covers:

(a) ((~~(b)~~)) Two occlusal restorations for the upper molars on teeth one, two, three, fourteen, fifteen, and sixteen if, the restorations are anatomically separated by sound tooth structure.

((~~(c)~~)) (b) A maximum of five surfaces per tooth for permanent posterior teeth, except for upper molars. The agency allows a maximum of six surfaces per tooth for teeth one, two, three, fourteen, fifteen, and sixteen.

((~~(d)~~)) (c) A maximum of six surfaces per tooth for resin-based composite restorations for permanent anterior teeth.

(5) **Crowns.** The agency:

(a) Covers the following indirect crowns once every five years, per tooth, for permanent anterior teeth for clients ((~~from twelve~~)) fifteen to twenty years of age when the crowns meet prior authorization criteria in WAC 182-535-1220 and the provider follows the prior authorization requirements in (c) of this subsection:

(i) Porcelain/ceramic crowns to include all porcelains, glasses, glass-ceramic, and porcelain fused to metal crowns; and

(ii) Resin crowns and resin metal crowns to include any resin-based composite, fiber, or ceramic reinforced polymer compound.

(b) Considers the following to be included in the payment for a crown:

(i) Tooth and soft tissue preparation;

(ii) Amalgam and resin-based composite restoration, or any other restorative material placed within six months of the crown preparation. Exception: The agency covers a one-surface restoration on an endodontically treated tooth, or a core buildup or cast post and core;

(iii) Temporaries, including but not limited to, temporary restoration, temporary crown, provisional crown, temporary prefabricated stainless steel crown, ion crown, or acrylic crown;

(iv) Packing cord placement and removal;

(v) Diagnostic or final impressions;

(vi) Crown seating (placement), including cementing and insulating bases;

(vii) Occlusal adjustment of crown or opposing tooth or teeth; and

(viii) Local anesthesia.

(c) Requires the provider to submit the following with each prior authorization request:

(i) Radiographs to assess all remaining teeth;

(ii) Documentation and identification of all missing teeth;

(iii) Caries diagnosis and treatment plan for all remaining teeth, including a caries control plan for clients with rampant caries;

(iv) Pre- and post-endodontic treatment radiographs for requests on endodontically treated teeth; and

(v) Documentation supporting a five-year prognosis that the client will retain the tooth or crown if the tooth is crowned.

(d) Requires a provider to bill for a crown only after delivery and seating of the crown, not at the impression date.

(6) **Other restorative services.** The agency covers the following restorative services:

(a) All recementations of permanent indirect crowns ((~~only for clients from twelve to twenty years of age~~)).

(b) Prefabricated stainless steel crowns, including stainless steel crowns with resin window, resin-based composite crowns (direct), prefabricated esthetic coated stainless steel crowns, and ((~~fabricated~~)) prefabricated resin crowns for primary anterior teeth once every three years only for clients twenty years of age and younger as follows:

(i) For ages twelve and younger without prior authorization if the tooth requires a four or more surface restoration; and

(ii) For ages thirteen to twenty with prior authorization.

(c) Prefabricated stainless steel crowns, including stainless steel crowns with resin window, resin-based composite crowns (direct), prefabricated esthetic coated stainless steel crowns, and prefabricated resin crowns, for primary posterior teeth once every three years without prior authorization if:

(i) Decay involves three or more surfaces for a primary first molar;

(ii) Decay involves four or more surfaces for a primary second molar; or

(iii) The tooth had a pulpotomy.

(d) Prefabricated stainless steel crowns, including stainless steel crowns with resin window, and prefabricated resin crowns, for permanent posterior teeth excluding one, sixteen, seventeen, and thirty-two once every three years, for clients twenty years of age and younger, without prior authorization.

(e) Prefabricated stainless steel crowns for clients of the ((~~division of~~)) developmental disabilities administration of

the department of social and health services (DSHS) without prior authorization according to WAC 182-535-1099.

(f) Core buildup, including pins, only on permanent teeth, only for clients twenty years of age and younger, and only allowed in conjunction with ((~~indirect~~)) crowns and when prior authorized ((~~at the same time as the crown prior authorization~~)). For indirect crowns, prior authorization must be obtained from the agency at the same time as the crown. Providers must submit pre- and post-endodontic treatment radiographs to the agency with the authorization request for endodontically treated teeth.

(g) Cast post and core or prefabricated post and core, only on permanent teeth, only for clients twenty years of age and younger, and only when in conjunction with a crown and when prior authorized.

AMENDATORY SECTION (Amending WSR 12-09-081, filed 4/17/12, effective 5/18/12)

WAC 182-535-1086 ((~~Covered~~)) Dental-related services—Covered—Endodontic services. Clients described in WAC 182-535-1060 are eligible to receive the dental-related endodontic services listed in this section, subject to coverage limitations, restrictions, and ((~~client age~~)) client age requirements identified for a specific service.

(1) **Pulp capping.** The agency considers pulp capping to be included in the payment for the restoration.

(2) **Pulpotomy.** The agency covers:

(a) Therapeutic pulpotomy on primary teeth only for clients twenty years of age and younger.

(b) Pulpal debridement on permanent teeth only, excluding teeth one, sixteen, seventeen, and thirty-two. The agency does not pay for pulpal debridement when performed with palliative treatment of dental pain or when performed on the same day as endodontic treatment.

(3) **Endodontic treatment on primary teeth.** The agency((~~:~~

~~(a)~~)) covers endodontic treatment with resorbable material for primary ((~~maxillary incisor~~)) teeth ((~~D, E, F, and G~~)), if the entire root is present at treatment.

(4) **Endodontic treatment on permanent teeth.** The agency:

(a) Covers endodontic treatment for permanent anterior teeth for all clients.

(b) Covers endodontic treatment for permanent ((~~anterior,~~)) bicuspid((~~,~~)) and molar teeth, excluding teeth one, sixteen, seventeen, and thirty-two for clients twenty years of age and younger.

(c) Considers the following included in endodontic treatment:

(i) Pulpectomy when part of root canal therapy;

(ii) All procedures necessary to complete treatment; and

(iii) All intra-operative and final evaluation radiographs (X rays) for the endodontic procedure.

(d) Pays separately for the following services that are related to the endodontic treatment:

(i) Initial diagnostic evaluation;

(ii) Initial diagnostic radiographs; and

(iii) Post treatment evaluation radiographs if taken at least three months after treatment.

((~~(e)~~)) (5) **Endodontic retreatment on permanent anterior teeth.** The agency:

(a) Covers endodontic retreatment for clients twenty years of age and younger when prior authorized.

((~~(f) The agency~~)) (b) Covers endodontic retreatment of permanent anterior teeth for clients twenty-one years of age and older when prior authorized.

(c) Considers endodontic retreatment to include:

(i) The removal of post(s), pin(s), old root canal filling material, and all procedures necessary to prepare the canals;

(ii) Placement of new filling material; and

(iii) Retreatment for permanent anterior, bicuspid, and molar teeth, excluding teeth one, sixteen, seventeen, and thirty-two.

((~~(g)~~)) (d) Pays separately for the following services that are related to the endodontic retreatment:

(i) Initial diagnostic evaluation;

(ii) Initial diagnostic radiographs; and

(iii) Post treatment evaluation radiographs if taken at least three months after treatment.

((~~(h)~~)) (e) Does not pay for endodontic retreatment when provided by the original treating provider or clinic unless prior authorized by the agency.

((~~(i) Covers~~)) (6) **Apexification/apicoectomy.** The agency covers:

(a) Apexification for apical closures for anterior permanent teeth only on a case-by-case basis and when prior authorized. Apexification is limited to the initial visit and three interim treatment visits and limited to clients twenty years of age and younger, per tooth.

((~~(j) Covers~~)) (b) Apicoectomy and a retrograde fill for anterior teeth only for clients twenty years of age and younger.

AMENDATORY SECTION (Amending WSR 12-09-081, filed 4/17/12, effective 5/18/12)

WAC 182-535-1088 ((~~Covered~~)) Dental-related services—Covered—Periodontic services. Clients described in WAC 182-535-1060 are eligible to receive the dental-related periodontic services listed in this section, subject to coverage limitations, restrictions, and client-age requirements identified for a specified service.

(1) **Surgical periodontal services.** The agency covers the following surgical periodontal services, including all postoperative care:

(a) Gingivectomy/gingivoplasty (does not include distal wedge procedures on erupting molars) only on a case-by-case basis and when prior authorized and only for clients twenty years of age and younger; and

(b) Gingivectomy/gingivoplasty (does not include distal wedge procedures on erupting molars) for clients of the ((~~division of~~)) developmental disabilities administration of the department of social and health services (DSHS) according to WAC 182-535-1099.

(2) **Nonsurgical periodontal services.** The agency:

(a) Covers periodontal scaling and root planing for clients from thirteen to eighteen years of age, once per quadrant((~~,~~)) per client, in a two-year period((~~,~~)) on a case-by-case basis, when prior authorized, and only when:

(i) The client has radiographic evidence of periodontal disease and subgingival calculus;

(ii) The client's record includes supporting documentation for the medical necessity, including complete periodontal charting and a definitive diagnosis of periodontal disease;

(iii) The client's clinical condition meets current published periodontal guidelines; and

(iv) Performed at least two years from the date of completion of periodontal scaling and root planing or surgical periodontal treatment, or at least twelve calendar months from the completion of periodontal maintenance.

(b) Covers periodontal scaling and root planing once per quadrant((~~,~~)) per client((~~,~~)) in a two-year period for clients nineteen years of age and older. Criteria in (a)(i) through (iv) of this subsection must be met.

(c) Considers ultrasonic scaling, gross scaling, or gross debridement to be included in the procedure and not a substitution for periodontal scaling and root planing.

(d) Covers periodontal scaling and root planing only when the services are not performed on the same date of service as prophylaxis, periodontal maintenance, gingivectomy, or gingivoplasty.

(e) Covers periodontal scaling and root planing for clients of the ((~~division of~~)) developmental disabilities administration of DSHS according to WAC 182-535-1099.

(f) Covers periodontal scaling and root planing, one time per quadrant in a twelve-month period for clients residing in a nursing facility.

(3) **Other periodontal services.** The agency:

(a) Covers periodontal maintenance for clients from thirteen ((~~to~~)) through eighteen years of age once per client in a twelve-month period on a case-by-case basis, when prior authorized, and only when:

(i) The client has radiographic evidence of periodontal disease;

(ii) The client's record includes supporting documentation for the medical necessity, including complete periodontal charting with location of the gingival margin and clinical attachment loss and a definitive diagnosis of periodontal disease;

(iii) The client's clinical condition meets current published periodontal guidelines; and

(iv) The client has had periodontal scaling and root planing but not within twelve months of the date of completion of periodontal scaling and root planing, or surgical periodontal treatment.

(b) Covers periodontal maintenance once per client in a twelve month period for clients nineteen years of age and older. Criteria in (a)(i) through (iv) of this subsection must be met.

(c) Covers periodontal maintenance only if performed at least twelve calendar months after receiving prophylaxis, periodontal scaling and root planing, gingivectomy, or gingivoplasty.

(d) Covers periodontal maintenance for clients of the ((~~division of~~)) developmental disabilities administration of DSHS according to WAC 182-535-1099.

(e) Covers periodontal maintenance for clients residing in a nursing facility:

(i) Periodontal maintenance (four quadrants) substitutes for an eligible periodontal scaling or root planing once every six months.

(ii) Periodontal maintenance allowed six months after scaling or root planing.

AMENDATORY SECTION (Amending WSR 12-09-081, filed 4/17/12, effective 5/18/12)

WAC 182-535-1090 ((~~Covered~~)) Dental-related services—Covered—Prosthodontics (removable). Clients described in WAC 182-535-1060 are eligible to receive the prosthodontics (removable) and related services, subject to the coverage limitations, restrictions, and client-age requirements identified for a specific service.

(1) **Prosthodontics.** The agency:

(a) Requires prior authorization for all removable prosthodontic and prosthodontic-related procedures. Prior authorization requests must meet the criteria in WAC 182-535-1220. In addition, the agency requires the dental provider to submit:

(i) Appropriate and diagnostic radiographs of all remaining teeth.

(ii) A dental record which identifies:

(A) All missing teeth for both arches;

(B) Teeth that are to be extracted; and

(C) Dental and periodontal services completed on all remaining teeth.

(b) Covers complete dentures, as follows:

(i) A complete denture, including an overdenture, is covered when prior authorized.

(ii) Three-month post-delivery care (e.g., adjustments, soft relines, and repairs) from the ((~~seat~~)) delivery (placement) date of the complete denture, is considered part of the complete denture procedure and is not paid separately.

(iii) ((~~Replacement of an immediate denture with a complete denture is covered, if the complete denture is prior authorized at least six months after the seat date of the immediate denture.~~

~~(iv)~~)) Complete dentures are limited to:

(A) One initial maxillary complete denture and one initial mandibular complete denture per client, per the client's lifetime; and

(B) One replacement maxillary complete denture and one replacement mandibular complete denture per client, per client's lifetime.

(((~~(v)~~))) (iv) Replacement of a complete denture or overdenture is covered only if prior authorized, and only if the replacement occurs at least five years after the seat date of the complete denture or overdenture being replaced. The replacement denture must be prior authorized.

(((~~(vi)~~))) (v) The provider must obtain a signed Denture Agreement of Acceptance (((~~#~~))) HCA 13-809) form from the client at the conclusion of the final denture try-in for an agency-authorized complete denture. If the client abandons the complete denture after signing the agreement of acceptance, the agency will deny subsequent requests for the same type of dental prosthesis if the request occurs prior to the dates specified in this section. A copy of the signed agreement must be kept in the provider's files and be available upon request by the agency.

(c) Covers resin partial dentures, as follows:

(i) A partial denture is covered for anterior and posterior teeth when the partial denture meets the following agency coverage criteria.

(A) The remaining teeth in the arch must have a reasonable periodontal diagnosis and prognosis;

(B) The client has established caries control;

(C) Only if one or more anterior teeth are missing or four or more posterior teeth are missing (excluding teeth one, two, fifteen, sixteen, seventeen, eighteen, thirty-one, and thirty-two). Pontics on an existing fixed bridge do not count as missing teeth;

(D) There is a minimum of four stable teeth remaining per arch; and

(E) There is a three-year prognosis for retention of the remaining teeth.

(ii) Prior authorization is required for partial dentures.

(iii) Three-month post-delivery care (e.g., adjustments, soft relines, and repairs) from the ((~~seat~~)) delivery (placement) date of the partial denture, is considered part of the partial denture procedure and is not paid separately.

(iv) Replacement of a resin-based denture with any prosthetic is covered only if prior authorized at least three years after the ((~~seat~~)) delivery (placement) date of the resin or flexible base partial denture being replaced. The replacement denture must be prior authorized and meet agency coverage criteria in (c)(i) of this subsection.

(d) Does not cover replacement of a cast-metal framework partial denture, with any type of denture, within five years of the initial ((~~seat~~)) delivery (placement) date of the partial denture.

(e) Requires a provider to bill for a removable ((~~prosthetic procedures~~)) partial or complete denture only after the ((~~seating~~)) delivery of the prosthesis, not at the impression date. Refer to subsection (2)(e) and (f) of this section for what the agency may pay if the removable ((~~prosthesis~~)) partial or complete denture is not delivered and inserted.

(f) Requires a provider to submit the following with a prior authorization request for a removable ((~~prosthetics~~)) partial or complete denture for a client residing in an alternate living facility (ALF) as defined in WAC ((~~388-513-1301~~)) 182-513-1301 or in a nursing facility as defined in WAC 182-500-0075:

(i) The client's medical diagnosis or prognosis;

(ii) The attending physician's request for prosthetic services;

(iii) The attending dentist's or denturist's statement documenting medical necessity;

(iv) A written and signed consent for treatment from the client's legal guardian when a guardian has been appointed; and

(v) A completed copy of the Denture/Partial Appliance Request for Skilled Nursing Facility Client (HCA 13-788) form (((~~DSHS 13-788~~))) available from the agency's published billing instructions which can be downloaded from the agency's web site.

(g) Limits removable partial dentures to resin-based partial dentures for all clients residing in one of the facilities listed in (f) of this subsection.

(h) Requires a provider to deliver services and procedures that are of acceptable quality to the agency. The agency may recoup payment for services that are determined to be below the standard of care or of an unacceptable product quality.

(2) **Other services for removable prosthodontics.** The agency covers:

(a) Adjustments to complete and partial dentures three months after the date of delivery.

(b) Repairs:

(i) To complete dentures, once in a twelve-month period. The cost of repairs cannot exceed the cost of the replacement denture. The agency covers additional repairs on a case-by-case basis and when prior authorized.

(ii) To partial dentures, once in a twelve-month period. The cost of the repairs cannot exceed the cost of the replacement partial denture. The agency covers additional repairs on a case-by-case basis and when prior authorized.

(c) A laboratory reline or rebase to a complete or partial denture, once in a three-year period when performed at least six months after the ((~~seating~~)) delivery (placement) date. An additional reline or rebase may be covered for complete or partial dentures on a case-by-case basis when prior authorized.

(d) Up to two tissue conditionings, only for clients twenty years of age and younger, and only when performed within three months after the ((~~seating~~)) delivery (placement) date.

(e) Laboratory fees, subject to the following:

(i) The agency does not pay separately for laboratory or professional fees for complete and partial dentures; and

(ii) The agency may pay part of billed laboratory fees when the provider obtains prior authorization, and the client:

(A) Is not eligible at the time of delivery of the ((~~prosthesis~~)) partial or complete denture;

(B) Moves from the state;

(C) Cannot be located;

(D) Does not participate in completing the partial or complete((~~, immediate, or partial~~)) denture((~~s~~)); or

(E) Dies.

(f) A provider must submit copies of laboratory prescriptions and receipts or invoices for each claim when billing for laboratory fees.

AMENDATORY SECTION (Amending WSR 12-09-081, filed 4/17/12, effective 5/18/12)

WAC 182-535-1092 ((~~Covered~~)) Dental-related services—Covered—Maxillofacial prosthetic services. Clients described in WAC 182-535-1060 are eligible to receive the maxillofacial prosthetic services listed in this section, subject to the following:

(1) Maxillofacial prosthetics are covered only for clients twenty years of age and younger on a case-by-case basis and when prior authorized; and

(2) The agency must preapprove a provider qualified to furnish maxillofacial prosthetics.

AMENDATORY SECTION (Amending WSR 12-09-081, filed 4/17/12, effective 5/18/12)

WAC 182-535-1094 ((~~Covered~~)) Dental-related services—Covered—Oral and maxillofacial surgery services. Clients described in WAC 182-535-1060 are eligible to receive the oral and maxillofacial surgery services listed in this section, subject to the coverage limitations, restrictions, and client-age requirements identified for a specific service.

(1) **Oral and maxillofacial surgery services.** The agency:

(a) Requires enrolled providers who do not meet the conditions in WAC 182-535-1070(3) to bill claims for services that are listed in this subsection using only the current dental terminology (CDT) codes.

(b) Requires enrolled providers (oral and maxillofacial surgeons) who meet the conditions in WAC 182-535-1070(3) to bill claims using current procedural terminology (CPT) codes unless the procedure is specifically listed in the agency's current published ((~~billing instructions~~)) *Dental-Related Services Provider Guide* as a CDT covered code (e.g., extractions).

(c) Covers nonemergency oral surgery performed in a hospital or ambulatory surgery center only for:

(i) Clients eight years of age and younger;

(ii) Clients from nine ((~~to~~)) through twenty years of age only on a case-by-case basis and when the site-of-service is prior authorized by the agency; and

(iii) Clients any age of the ((~~division of~~)) developmental disabilities administration of the department of social and health services (DSHS).

(d) For site-of-service and oral surgery CPT codes that require prior authorization, the agency requires the dental provider to submit:

(i) Documentation used to determine medical appropriateness;

(ii) Cephalometric films;

(iii) Radiographs (X rays);

(iv) Photographs; and

(v) Written narrative/letter of medical necessity.

(e) Requires the client's dental record to include supporting documentation for each type of extraction or any other surgical procedure billed to the agency. The documentation must include:

(i) Appropriate consent form signed by the client or the client's legal representative;

(ii) Appropriate radiographs;

(iii) Medical justification with diagnosis;

(iv) Client's blood pressure, when appropriate;

(v) A surgical narrative and complete description of each service performed beyond surgical extraction or beyond code definition;

(vi) A copy of the post-operative instructions; and

(vii) A copy of all pre- and post-operative prescriptions.

(f) Covers routine and surgical extractions. Prior authorization is required when the:

(i) Extractions of four or more teeth over a six-month period, per provider, results in the client becoming edentulous in the maxillary arch or mandibular arch; or

(ii) Tooth number is not able to be determined.

(g) ((~~Requires~~)) Covers unusual, complicated surgical extractions with prior authorization ((~~for unusual, complicated surgical extractions~~)).

(h) Covers tooth reimplantation/stabilization of accidentally evulsed or displaced teeth ((~~for clients twenty years of age and younger~~)).

(i) Covers surgical extraction of unerupted teeth for clients twenty years of age and younger.

(j) Covers debridement of a granuloma or cyst that is five millimeters or greater in diameter. The agency includes debridement of a granuloma or cyst that is less than five millimeters as part of the global fee for the extraction.

(k) Covers the following without prior authorization:

(i) Biopsy of soft oral tissue;

(ii) Brush biopsy ((~~for clients twenty years of age and younger~~)).

(l) Requires providers to keep all biopsy reports or findings in the client's dental record.

(m) Covers the following with prior authorization (photos or radiographs, as appropriate, must be submitted to the agency with the prior authorization request):

(i) Alveoloplasty ((~~for clients twenty years of age and younger only~~)) on a case-by-case basis ((~~and when prior authorized. The agency covers alveoplasty~~)) (only when not performed in conjunction with extractions).

((~~(n) Covers~~)) (ii) Surgical excision of soft tissue lesions only on a case-by-case basis ((~~and when prior authorized~~)).

((~~(o) Covers~~)) (iii) Only the following excisions of bone tissue in conjunction with placement of complete or partial dentures ((~~for clients twenty years of age and younger when prior authorized~~)):

((~~(i)~~)) (A) Removal of lateral exostosis;

((~~(ii)~~)) (B) Removal of torus palatinus or torus mandibularis; and

((~~(iii)~~)) (C) Surgical reduction of ((~~soft tissue~~)) osseous tuberosity.

(iv) Surgical access of unerupted teeth for clients twenty years of age and younger.

(2) **Surgical incisions.** The agency covers the following surgical incision-related services:

(a) Uncomplicated intraoral and extraoral soft tissue incision and drainage of abscess. The agency does not cover this service when combined with an extraction or root canal treatment. Documentation supporting medical necessity must be in the client's record.

(b) Removal of foreign body from mucosa, skin, or subcutaneous alveolar tissue ((~~for clients twenty years of age and younger~~)) when prior authorized. Documentation supporting the medical necessity for the service must be in the client's record.

(c) Frenuloplasty/frenulectomy for clients six years of age and younger without prior authorization.

(d) Frenuloplasty/frenulectomy for clients from seven to twelve years of age only on a case-by-case basis and when prior authorized. Photos must be submitted to the agency with the prior authorization request. Documentation supporting the medical necessity for the service must be in the client's record.

(3) **Occlusal orthotic devices.** (Refer to WAC 182-535-1098 (4)(c) for occlusal guard coverage and limitations on coverage.) The agency covers:

(a) Occlusal orthotic devices for clients from twelve ((~~to~~)) through twenty years of age only on a case-by-case basis and when prior authorized.

(b) An occlusal orthotic device only as a laboratory processed full arch appliance.

AMENDATORY SECTION (Amending WSR 12-09-081, filed 4/17/12, effective 5/18/12)

WAC 182-535-1096 ((~~Covered~~)) Dental-related services—Covered—Orthodontic services. (1) The agency covers orthodontic services, subject to the coverage limitations listed, for clients twenty years of age and younger, according to chapter 182-535A WAC.

(2) The agency does not cover orthodontic services for clients twenty-one years of age and older.

AMENDATORY SECTION (Amending WSR 12-09-081, filed 4/17/12, effective 5/18/12)

WAC 182-535-1098 ((~~Covered~~)) Dental-related services—Covered—Adjunctive general services. Clients described in WAC 182-535-1060 are eligible to receive the adjunctive general services listed in this section, subject to coverage limitations, restrictions, and client-age requirements identified for a specific service.

(1) **Adjunctive general services.** The agency:

(a) Covers palliative (emergency) treatment, not to include pupal debridement (see WAC 182-535-1086 (2)(b)), for treatment of dental pain, ((~~for clients twenty years of age and younger,~~)) limited to once per day, per client, as follows:

(i) The treatment must occur during limited evaluation appointments;

(ii) A comprehensive description of the diagnosis and services provided must be documented in the client's record; and

(iii) Appropriate radiographs must be in the client's record supporting the medical necessity of the treatment.

(b) Covers local anesthesia and regional blocks as part of the global fee for any procedure being provided to clients.

(c) Covers office-based oral or parenteral conscious sedation, deep sedation, or general anesthesia, as follows:

(i) The provider's current anesthesia permit must be on file with the agency.

(ii) For clients eight years of age and younger, and for clients any age of the ((~~division of~~)) developmental disabilities administration of the department of social and health services (DSHS), documentation supporting the medical necessity of the anesthesia service must be in the client's record.

(iii) For clients ((~~from~~)) nine ((~~to twenty~~)) years of age and older, deep sedation or general anesthesia services are covered on a case-by-case basis and when prior authorized, except for oral surgery services. For oral surgery services listed in WAC 182-535-1094 (1)(b), deep sedation or general anesthesia services do not require prior authorization.

(iv) Prior authorization is not required for oral or parenteral conscious sedation for any dental service for clients twenty years of age and younger, and for clients any age of the ((~~division of~~)) developmental disabilities administration of DSHS. Documentation supporting the medical necessity of the service must be in the client's record.

(v) For clients from nine to twenty years of age who have a diagnosis of oral facial cleft, the agency does not require prior authorization for deep sedation or general anesthesia services when the dental procedure is directly related to the oral facial cleft treatment.

(vi) A provider must bill anesthesia services using the CDT codes listed in the agency's current published billing instructions.

(d) Covers administration of nitrous oxide, once per day.

(e) Requires providers of oral or parenteral conscious sedation, deep sedation, or general anesthesia to meet:

(i) The prevailing standard of care;

(ii) The provider's professional organizational guidelines;

(iii) The requirements in chapter 246-817 WAC; and

(iv) Relevant department of health (DOH) medical, dental, or nursing anesthesia regulations.

(f) Pays for dental anesthesia services according to WAC 182-535-1350.

(g) Covers professional consultation/diagnostic services as follows:

(i) A dentist or a physician other than the practitioner providing treatment must provide the services; and

(ii) A client must be referred by the agency for the services to be covered.

(2) **Professional visits.** The agency covers:

(a) Up to two house/extended care facility calls (visits) per facility, per provider. The agency limits payment to two facilities per day, per provider.

(b) One hospital call (visit), including emergency care, per day, per provider, per client, and not in combination with a surgical code unless the decision for surgery is a result of the visit.

(c) Emergency office visits after regularly scheduled hours. The agency limits payment to one emergency visit per day, per client, per provider.

(3) **Drugs and/or medicaments (pharmaceuticals).** The agency covers drugs and/or medicaments ((~~only when used with parenteral conscious sedation, deep sedation, or general anesthesia~~)), such as antibiotics, steroids, anti-inflammatories, or other therapeutic medications for clients twenty years of age and younger. The agency's dental program does not pay for oral sedation medications.

(4) **Miscellaneous services.** The agency covers:

(a) Behavior management when the assistance of one additional dental staff other than the dentist is required for the following clients and documentation supporting the need for the behavior management must be in the client's record:

(i) Clients eight years of age and younger;

(ii) Clients from nine ((~~to~~)) through twenty years of age, only on a case-by-case basis and when prior authorized;

(iii) Clients any age of the ((~~division of~~)) developmental disabilities administration of DSHS; ((~~and~~))

(iv) Clients diagnosed with autism; and

(v) Clients who reside in an alternate living facility (ALF) as defined in WAC ((~~388-513-1301~~)) 182-513-1301 or in a nursing facility as defined in WAC 182-500-0075.

(b) Treatment of post-surgical complications (e.g., dry socket). Documentation supporting the medical necessity of the service must be in the client's record.

(c) Occlusal guards when medically necessary and prior authorized. (Refer to WAC 182-535-1094(3) for occlusal orthotic device coverage and coverage limitations.) The agency covers:

(i) An occlusal guard only for clients from twelve ((~~to~~)) through twenty years of age when the client has permanent dentition; and

(ii) An occlusal guard only as a laboratory processed full arch appliance.

AMENDATORY SECTION (Amending WSR 12-09-081, filed 4/17/12, effective 5/18/12)

WAC 182-535-1099 ((~~Covered~~)) Dental-related services for clients of the ((~~division of~~)) developmental disabilities administration of the department of social and health services. Subject to coverage limitations, restrictions, and client-age requirements identified for a specific service, the agency pays for the dental-related services listed under the categories of services in this section that are provided to clients of the ((~~division of~~)) developmental disabilities administration of the department of social and health services (DSHS). This chapter also applies to clients any age of the ((~~division of~~)) developmental disabilities((~~, regardless of age~~)) administration of DSHS, unless otherwise stated in this section.

(1) **Preventive services.**

(a) Periodic oral evaluations. The agency covers periodic oral evaluations up to three times in a twelve-month period.

(b) Dental prophylaxis. The agency covers dental prophylaxis or periodontal maintenance up to three times in a twelve-month period (see subsection (3) of this section for limitations on periodontal scaling and root planing).

(((~~b~~))) (c) Topical fluoride treatment. The agency covers topical fluoride varnish, rinse, foam or gel, up to three times within a twelve-month period, per client, per provider or clinic.

(((~~c~~))) (d) Sealants. The agency covers sealants:

(i) Only when used on the occlusal surfaces of:

(A) Primary teeth A, B, I, J, K, L, S, and T; or

(B) Permanent teeth two, three, four, five, twelve, thirteen, fourteen, fifteen, eighteen, nineteen, twenty, twenty-one, twenty-eight, twenty-nine, thirty, and thirty-one.

(ii) Once per tooth in a two-year period.

(2) ((~~**Crowns.** The agency covers stainless steel crowns every two years for the same tooth and only for primary molars and permanent premolars and molars, as follows:~~

~~(a) For clients ages twenty and younger, the agency does not require prior authorization for stainless steel crowns. Documentation supporting the medical necessity of the service must be in the client's record.~~

~~(b) For clients twenty-one years of age and older, the agency requires prior authorization for stainless steel crowns when the tooth has had a pulpotomy and only for:~~

~~(i) Primary first molars when the decay involves three or more surfaces; and~~

~~(ii) Second molars when the decay involves four or more surfaces.~~)) **Other restorative services.** The agency covers the following restorative services:

(a) All recementations of permanent indirect crowns.

(b) Prefabricated stainless steel crowns, including stainless steel crowns with resin window, resin-based composite crowns (direct), prefabricated esthetic coated stainless steel crowns, and prefabricated resin crowns for primary anterior teeth once every two years only for clients twenty years of age and younger without prior authorization.

(c) Prefabricated stainless steel crowns, including stainless steel crowns with resin window, resin-based composite crowns (direct), prefabricated esthetic coated stainless steel crowns, and prefabricated resin crowns for primary posterior teeth once every two years for clients twenty years of age and younger without prior authorization if:

(i) Decay involves three or more surfaces for a primary first molar;

(ii) Decay involves four or more surfaces for a primary second molar; or

(iii) The tooth had a pulpotomy.

(d) Prefabricated stainless steel crowns, including stainless steel crowns with resin window, and prefabricated resin crowns for permanent posterior teeth excluding one, sixteen, seventeen, and thirty-two once every two years without prior authorization for any age.

(3) **Periodontic services.**

(a) **Surgical periodontal services.** The agency covers:

(i) Gingivectomy/gingivoplasty once every three years. Documentation supporting the medical necessity of the service must be in the client's record (e.g., drug induced gingival hyperplasia).

(ii) Gingivectomy/gingivoplasty with periodontal scaling and root planing or periodontal maintenance when the services are performed:

(A) In a hospital or ambulatory surgical center; or

(B) For clients under conscious sedation, deep sedation, or general anesthesia.

(b) **Nonsurgical periodontal services.** The agency covers:

(i) Periodontal scaling and root planing, one time per quadrant in a twelve-month period.

(ii) Periodontal maintenance (four quadrants) substitutes for an eligible periodontal scaling or root planing, twice in a twelve-month period.

(iii) Periodontal maintenance allowed six months after scaling or root planing.

(iv) Full-mouth or quadrant debridement allowed once in a twelve-month period.

(4) **Adjunctive general services.** The agency covers:

(a) Oral parenteral conscious sedation, deep sedation, or general anesthesia for any dental services performed in a dental office or clinic. Documentation supporting the medical necessity must be in the client's record.

(b) Sedations services according to WAC 182-535-1098 (1)(c) and (e).

(5) **Nonemergency dental services.** The agency covers nonemergency dental services performed in a hospital or an ambulatory surgical center for services listed as covered in WAC 182-535-1082, 182-535-1084, 182-535-1086, 182-

535-1088, and 182-535-1094. Documentation supporting the medical necessity of the service must be included in the client's record.

(6) **Miscellaneous services((—)) - Behavior management.** The agency covers behavior management provided in dental offices or dental clinics. Documentation supporting the medical necessity of the service must be included in the client's record.

AMENDATORY SECTION (Amending WSR 12-09-081, filed 4/17/12, effective 5/18/12)

WAC 182-535-1100 Dental-related services—Not covered. (1) The agency does not cover the following:

(a) The dental-related services described in subsection (2) of this section unless the services are covered under the early periodic screening, diagnosis and treatment (EPSDT) program. ((See WAC 182-534-0100 for information about the EPSDT program.)) When EPSDT applies, the agency evaluates a noncovered service, equipment, or supply according to the process in WAC 182-501-0165 to determine if it is medically necessary, safe, effective, and not experimental.

(b) Any service specifically excluded by statute.

(c) More costly services when less costly, equally effective services as determined by the agency are available.

(d) Services, procedures, treatment, devices, drugs, or application of associated services:

(i) That the agency or the Centers for Medicare and Medicaid Services (CMS) considers investigative or experimental on the date the services were provided.

(ii) That are not listed as covered in one or both of the following:

(A) Washington Administrative Code (WAC).

(B) The agency's current published documents.

(2) The agency does not cover dental-related services listed under the following categories of service (see subsection (1)(a) of this section for services provided under the EPSDT program):

(a) **Diagnostic services.** The agency does not cover:

(i) Detailed and extensive oral evaluations or reevaluations.

(ii) ((Extraoral radiographs.

(iii))) Posterior-anterior or lateral skull and facial bone survey films.

(((iv))) (iii) Any temporomandibular joint films.

(((v))) (iv) Tomographic surveys/3-D imaging.

(((vi) Cephalometric films, for clients twenty-one years of age and older.

(vii) Oral/facial photographic images, for clients twenty-one years of age and older.

(viii))) (v) Comprehensive periodontal evaluations.

(((ix) Occlusal intraoral radiographs, for clients twenty-one years of age and older.

(x))) (vi) Viral cultures, genetic testing, caries susceptibility tests, or adjunctive prediagnostic tests.

(((xi) Pulp vitality tests, for clients twenty-one years of age and older.

(xii) Diagnostic casts, for clients twenty-one years of age and older.))

(b) **Preventive services.** The agency does not cover:

(i) Nutritional counseling for control of dental disease.

(ii) ((Tobacco counseling for the control and prevention of oral disease.

(iii))) Removable space maintainers of any type.

(((iv) Oral hygiene instructions for clients nine years of age and older. This is included as part of the global fee for oral prophylaxis.

(v))) (iii) Sealants placed on a tooth with the same-day occlusal restoration, preexisting occlusal restoration, or a tooth with occlusal decay.

(((vi) Sealants, for clients twenty years of age and older. For clients of the division of developmental disabilities, see WAC 182-535-1099.

(vii) Space maintainers, for clients nineteen years of age and older.

(viii) Recementation of space maintainers, for clients twenty-one years of age and older.

(ix))) (iv) Custom fluoride trays of any type.

(((x))) (v) Bleach trays.

(c) **Restorative services.** The agency does not cover:

(i) Restorations for wear on any surface of any tooth without evidence of decay through the dentoenamel junction (DEJ) or on the root surface.

(ii) Preventative restorations.

(iii) Labial veneer resin or porcelain laminate restorations.

(iv) Sedative fillings.

(v) Crowns and crown related services.

(A) Gold foil restorations.

(((iii))) (B) Metallic, resin-based composite, or porcelain/ceramic inlay/onlay restorations.

(((iv) Prefabricated resin crowns, for clients twenty-one years of age and older.

(v) Preventive restorations.

(vi))) (C) Crowns for cosmetic purposes (e.g., peg laterals and tetracycline staining).

(((vii))) (D) Permanent indirect crowns for ((molar)) posterior teeth.

(((viii))) (E) Permanent indirect crowns on permanent anterior teeth for clients fourteen years of age and younger.

(((ix))) (F) Temporary or provisional crowns (including ion crowns).

(((x) Labial veneer resin or porcelain laminate restorations.

(xi) Recementation of any crown, inlay/onlay, or any other type of indirect restoration, for clients twenty-one years of age and older.

(xii) Sedative fillings.

(xiii) Any type of core buildup, cast post and core, or prefabricated post and core, for clients twenty-one years of age and older.

(xiv))) (G) Any type of coping.

(((xv))) (H) Crown repairs.

(((xvi))) (I) Crowns on teeth one, sixteen, seventeen, and thirty-two.

(vi) Polishing or recontouring restorations or overhang removal for any type of restoration.

(((xvii) Amalgam restorations of primary posterior teeth for clients sixteen years of age and older.

~~(xviii) Crowns on teeth one, sixteen, seventeen, and thirty-two.~~

~~(xix)~~)) (vii) Any services other than extraction on supernumerary teeth.

(d) **Endodontic services.** The agency does not cover((~~:~~

~~(i) The following endodontic services for clients twenty-one years of age and older:~~

~~(A) Endodontic therapy on permanent bicuspids;~~

~~(B) Any apexification/recalcification procedures; or~~

~~(C) Any apicoectomy/periradicular service.~~

~~(ii) Apexification/recalcification for root resorption of permanent anterior teeth.~~

~~(iii)~~)) the following endodontic services:

(((~~(A)~~)) (i) Indirect or direct pulp caps.

(((~~(B)~~)) (ii) Any endodontic therapy on primary teeth, except as described in WAC 182-535-1086 (3)(a).

(((~~(C) Endodontic therapy on molar teeth.~~

~~(D) Any apexification/recalcification procedures for bicuspid or molar teeth.~~

~~(E) Any apicoectomy/periradicular services for bicuspid teeth or molar teeth.~~

~~(F) Any surgical endodontic procedures including, but not limited to, retrograde fillings (except for anterior teeth), root amputation, reimplantation, and hemisections.~~))

(e) **Periodontic services.** The agency does not cover:

(i) Surgical periodontal services including, but not limited to:

(A) Gingival flap procedures.

(B) Clinical crown lengthening.

(C) Osseous surgery.

(D) Bone or soft tissue grafts.

(E) Biological material to aid in soft and osseous tissue regeneration.

(F) Guided tissue regeneration.

(G) Pedicle, free soft tissue, apical positioning, subepithelial connective tissue, soft tissue allograft, combined connective tissue and double pedicle, or any other soft tissue or osseous grafts.

(H) Distal or proximal wedge procedures.

(ii) Nonsurgical periodontal services including, but not limited to:

(A) Intracoronal or extracoronal provisional splinting.

(B) Full mouth or quadrant debridement (except for clients of the developmental disabilities administration).

(C) Localized delivery of chemotherapeutic agents.

(D) Any other type of nonsurgical periodontal service.

(f) **Removable prosthodontics.** The agency does not cover:

(i) Removable unilateral partial dentures.

(ii) ((~~Adjustments to any removable prosthesis.~~

~~(iii)~~)) Any interim complete or partial dentures.

(((~~(iv)~~)) (iii) Flexible base partial dentures.

(((~~(v)~~)) (iv) Any type of permanent soft reline (e.g., molloplast).

(((~~(vi)~~)) (v) Precision attachments.

(((~~(vii)~~)) (vi) Replacement of replaceable parts for semi-precision or precision attachments.

(((~~(viii)~~)) (vii) Replacement of second or third molars for any removable prosthesis.

(((~~(ix)~~)) (viii) Immediate dentures.

(((~~(x)~~)) (ix) Cast-metal framework partial dentures.

(g) **Implant services.** The agency does not cover:

(i) Any type of implant procedures, including, but not limited to, any tooth implant abutment (e.g., periosteal implants, eposteal implants, and transosteal implants), abutments or implant supported crowns, abutment supported retainers, and implant supported retainers.

(ii) Any maintenance or repairs to procedures listed in (g)(i) of this subsection.

(iii) The removal of any implant as described in (g)(i) of this subsection.

(h) **Fixed prosthodontics.** The agency does not cover any type of:

(i) Fixed partial denture pontic.

(ii) Fixed partial denture retainer.

(iii) Precision attachment, stress breaker, connector bar, coping, cast post, or any other type of fixed attachment or prosthesis.

(iv) Occlusal orthotic splint or device, bruxing or grinding splint or device, temporomandibular joint splint or device, or sleep apnea splint or device.

(((~~(v) Orthodontic service or appliance, for clients twenty-one years of age and older.~~))

(i) **Oral maxillofacial prosthetic services.** The agency does not cover any type of oral or facial prosthesis other than those listed in WAC 182-535-1092.

(j) **Oral and maxillofacial surgery.** The agency does not cover:

(i) Any oral surgery service not listed in WAC 182-535-1094.

(ii) Any oral surgery service that is not listed in the agency's list of covered current procedural terminology (CPT) codes published in the agency's current rules or billing instructions.

(iii) Vestibuloplasty.

(((~~(iv) Frenuloplasty/frenulectomy, for clients twenty-one years of age and older.~~))

(k) **Adjunctive general services.** The agency does not cover:

(i) Anesthesia, including, but not limited to:

(A) Local anesthesia as a separate procedure.

(B) Regional block anesthesia as a separate procedure.

(C) Trigeminal division block anesthesia as a separate procedure.

(D) Medication for oral sedation, or therapeutic intramuscular (IM) drug injections, including antibiotic and injection of sedative.

(E) Application of any type of desensitizing medicament or resin.

(ii) ((~~General anesthesia for clients twenty-one years of age and older.~~

~~(iii) Oral or parenteral conscious sedation for clients twenty-one years of age and older.~~

~~(iv) Analgesia or anxiolysis as a separate procedure except for administration of nitrous oxide for clients twenty-one years of age and older.~~

~~(v)~~)) Other general services including, but not limited to:

(A) Fabrication of an athletic mouthguard.

(B) ((~~Occlusal guards for clients twenty-one years of age and older.~~

~~(C)~~)) Nightguards.

((~~(D)~~)) (C) Occlusion analysis.

((~~(E)~~)) (D) Occlusal adjustment, tooth or restoration adjustment or smoothing, or odontoplasties.

((~~(F)~~)) (E) Enamel microabrasion.

((~~(G)~~)) (F) Dental supplies such as toothbrushes, toothpaste, floss, and other take home items.

((~~(H)~~)) (G) Dentist's or dental hygienist's time writing or calling in prescriptions.

((~~(I)~~)) (H) Dentist's or dental hygienist's time consulting with clients on the phone.

((~~(J)~~)) (I) Educational supplies.

((~~(K)~~)) (J) Nonmedical equipment or supplies.

((~~(L)~~)) (K) Personal comfort items or services.

((~~(M)~~)) (L) Provider mileage or travel costs.

((~~(N)~~)) (M) Fees for no-show, canceled, or late arrival appointments.

((~~(O)~~)) (N) Service charges of any type, including fees to create or copy charts.

((~~(P)~~)) (O) Office supplies used in conjunction with an office visit.

((~~(Q)~~)) (P) Teeth whitening services or bleaching, or materials used in whitening or bleaching.

(Q) Botox or derma-fillers.

(3) The agency does not cover the following dental-related services for clients twenty-one years of age and older:

(a) The following diagnostic services:

(i) Occlusal intraoral radiographs;

(ii) Diagnostic casts;

(iii) Sealants (for clients of the developmental disabilities administration, see WAC 182-535-1099);

(iv) Pulp vitality tests.

(b) The following restorative services:

(i) Prefabricated resin crowns;

(ii) Any type of core buildup, cast post and core, or prefabricated post and core.

(c) The following endodontic services:

(i) Endodontic treatment on permanent bicuspids or molar teeth;

(ii) Any apexification/recalcification procedures;

(iii) Any apicoectomy/periradicular surgical endodontic procedures including, but not limited to, retrograde fillings (except for anterior teeth), root amputation, reimplantation, and hemisections.

(d) The following adjunctive general services:

(i) Occlusal guards; and

(ii) Analgesia or anxiolysis as a separate procedure except for administration of nitrous oxide.

(4) The agency evaluates a request for any dental-related services listed as noncovered in this chapter under the provisions of WAC 182-501-0160.

AMENDATORY SECTION (Amending WSR 12-09-081, filed 4/17/12, effective 5/18/12)

WAC 182-535-1220 Obtaining prior authorization for dental-related services. (1) The agency uses the determination process for payment described in WAC 182-501-0165 for covered dental-related services that require prior authorization.

(2) The agency requires a dental provider who is requesting prior authorization to submit sufficient objective clinical information to establish medical necessity. The request must be submitted in writing on ((~~DSHS form~~)) General Information for Authorization (HCA 13-835) form, available on the agency's web site.

(3) The agency may request additional information as follows:

(a) Additional radiographs (X rays) (refer to WAC 182-535-1080(2));

(b) Study models;

(c) Photographs; and

(d) Any other information as determined by the agency.

(4) The agency may require second opinions and/or consultations by a licensed independent doctor of dental surgery (DDS)/doctor of dental medicine (DMD) before authorizing any procedure.

(5) When the agency authorizes a dental-related service for a client, that authorization indicates only that the specific service is medically necessary; it is not a guarantee of payment. The authorization is valid for six months and only if the client is eligible for covered services on the date of service.

(6) The agency denies a request for a dental-related service when the requested service:

(a) Is covered by another agency program;

(b) Is covered by an agency or other entity outside the agency; or

(c) Fails to meet the program criteria, limitations, or restrictions in this chapter.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-535-1245 Access to baby and child dentistry (ABCD) program. The access to baby and child dentistry (ABCD) program is a program established to increase access to dental services for medicaid-eligible clients ages five and younger.

(1) Client eligibility for the ABCD program is as follows:

(a) Clients must be age five and younger. Once enrolled in the ABCD program, eligible clients are covered until their sixth birthday.

(b) Clients eligible under one of the following medical assistance programs are eligible for the ABCD program:

(i) Categorically needy program (CNP);

(ii) Limited casualty program-medically needy program (LCP-MNP);

(iii) Children's health program; or

(iv) State children's health insurance program (SCHIP).

(c) ABCD program services for eligible clients enrolled in a managed care organization (MCO) plan are paid through the fee-for-service payment system.

(2) Health care providers and community service programs identify and refer eligible clients to the ABCD program. If enrolled, the client and an adult family member may receive:

(a) Oral health education;

(b) "Anticipatory guidance" (expectations of the client and the client's family members, including the importance of keeping appointments); and

(c) Assistance with transportation, interpreter services, and other issues related to dental services.

(3) The ((~~department~~)) agency pays enhanced fees only to ABCD-certified dentists and other ((~~department-approved~~)) agency-approved certified providers for furnishing ABCD program services. ABCD program services include, when appropriate:

(a) Family oral health education. An oral health education visit:

(i) Is limited to one visit per day per family, up to two visits per child in a twelve-month period, per provider or clinic; and

(ii) Must include all of the following:

(A) "Lift the lip" training;

(B) Oral hygiene training;

(C) Risk assessment for early childhood caries;

(D) Dietary counseling;

(E) Discussion of fluoride supplements; and

(F) Documentation in the client's file or the client's designated adult member's (family member or other responsible adult) file to record the activities provided and duration of the oral education visit.

(b) Periodic oral evaluation, up to two visits per client, per calendar year, per provider or clinic;

(c) Topical application of fluoride varnish;

(d) Amalgam, resin, and glass ionomer restorations on primary teeth, as specified in the agency's current ((~~department-published~~)) published documents;

(e) Therapeutic pulpotomy;

(f) Prefabricated stainless steel crowns on primary teeth, as specified in the agency's current ((~~department-published~~)) published documents;

(g) Resin-based composite crowns on anterior primary teeth; and

(h) Other dental-related services, as specified in the agency's current ((~~department-published~~)) published documents.

(4) The client's file must show documentation of the ABCD program services provided.

AMENDATORY SECTION (Amending WSR 12-09-081, filed 4/17/12, effective 5/18/12)

WAC 182-535-1350 Payment methodology for dental-related services. The agency uses the description of dental services described in the American Dental Association's Current Dental Terminology (CDT), and the American Medical Association's Physician's Current Procedural Terminology (CPT).

(1) For covered dental-related services provided to eligible clients, the agency pays dentists and other eligible providers on a fee-for-service or contractual basis, subject to the exceptions and restrictions listed under WAC 182-535-1100 and 182-535-1400.

(2) The agency sets maximum allowable fees for dental services as follows:

(a) The agency's historical reimbursement rates for various procedures are compared to usual and customary charges.

(b) The agency consults with representatives of the provider community to identify program areas and concerns that need to be addressed.

(c) The agency consults with dental experts and public health professionals to identify and prioritize dental services and procedures for their effectiveness in improving or promoting dental health.

(d) Legislatively authorized vendor rate increases and/or earmarked appropriations for dental services are allocated to specific procedures based on the priorities identified in (c) of this subsection and considerations of access to services.

(e) Larger percentage increases may be given to those procedures which have been identified as most effective in improving or promoting dental health.

(f) Budget-neutral rate adjustments are made as appropriate based on the agency's evaluation of utilization trends, effectiveness of interventions, and access issues.

(3) ((~~The agency reimburses dental general anesthesia services for eligible clients on the basis of base anesthesia units plus time. Payment for dental general anesthesia is calculated as follows:~~

~~(a) Dental procedures are assigned an anesthesia base unit of five;~~

~~(b) Fifteen minutes constitute one unit of time. When a dental procedure requiring dental general anesthesia results in multiple time units and a remainder (less than fifteen minutes), the remainder or fraction is considered as one time unit;~~

~~(c) Time units are added to the anesthesia base unit of five and multiplied by the anesthesia conversion factor;~~

~~(d) The formula for determining payment for dental general anesthesia is: (5.0 base anesthesia units + time units) x conversion factor = payment.~~

~~(4) When billing for anesthesia, the provider must show the actual beginning and ending times on the claim. Anesthesia time begins when the provider starts to physically prepare the client for the induction of anesthesia in the operating room area (or its equivalent), and ends when the provider is no longer in constant attendance (i.e., when the client can be safely placed under postoperative supervision).~~

~~(5)~~)) The agency pays eligible providers listed in WAC 182-535-1070 for conscious sedation with parenteral and multiple oral agents, or for general anesthesia when the provider meets the criteria in this chapter and other applicable WAC.

((~~(6)~~)) (4) Dental hygienists who have a contract with the agency are paid at the same rate as dentists who have a contract with the agency, for services allowed under the Dental Hygienist Practice Act.

((~~(7)~~)) (5) Licensed denturists who have a contract with the agency are paid at the same rate as dentists who have a contract with the agency, for providing dentures and partials.

((~~(8)~~)) (6) The agency makes fee schedule changes whenever the legislature authorizes vendor rate increases or decreases.

((~~(9)~~)) (7) The agency may adjust maximum allowable fees to reflect changes in services or procedure code descriptions.

(((~~(10)~~))) (8) The agency does not pay separately for chart or record setup, or for completion of reports, forms, or charting. The fees for these services are included in the agency's reimbursement for comprehensive oral evaluations or limited oral evaluations.

AMENDATORY SECTION (Amending WSR 12-09-081, filed 4/17/12, effective 5/18/12)

WAC 182-535-1400 Payment for dental-related services. (1) The agency considers that a provider who furnishes covered dental services to an eligible client has accepted the agency's rules and fees.

(2) Participating providers must bill the agency their usual and customary fees.

(3) Payment for dental services is based on the agency's schedule of maximum allowances. Fees listed in the agency's fee schedule are the maximum allowable fees.

(4) The agency pays the provider the lesser of the billed charge (usual and customary fee) or the agency's maximum allowable fee.

(5) The agency pays dental general anesthesia services for eligible clients as follows:

(a) The initial thirty minutes constitutes one unit of time. When a dental procedure requiring dental general anesthesia results in multiple time units and a remainder (less than fifteen minutes), the remainder or fraction is considered as one time unit.

(b) When billing for anesthesia, the provider must show the actual beginning and ending times in the client's medical record. Anesthesia time begins when the provider starts to physically prepare the client for the induction of anesthesia in the operating room area (or its equivalent), and ends when the provider is no longer in constant attendance (i.e., when the client can be safely placed under postoperative supervision).

(6) The agency pays "by report" on a case-by-case basis, for a covered service that does not have a set fee.

(((~~(6)~~))) (7) Participating providers must bill a client according to WAC 182-502-0160, unless otherwise specified in this chapter.

(((~~(7)~~))) (8) If the client's eligibility for dental services ends before the conclusion of the dental treatment, payment for any remaining treatment is the client's responsibility. The exception to this is dentures and partial dentures as described in WAC 182-535-1240 and 182-535-1290.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-535-1550 Payment for dental care provided out-of-state. See WAC ((~~388-501-0180, 388-501-0182, and 388-501-0184~~)) 182-501-0180, 182-501-0182, and 182-501-0184 for services provided outside the state of Washington. See WAC ((~~388-501-0175~~)) 182-501-0175 for designated bordering cities.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-535A-0010 ((~~Definitions for~~)) Orthodontic services—Definitions. The following definitions and those found in ((~~WAC 388-500-0005~~)) chapter 182-500 WAC apply to this chapter.

"Appliance placement" means the application of orthodontic attachments to the teeth for the purpose of correcting dentofacial abnormalities.

"Cleft" means an opening or fissure involving the dentition and supporting structures, especially one occurring in utero. These can be:

(1) Cleft lip;

(2) Cleft palate (involving the roof of the mouth); or

(3) Facial clefts (e.g., macrostomia).

"Comprehensive full orthodontic treatment" means utilizing fixed orthodontic appliances for treatment of the permanent dentition leading to the improvement of a client's severe handicapping craniofacial dysfunction and/or dentofacial deformity, including anatomical and functional relationships.

"Craniofacial anomalies" means abnormalities of the head and face, either congenital or acquired, involving disruption of the dentition and supporting structures.

"Craniofacial team" means a cleft palate/maxillofacial team or an American Cleft Palate Association-certified craniofacial team. These teams are responsible for the management (review, evaluation, and approval) of patients with cleft palate craniofacial anomalies to provide integrated management, promote parent-professional partnership, and make appropriate referrals to implement and coordinate treatment plans.

"Dental dysplasia" means an abnormality in the development of the teeth.

"EPSDT" means the ((~~department's~~)) agency's early and periodic screening, diagnosis, and treatment program for clients twenty years of age and younger as described in chapter ((~~388-534~~)) 182-534 WAC.

"Hemifacial microsomia" means a developmental condition involving the first and second brachial arch. This creates an abnormality of the upper and lower jaw, ear, and associated structures (half or part of the face appears smaller sized).

"Interceptive orthodontic treatment" means procedures to lessen the severity or future effects of a malformation and to affect or eliminate the cause. Such treatment may occur in the primary or transitional dentition and may include such procedures as the redirection of ectopically erupting teeth, correction of isolated dental cross-bite, or recovery of recent minor space loss where overall space is adequate.

"Limited transitional orthodontic treatment" means orthodontic treatment with a limited objective, not involving the entire dentition. It may be directed only at the existing problem, or at only one aspect of a larger problem in which a decision is made to defer or forego more comprehensive therapy.

"Malocclusion" means improper alignment of biting or chewing surfaces of upper and lower teeth.

"Maxillofacial" means relating to the jaws and face.

"Occlusion" means the relation of the upper and lower teeth when in functional contact during jaw movement.

"Orthodontics" means treatment involving the use of any appliance, in or out of the mouth, removable or fixed, or

any surgical procedure designed to redirect teeth and surrounding tissues.

"Orthodontist" means a dentist who specializes in orthodontics, who is a graduate of a postgraduate program in orthodontics that is accredited by the American Dental Association, and who meets the licensure requirements of the department of health.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-535A-0020 ((~~Clients who are eligible for~~)) Orthodontic treatment and orthodontic services—Client eligibility. (1) Subject to the limitations of this chapter and the age restrictions listed in this section, the ((~~department~~)) medicaid agency covers medically necessary orthodontic treatment and orthodontic-related services for severe handicapping malocclusions, craniofacial anomalies, or cleft lip or palate, ((~~as follows:~~

~~(a) Clients in the categorically needy program (CNP) and the medically needy program (MNP) may receive orthodontic treatment and orthodontic-related services through age twenty~~)) for eligible clients. Refer to WAC 182-501-0060 to see which Washington apple health programs include orthodontic services in their benefit package. Any orthodontic treatment plan that extends beyond the client's twenty-first birthday will not be approved by the ((~~department.~~

~~(b) Clients in the state children's health insurance program (CHIP) may receive orthodontic treatment and orthodontic-related services through age eighteen.~~

~~(c) Clients who are eligible for services under the EPSDT program may receive orthodontic treatment and orthodontic-related services under the provisions of WAC 388-534-0100~~)) agency.

(2) Eligible clients may receive the same orthodontic treatment and orthodontic-related services in recognized out-of-state bordering cities on the same basis as if provided in-state. See WAC ((~~388-501-0175~~)) 182-501-0175.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-535A-0030 ((~~Providers of~~)) Orthodontic treatment and orthodontic-related services—Provider eligibility. The following provider types may furnish and be paid for providing covered orthodontic treatment and orthodontic-related services to eligible medical assistance clients:

(1) Orthodontists;

(2) Pediatric dentists;

(3) General dentists; and

(4) ((~~Department~~)) Agency recognized craniofacial teams or other orthodontic specialists approved by the ((~~department~~)) agency.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-535A-0040 ((~~Covered and noncovered~~)) Orthodontic treatment and orthodontic-related services—Covered, noncovered, and limitations to coverage. (1) Subject to the limitations in this section and other applicable WAC, the ((~~department~~)) medicaid agency covers orthodontic treatment and orthodontic-related services for a client who has one of the medical conditions listed in (a) and (b) of this subsection. Treatment and follow-up care must be performed only by an orthodontist or ((~~department-recognized~~)) agency-recognized craniofacial team and do not require prior authorization.

(a) Cleft lip and palate, cleft palate, or cleft lip with alveolar process involvement.

(b) The following craniofacial anomalies:

(((~~(A)~~))) (i) Hemifacial microsomia;

(((~~(B)~~))) (ii) Craniosynostosis syndromes;

(((~~(C)~~))) (iii) Cleidocranial dental dysplasia;

(((~~(D)~~))) (iv) Arthrogryposis; or

(((~~(E)~~))) (v) Marfan syndrome.

(2) Subject to prior authorization requirements and the limitations in this section and other applicable WAC, the ((~~department~~)) agency covers orthodontic treatment and orthodontic-related services for severe malocclusions with a Washington Modified Handicapping Labiolingual Deviation (HLD) Index Score of twenty-five or higher.

(3) The ((~~department~~)) agency may cover orthodontic treatment for dental malocclusions other than those listed in subsection (1) and (2) of this section on a case-by-case basis and when prior authorized.

(4) The ((~~department~~)) agency does not cover the following orthodontic treatment or orthodontic-related services:

(a) Replacement of lost, or repair of broken, orthodontic appliances;

(b) Orthodontic treatment for cosmetic purposes;

(c) Orthodontic treatment that is not medically necessary (((~~see WAC 388-500-0005~~)) as defined in WAC 182-500-0070);

(d) Out-of-state orthodontic treatment, except as stated in WAC ((~~388-501-0180~~)) 182-501-0180 (see also WAC ((~~388-501-0175~~)) 182-501-0175 for medical care provided in bordering cities); or

(e) Orthodontic treatment and orthodontic-related services that do not meet the requirements of this section or other applicable WAC.

(5) The ((~~department~~)) agency covers the following orthodontic treatment and orthodontic-related services with prior authorization, subject to the limitations listed (providers must bill for these services according to WAC ((~~388-535A-0060~~)) 182-535A-0060):

(a) Panoramic radiographs (X rays) when medically necessary.

(b) Interceptive orthodontic treatment, ((~~once per a client's lifetime~~)) when medically necessary.

(c) Limited transitional orthodontic treatment, ((~~once per a client's lifetime~~)) when medically necessary. The treatment must be completed within twelve months of the date of the original appliance placement (see subsection (6)(a) of this section for information on limitation extensions). The agency's payment includes final records, photos, panoramic X rays, cephalometric films, and final trimmed study models.

(d) Comprehensive full orthodontic treatment ((~~once per a client's lifetime~~)), when medically necessary. The treatment must be completed within thirty months of the date of the original appliance placement (see subsection (6)(a) of this

section for information on limitation extensions). The agency's payment includes final records, photos, panoramic X rays, cephalometric films, and final trimmed study models.

(e) Orthodontic appliance removal only when:

(i) The client's appliance was placed by a different provider or dental clinic; and

(ii) The provider has not furnished any other orthodontic treatment or orthodontic-related services to the client.

(f) Other medically necessary orthodontic treatment and orthodontic-related services as determined by the ((~~department~~)) agency.

(6) The treatment plan must indicate that the course of treatment will be completed prior to the client's twenty-first birthday.

(7) The treatment must meet industry standards and correct the medical issue. If treatment is discontinued prior to completion, clear documentation must be kept in the client's file why treatment was discontinued or not completed.

(8) The ((~~department~~)) agency evaluates a request for orthodontic treatment or orthodontic-related services:

(a) That are in excess of the limitations or restrictions listed in this section, according to WAC ((~~388-501-0169~~)) 182-501-0169; and

(b) That are listed as noncovered according to WAC ((~~388-501-0160~~)) 182-501-0160.

(((~~7~~))) (9) The ((~~department~~)) agency reviews requests for orthodontic treatment or orthodontic-related services for clients who are eligible for services under the EPSDT program according to the provisions of WAC ((~~388-534-0100~~)) 182-534-0100.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-535A-0050 ((~~Authorization and prior authorization for~~)) Orthodontic treatment and orthodontic-related services—Authorization and prior authorization. (1) When the ((~~department~~)) medicaid agency authorizes an interceptive orthodontic treatment, limited orthodontic treatment, full orthodontic treatment, or orthodontic-related services for a client, including a client eligible for services under the EPSDT program, that authorization indicates only that the specific service is medically necessary; ((~~it~~)) authorization is not a guarantee of payment. The client must be eligible for the covered service at the time the service is provided.

(2) For orthodontic treatment of a client with cleft lip, cleft palate, or other craniofacial anomaly, prior authorization is not required if the client is being treated by ((~~a department recognized~~)) an agency-recognized craniofacial team, or an orthodontic specialist who has been approved by the ((~~department~~)) agency to treat cleft lip, cleft palate, or other craniofacial anomalies.

(3) Subject to the conditions and limitations of this section and other applicable WAC, the ((~~department~~)) agency requires prior authorization for orthodontic treatment and/or orthodontic-related services for other dental malocclusions that are not listed in WAC ((~~388-535A-0040~~)) 182-535A-0040(1).

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-535A-0060 ((~~Payment for~~)) Orthodontic treatment and orthodontic-related services—Payment. (1) The ((~~department~~)) medicaid agency pays providers for furnishing covered orthodontic treatment and orthodontic-related services described in WAC ((~~388-535A-0040~~)) 182-535A-0040 according to this section and other applicable WAC.

(2) The ((~~department~~)) agency considers that a provider who furnishes covered orthodontic treatment and orthodontic-related services to an eligible client has accepted the ((~~department's~~)) agency's fees as published in the ((~~department's~~)) agency's fee schedules.

(3) **Interceptive orthodontic treatment.** The ((~~department~~)) agency pays for interceptive orthodontic treatment as follows:

(a) The first three months of treatment starts the date the initial appliance is placed and includes active treatment for the first three months.

(b) Treatment must be completed within twelve months of the date of appliance placement.

(4) **Limited transitional orthodontic treatment.** The ((~~department~~)) agency pays for limited transitional orthodontic treatment as follows:

(a) The first three months of treatment starts the date the initial appliance is placed and includes active treatment for the first three months. The provider must bill the ((~~department~~)) agency with the date of service that the initial appliance is placed.

(b) Continuing follow-up treatment must be billed after each three-month treatment interval during the treatment.

(c) Treatment must be completed within twelve months of the date of appliance placement. Treatment provided after one year from the date the appliance is placed requires a limitation extension. See WAC ((~~388-535A-0040~~)) 182-535A-0040(6).

(5) **Comprehensive full orthodontic treatment.** The ((~~department~~)) agency pays for comprehensive full orthodontic treatment as follows:

(a) The first six months of treatment starts the date the initial appliance is placed and includes active treatment for the first six months. The provider must bill the ((~~department~~)) agency with the date of service that the initial appliance is placed.

(b) Continuing follow-up treatment must be billed after each three-month treatment interval, with the first three-month interval beginning six months after the initial appliance placement.

(c) Treatment must be completed ((~~with~~)) within thirty months of the date of appliance placement. Treatment provided after thirty months from the date the appliance is placed requires a limitation extension. See WAC ((~~388-535A-0040~~)) 182-535A-0040(6).

(6) Payment for orthodontic treatment and orthodontic-related services is based on the ((~~department's~~)) agency's published fee schedule.

(7) Orthodontic providers who are in ((~~department-designated~~)) agency-designated bordering cities must:

(a) Meet the licensure requirements of their state; and

(b) Meet the same criteria for payment as in-state providers, including the requirements to contract with the ((~~department~~)) agency.

(8) If the client's eligibility for orthodontic treatment under WAC ((~~388-535A-0020~~)) 182-535A-0020 ends before the conclusion of the orthodontic treatment, payment for any remaining treatment is the individual's responsibility. The ((~~department~~)) agency does not pay for these services.

(9) The client is responsible for payment of any orthodontic service or treatment received during any period of ineligibility, even if the treatment was started when the client was eligible. The ((~~department~~)) agency does not pay for these services.

(10) See WAC ((~~388-502-0160 and 388-501-0200~~)) 182-502-0160 and 182-501-0200 for when a provider or a client is responsible to pay for a covered service.

WSR 14-08-033
PERMANENT RULES
STATE BOARD OF EDUCATION

[Filed March 25, 2014, 2:40 p.m., effective April 25, 2014]

Effective Date of Rule: Thirty-one days after filing.

Other Findings Required by Other Provisions of Law as Precondition to Adoption or Effectiveness of Rule: Fiscal impact statement as required by RCW 28A.305.135. Prepared by the office of superintendent of public instruction, filed with WSR 13-24-115 and presented at state board of education (SBE) meeting on January 8, 2014.

Purpose: Adoption of WAC 180-19-220 through 180-19-260. The intent of these rules is to provide clear guidance to the SBE, school districts approved as charter authorizers under RCW 28A.710.090, and the public on implementation of RCW 28A.710.120 Oversight of authorizers. The purposes are to establish processes, timelines and clarification of provisions for:

- Special reviews by the SBE.
- Notice to authorizers of identified problems.
- Notice of intent to revoke authorizer's chartering authority.
- Revocation of chartering authority, and due process for the district.
- Transfer of the charter contract or contracts, in the event of revocation, to another authorizer.

Statutory Authority for Adoption: RCW 28A.710.120 (1) and (7).

Adopted under notice filed as WSR 13-24-115 on December 4, 2013.

Changes Other than Editing from Proposed to Adopted Version:

- Provides that repeated failure constituting persistently unsatisfactory performance of an authorizer's portfolio of charter schools may occur during a charter contract term or consecutive terms.
- Clarifies that a repeated failure to meet expectations for academic performance, financial performance or organizational performance may trigger a special review.
- Provides that the authorizer must show it has implemented, or will implement within sixty days, a sufficient remedy for a violation or deficiencies that are the grounds for notice of intent to revoke chartering authority, and that SBE has thirty days to provide notice whether it finds the proposed remedy sufficient.
- Adds subsection to WAC 180-19-260 setting forth responsibilities and procedures in the event that a charter school and the Washington charter school commission do not reach mutual agreement on transfer of a charter contract after revocation of a district's chartering authority.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 5, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 5, Amended 0, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

Date Adopted: March 6, 2014.

Ben Rarick
Executive Director

NEW SECTION

WAC 180-19-220 Oversight of authorizers—General provisions. (1) The state board of education is responsible under RCW 28A.710.120 for oversight of the performance and effectiveness of all authorizers approved under RCW 28A.710.090. This oversight is ongoing and is not limited to the specific actions and procedures described in these rules. For the purposes of the board's rules governing the oversight of authorizers, the term "authorizer" means a school district board of directors that has been approved to be a charter school authorizer under RCW 28A.710.090.

(2) In reviewing or evaluating the performance of authorizers against nationally recognized principles and standards for quality authorizing, the board will compare the authorizer's performance to the standards for quality set forth in the *Principles and Standards for Quality Charter School Authorizing*, 2012 edition, published by the National Association of Charter School Authorizers. A link to this publication shall be posted on the board's public web site.

(3) In carrying out its responsibilities for overseeing the performance and effectiveness of authorizers under RCW 28A.710.120, the board shall utilize information including, but not limited to, the annual authorizer reports submitted to the board under RCW 28A.710.100, all reports and data sub-

mitted to the office of the superintendent of public instruction under chapter 28A.710 RCW, charter contracts, and the findings of any special review conducted under RCW 28A.710.-120(2). The board will require submission of, or access to, materials or data from the authorizer deemed reasonably necessary to evaluate the performance and effectiveness of the authorizer.

(4) The board may contract for services with persons or entities having relevant expertise in the performance of its duties under RCW 28A.710.120.

(5) The board may conduct site visits to charter schools in an authorizer's portfolio for the purpose of conducting oversight of the performance of an authorizer under these rules. The board shall provide reasonable notice to the authorizer and the charter governing board prior to a site visit.

(6) In carrying out its duties for oversight of the performance and effectiveness of authorizers under RCW 28A.710.120, the board shall respect the principal role and responsibility of the authorizer for monitoring and oversight of the charter school under RCW 28A.710.100, and the authority of the charter school board to manage and operate the charter school under RCW 28A.710.030 and the terms of its charter contract.

NEW SECTION

WAC 180-19-230 Oversight of authorizers—Special review. (1) The board is authorized, upon a determination of persistently unsatisfactory performance of an authorizer's portfolio of charter schools, a pattern of well-founded complaints about the authorizer or its charter schools, or other objective circumstances, to conduct a special review of an authorizer's performance. The purpose of the special review is to determine the need for additional action by the board as provided in these rules.

(2) "Persistently unsatisfactory performance of an authorizer's portfolio of charter schools" shall consist, for any school or schools, of:

(a) Repeated failure during a contract term, or consecutive contract terms, to meet the expectations for academic performance set forth in the charter contract including, but not limited to, applicable state and federal accountability requirements, without evidence of a trend indicating the school will meet those expectations;

(b) Repeated failure during a contract term, or consecutive contract terms, to meet the financial performance targets within the charter contract;

(c) Repeated failure during a contract term, or consecutive contract terms, to meet the targets for organizational performance within the charter contract.

(3) "A pattern of well-founded complaints" means multiple complaints that are found by the board to be supported by sufficient factual information alleging that an authorizer is not in compliance with a charter contract, its authorizing contract, or its authorizer duties, including the failure to develop and follow nationally recognized principles and standards for charter authorizing.

(a) Any individual or entity may submit a written complaint to the board about an authorizer or its charter schools. The complaint should state in specific terms the alleged violation of law, failure to comply with a charter contract or its authorizing contract, or failure to develop and follow nationally recognized principles and standards for charter authorizing. The complaint must be signed and dated and provide contact information for use by the board in requesting additional information as deemed needed. The board shall post a standard form for submission of complaints on its public web site.

(b) Upon receipt, the board shall transmit the complaint to the authorizer for its written response, which shall be submitted to the board within thirty days of receipt.

(c) The board may request additional information from the complainant or the authorizer as deemed necessary to investigate the complaint.

(d) If the complaint is determined not to be well-founded, the board shall notify the complainant in writing and the board shall not be required to take further action.

(e) If the complaint is determined to be well-founded, the board shall provide written notification of such determination to the complainant and the authorizer.

(4) "Other objective circumstances" include, but are not limited to, failure of the authorizer or its charter schools to comply with an applicable state or federal law or regulation, or evidence that a charter school is not operating in a manner that fulfills the requirements of its charter contract or has a substantial risk of becoming operationally unable to fulfill those requirements.

(5) The board must provide written notice to the authorizer of initiation of a special review, documenting the reasons for the decision to conduct the review. The board must provide opportunity for the authorizer to respond in writing to the specific determinations of the need for the review.

(6) The board shall submit a written report of the results of the special review to the authorizer and other interested persons. The report may include recommended corrective actions. The report shall be posted on the board's public web site.

NEW SECTION

WAC 180-19-240 Oversight of authorizers—Notice of identified problems. (1) If at any time the board finds that an authorizer is not in compliance with a charter contract, its authorizing contract, or the authorizer duties under RCW 28A.710.100, it shall provide the authorizer with written notification of the identified problems with specific reference to the charter contract, the authorizing contract, or the authorizer duties under RCW 28A.710.100.

(2) The authorizer shall respond to the written notification and remedy the problems within a specific time frame as determined reasonable by the board under the circumstances.

(3) Nothing in this section requires the board to conduct a special review under WAC 180-19-230 before providing an authorizer with notice of identified problems.

NEW SECTION

WAC 180-19-250 Oversight of authorizers—Revocation of authorizing contract. (1) Evidence of material or persistent failure by an authorizer to carry out its duties according to nationally recognized principles and standards

for charter authorizing is grounds for revocation of an authorizer's chartering contract. This may include:

(a) Failure to comply with the terms of the authorizing contract between the authorizer and the board;

(b) Violation of a term of the charter contract between the authorizer and a charter school;

(c) Demonstrated failure to develop and follow chartering policies and practices that are consistent with the principles and standards for quality charter authorizing developed by the National Association of Charter School Authorizers in any of the following areas, as required by RCW 28A.710.-100:

(i) Organizational capacity;

(ii) Soliciting and evaluating charter applications;

(iii) Performance contracting;

(iv) Ongoing charter school oversight and evaluation;

(v) Charter renewal decision making.

(2) Notice of intent to revoke. If the board makes a determination, after due notice to the authorizer and reasonable opportunity to effect a remedy, that the authorizer continues to be in violation of a material provision of a charter contract or its authorizing contract, or has failed to remedy other identified authorizing problems:

(a) The board shall notify the authorizer in writing that it intends to revoke the authorizer's chartering authority under RCW 28A.710.120. The notification to the authorizer shall explain and document the reasons for the intent to revoke chartering authority.

(b) The authorizer shall, within thirty days of notification, submit a written response showing that the authorizer has implemented or will implement within sixty days of submitting the written response, a sufficient remedy for the violation or deficiencies that are the stated grounds for the intent to revoke chartering authority. The board shall within thirty days of receipt provide written notice to the authorizer whether it finds the proposed remedy sufficient to correct the violation or deficiencies.

(3) Notice of revocation. If the authorizer fails to provide a timely written response or if the response is found insufficient by the board to meet the requirement set forth in subsection (1) of this section:

(a) The board shall provide the authorizer with written notice of revocation of the authorizer's chartering authority. The notice of revocation shall state the effective date of revocation, which shall not be sooner than twenty days from the date of receipt of the notice of revocation by the authorizer unless a timely notice of a request for an adjudicative proceeding is filed as set forth herein.

(b) The authorizer may request an adjudicative proceeding to contest the revocation. The request for an adjudicative proceeding must be submitted in writing by the authorizer to the board within twenty days of receipt of the notice of revocation at the following address:

Old Capitol Building
P.O. Box 47206
600 Washington St. S.E., Room 253
Olympia, Washington 98504

Any adjudicative proceeding shall be conducted in accordance with the Administrative Procedure Act (APA).

NEW SECTION

WAC 180-19-260 Authorizer oversight—Transfer of charter contract. (1) In the event that a notice of revocation is provided to the authorizer under WAC 180-19-250, any charter contract held by that authorizer shall be transferred, for the remaining portion of the charter term, to the Washington charter school commission on documentation of mutual agreement to the transfer by the charter school and the commission.

(2) Documentation of mutual agreement shall consist of a written agreement between the charter school board and the commission, signed and dated by the chair or president of the charter school board and the chair of the commission. The agreement shall include any modification or amendment of the charter contract as may be mutually agreed upon by the charter school board and the commission.

(3) The commission shall submit the agreement to the state board of education. The board shall review the agreement and on a determination that the requirements of these rules have been met, issue written certification of the transfer of the charter contract to the charter school governing board and the commission.

(4) On certification by the board of the transfer of the charter contract, the prior authorizer shall transfer to the commission all student records and school performance data collected and maintained in the performance of its duties as an authorizer under RCW 28A.710.100 and 28A.710.170.

(5) The commission, in consultation with the charter school governing board, shall develop and implement a procedure for timely notification to parents of the transfer of the charter contract and any modifications or amendments to the charter included in the written agreement executed under subsection (2) of this section.

(6) If mutual agreement is not obtained on the transfer of the charter contract under RCW 28A.710.120(6) and this section, the charter school shall be closed under the provisions of RCW 28A.710.210. The district shall develop and implement a termination protocol to ensure timely notification to parents, orderly transition of students and student records to new schools, as necessary, and proper disposition of public school funds, property, and assets. The protocol must include, at a minimum, a plan for addressing the following:

(a) Adequate and timely communication with parents, school staff and the community regarding the closing of the charter school and the options for student transfer to another public school;

(b) Retention of student, personnel, governance and financial records in compliance with all applicable laws and policies;

(c) The transfer of all student records in accordance with privacy rules set forth in the Family Educational Rights and Privacy Act (FERPA) and any applicable state laws and school district policies;

(d) Resolution of all financial obligations associated with the closure of the charter school;

(e) Return of the public funds in the possession of the charter school as provided for in RCW 28A.710.201(2), or as required by any other state law; and

(f) A plan for the disposition of all other assets, in compliance with applicable state and federal laws or district policies governing the assets.

The protocol must specify tasks, timelines, and responsible parties, including delineating the respective duties of the charter school and the authorizer. The district shall provide the board with a copy of the termination protocol. The board may review the protocol and request revisions for implementation.

WSR 14-08-035
PERMANENT RULES
HEALTH CARE AUTHORITY
(Washington Apple Health)

[Filed March 25, 2014, 3:58 p.m., effective April 25, 2014]

Effective Date of Rule: Thirty-one days after filing.

Purpose:

- Include complex rehabilitation technology (CRT) products and services for complex medical-need clients including a new reimbursement section for CRT.
- Revise how the agency sets, evaluates, and updates the maximum allowable fees for wheelchair purchase.
- Update the eligibility section to cross reference WAC 182-501-0060 Scope of services.
- Add naturopathic physicians to list of eligible providers who can prescribe and write valid prescription[s] under this chapter.
- Correct the documentation requirements for clients in skilled nursing facilities.
- Add full electric beds to the list of noncovered personal or comfort items.
- Clarify that the agency does not pay for duplicate equipment, including equipment the agency has authorized for the client but which may not have been delivered to client yet.
- Change the date the agency calculates reimbursement rates from July 31 of each year to January 31 of each year to keep dates consistent in all sections.
- Make housekeeping changes such as fixing cross references and updating department to agency.

Citation of Existing Rules Affected by this Order: 182-543-0500, 182-543-1000, 182-543-1100, 182-543-2000, 182-543-2100, 182-543-2200, 182-543-2250, 182-543-3000, 182-543-3100, 182-543-3200, 182-543-3300, 182-543-3400, 182-543-3500, 182-543-4000, 182-543-4100, 182-543-4200, 182-543-4300, 182-543-5000, 182-543-5700, 182-543-6000, 182-543-7000, 182-543-7100, 182-543-7200, 182-543-7300, 182-543-8000, 182-543-8100, 182-543-8200, 182-543-9000, 182-543-9100, and 182-543-9200.

Statutory Authority for Adoption: RCW 41.05.021; ESSB [E2SHB] 1445 (chapter 178, Laws of 2013).

Adopted under notice filed as WSR 14-04-087 on February 3, 2014.

Changes Other than Editing from Proposed to Adopted Version:

WAC 182-543-1000 Complex rehabilitation technology (CRT).

The agency made the following change to this definition:

(3) Require certain services necessary to allow appropriate design, configuration, and use of such item, including patient evaluation and equipment fitting.

WAC 182-543-9250 Reimbursement method—Complex rehabilitation technology.

The agency revised this subsection as follows:

(3) ~~Establishing reimbursement rates for purchased CRT products based on pricing clusters~~ To establish a rate based on a pricing cluster, the agency uses the following methodology~~.~~:

(a) ~~A~~ The pricing cluster is based on a specific HCPCS code~~.~~;

(b) The ~~agency's~~ pricing cluster ~~is made up of~~ includes all ~~of the~~ brands/models for which the agency obtains pricing information~~.~~;

~~However,~~ (c) The agency may limit the number of brands/models included in the pricing cluster~~. The agency considers all of the following when establishing the pricing cluster~~ based on the following:

~~(i) A client's medical needs;~~

(i) Product quality;

(ii) Introduction, substitution or discontinuation of certain brands/models; and

(iii) Cost~~s~~, when there are equally effective substantially less costly alternatives available.

~~(c)~~ (d) When establishing the fee for CRT products in a pricing cluster, the maximum allowable fee is the median ~~amount~~ cost of ~~available~~ all manufacturer's list prices for all brands/models ~~as noted in (b) of this subsection~~ in the cluster.

WAC 182-543-9250 Reimbursement method—Complex rehabilitation technology.

(5) The agency may adopt policies, procedure codes, and/or rates that are inconsistent with those set by medicare if the agency determines that such actions are necessary to~~.~~:

(a) Assure that payments are sufficient to enlist providers and maintain access to care and services; or

(b) Comply with legislative budget directives specifically reducing available funds for optional programs as an alternative to eliminating the optional program.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 2, Amended 30, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making:

New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 2, Amended 30, Repealed 0.

Date Adopted: March 25, 2014.

Kevin M. Sullivan
Rules Coordinator

Chapter 182-543 WAC

DURABLE MEDICAL EQUIPMENT AND RELATED SUPPLIES, COMPLEX REHABILITATION TECHNOLOGY, PROSTHETICS, ORTHOTICS, MEDICAL SUPPLIES AND RELATED SERVICES

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-543-0500 DME and related supplies, complex rehabilitation technology, prosthetics, orthotics, medical supplies and related services—General. (1) The federal government considers durable medical equipment (DME) and related supplies, complex rehabilitation technology (CRT), prosthetics, orthotics, and medical supplies ((~~as~~)) to be optional services under the medicaid program, except when prescribed as an integral part of an approved plan of treatment under the home health program or required under the early and periodic screening, diagnosis and treatment (EPSDT) program. The ((~~department~~)) medicaid agency may reduce or eliminate coverage for optional services, consistent with legislative appropriations.

(2) The ((~~department~~)) agency covers the DME and related supplies, CRT, prosthetics, orthotics, and related services including modifications, accessories, and repairs, and medical supplies listed in this chapter, according to ((~~department~~)) agency rules and subject to the limitations and requirements in this chapter.

(3) The ((~~department~~)) agency pays for DME and related supplies, CRT, prosthetics, orthotics, and related services including modifications, accessories, and repairs, and medical supplies when ((~~it is~~)) they are:

(a) Covered;

(b) Within the scope of the client's medical program (see WAC ((~~388-501-0060 and 388-501-0065~~)) 182-501-0060 and 182-501-0065);

(c) Medically necessary, as defined in WAC ((~~388-500-0005~~)) 182-500-0070;

(d) Prescribed by a physician, advanced registered nurse practitioner (ARNP), naturopathic physicians, or physician assistant certified (PAC) within the scope of his or her licensure, except for dual eligible medicare/medicaid clients when medicare is the primary payer and the ((~~department~~)) agency is being billed for a co-pay and/or deductible only;

(e) Authorized, as required within this chapter, chapters ((~~388-501 and 388-502~~)) 182-501 and 182-502 WAC, and the ((~~department's~~)) agency's published billing instructions and ((~~numbered memoranda~~)) provider notices;

(f) Billed according to this chapter, chapters ((~~388-501 and 388-502~~)) 182-501 and 182-502 WAC, and the ((~~department's~~)) agency's published billing instructions and ((~~numbered memorandum~~)) provider notices; and

(g) Provided and used within accepted medical or physical medicine community standards of practice.

(4) The ((~~department~~)) agency requires prior authorization for covered DME and related supplies, CRT, prosthetics, orthotics, medical supplies, and related services when the clinical criteria set forth in this chapter are not met, including the criteria associated with the expedited prior authorization process.

(a) The ((~~department~~)) agency evaluates requests requiring prior authorization on a case-by-case basis to determine medical necessity, according to the process found in WAC ((~~388-501-0165~~)) 182-501-0165.

(b) Refer to WAC ((~~388-543-7000, 388-543-7001, and 388-543-7003~~)) 182-543-7000, 182-543-7100, and 182-543-7300 for specific details regarding authorization.

(5) The ((~~department~~)) agency bases its determination about which DME and related supplies, CRT, prosthetics, orthotics, medical supplies, and related services require prior authorization (PA) or expedited prior authorization (EPA) on utilization criteria (see WAC ((~~388-543-7100~~)) 182-543-7100 for PA and WAC ((~~388-543-7300~~)) 182-543-7300 for EPA). The ((~~department~~)) agency considers all of the following when establishing utilization criteria:

(a) ((~~High~~)) Cost;

(b) The potential for utilization abuse;

(c) A narrow therapeutic indication; and

(d) Safety.

(6) The ((~~department~~)) agency evaluates a request for any ((~~DME~~)) item listed as noncovered in this chapter under the provisions of WAC ((~~388-501-0160~~)) 182-501-0160. When early and periodic screening, diagnosis and treatment (EPSDT) applies, the ((~~department~~)) agency evaluates a noncovered service, equipment, or supply according to the process in WAC ((~~388-501-0165~~)) 182-501-0165 to determine if it is medically necessary, safe, effective, and not experimental (see WAC ((~~388-543-0100~~)) 182-543-0100 for EPSDT rules).

(7) The ((~~department~~)) agency may terminate a provider's participation with the ((~~department~~)) agency according to WAC ((~~388-502-0030 and 388-502-0040~~)) 182-502-0030 and 182-502-0040.

(8) The ((~~department~~)) agency evaluates a request for a service that is in a covered category, but has been determined to be experimental or investigational under the provisions of WAC ((~~388-501-0165~~)) 182-501-0165.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-543-1000 DME and related supplies, complex rehabilitation technology, prosthetics, and orthotics, medical supplies and related services—Definitions. The following definitions and abbreviations and those found in chapter 182-500 WAC ((~~388-500-0005~~)) apply to this chapter.

"By-report (BR)" ((~~A method of payment in which the department determines the amount it will pay for a service when the rate for that service is not included in the department's published fee schedules. The provider must submit a report which describes the nature, extent, time, effort and/or~~

~~equipment necessary to deliver the service.~~)) - See WAC 182-500-0015.

"Complex needs patient" - An individual with a diagnosis or medical condition that results in significant physical or functional needs and capacities.

"Complex rehabilitation technology (CRT)" - Wheelchairs and seating systems classified as durable medical equipment within the medicare program that:

(1) Are individually configured for individuals to meet their specific and unique medical, physical, and functional needs and capacities for basic activities as medically necessary to prevent hospitalization or institutionalization of a complex needs patient;

(2) Are primarily used to serve a medical purpose and generally not useful to a person in the absence of an illness or injury; and

(3) Require certain services necessary to allow for appropriate design, configuration, and use of such item, including patient evaluation and equipment fitting.

"Date of delivery" - The date the client actually took physical possession of an item or equipment.

"Digitized speech" (also referred to as devices with whole message speech output) **-** Words or phrases that have been recorded by an individual other than the speech generating device (SGD) user for playback upon command of the SGD user.

"Disposable supplies" - Supplies which may be used once, or more than once, but are time limited.

"Durable medical equipment (DME)" - Equipment that:

(1) Can withstand repeated use;

(2) Is primarily and customarily used to serve a medical purpose;

(3) Generally is not useful to a person in the absence of illness or injury; and

(4) Is appropriate for use in the client's place of residence.

"EPSDT" - See WAC ((~~388-500-0005~~)) 182-500-0030.

"Expedited prior authorization (EPA)" - ((~~The process for obtaining authorization for selected health care services in which providers use a set of numeric codes to indicate to the department which acceptable indications, conditions, or department-defined criteria are applicable to a particular request for authorization. EPA is a form of prior authorization.~~)) See WAC 182-500-0030.

"Fee-for-service (FFS)" - ((~~The general payment method the department uses to pay for covered medical services provided to clients, except those services covered under the department's prepaid managed care programs.~~)) See WAC 182-500-0035.

"Health care common procedure coding system (HCPCS)" - A coding system established by the Health Care Financing Administration (HCFA) to define services and procedures. HCFA is now known as the Centers for Medicare and Medicaid Services (CMS).

"Home" - For the purposes of this chapter, means location, other than hospital or skilled nursing facility where the client receives care.

"House wheelchair" - A skilled nursing facility wheelchair that is included in the skilled nursing facility's per-patient-day rate under chapter 74.46 RCW.

"Individually configured" – A device has a combination of features, adjustments, or modifications specific to a complex needs patient that a qualified complex rehabilitation technology supplier provides by measuring, fitting, programming, adjusting, or adapting the device as appropriate so that the device is consistent with an assessment or evaluation of the complex needs patient by a health care professional and consistent with the complex needs patient's medical condition, physical and functional needs and capacities, body size, period of need, and intended use.

"Limitation extension" - A client-specific authorization by the ((~~department~~)) agency for additional covered services beyond the set amount allowed under ((~~department~~)) agency rules. See WAC ((~~388-501-0169~~)) 182-501-0169.

"Manual wheelchair" - See "wheelchair - Manual."

"Medical supplies" - Supplies that are:

(1) Primarily and customarily used to service a medical purpose; and

(2) Generally not useful to a person in the absence of illness or injury.

"Medically necessary" - See WAC ((~~388-500-0005~~)) 182-500-0070.

"National provider indicator (NPI)" - ((~~A federal system for uniquely identifying all providers of health care services, supplies, and equipment.~~)) See WAC 182-500-0075.

"Other durable medical equipment (other DME)" - All durable medical equipment, excluding wheelchairs and wheelchair-related items.

"Orthotic device" or **"orthotic" -** A corrective or supportive device that:

(1) Prevents or corrects physical deformity or malfunction; or

(2) Supports a weak or deformed portion of the body.

"Personal or comfort item" - An item or service which primarily serves the comfort or convenience of the client or caregiver.

"Power-drive wheelchair" - See "wheelchair - Power."

"Pricing cluster" - A group of manufacturers' list prices for brands/models of DME, medical supplies and nondurable medical equipment that the ((~~department~~)) agency considers when calculating the reimbursement rate for a procedure code that does not have a fee established by medicare.

"Prior authorization" - ((~~The requirement that a provider must request, on behalf of a client and when required by rule, the department's approval to render a health care service or write a prescription in advance of the client receiving the health care service or prescribed drug, device, or drug-related supply. The department's approval is based on medical necessity. Receipt of prior authorization does not guarantee payment. Expedited prior authorization and limitation extension are types of prior authorization.~~)) See WAC 182-500-0085.

"Prosthetic device" or **"prosthetic" -** ((~~A replacement, corrective, or supportive device prescribed by a physician or other licensed practitioner of the healing arts, within the scope of his or her practice as defined by state law, to:~~

~~(1) Artificially replace a missing portion of the body;~~

~~(2) Prevent or correct physical deformity or malfunction; or~~

~~(3) Support a weak or deformed portion of the body.~~)) See WAC 182-500-0085.

"Qualified complex rehabilitation technology supplier" - A company or entity that:

(1) Is accredited by a recognized accrediting organization as a supplier of CRT;

(2) Meets the supplier and quality standards established for durable medical equipment suppliers under the medicare program;

(3) For each site that it operates, employs at least one CRT professional, certified by the rehabilitation engineering and assistive technology society of North America as an assistive technology professional, to analyze the needs and capacities of clients, and provide training in the use of the selected covered CRT items;

(4) Has the CRT professional physically present for the evaluation and determination of the appropriate individually configured CRT for the complex needs patient;

(5) Provides service and repairs by qualified technicians for all CRT products it sells; and

(6) Provides written information to the complex needs patient at the time of delivery about how the individual may receive service and repair of the delivered CRT.

"Resource-based relative value scale (RBRVS)" - A scale that measures the relative value of a medical service or intervention, based on the amount of physician resources involved.

"Reusable supplies" - Supplies which are to be used more than once.

"Scooter" - A federally approved, motor-powered vehicle that:

(1) Has a seat on a long platform;

(2) Moves on either three or four wheels;

(3) Is controlled by a steering handle; and

(4) Can be independently driven by a client.

"Specialty bed" - A pressure reducing support surface, such as foam, air, water, or gel mattress or overlay.

"Speech generating device (SGD)" - An electronic device or system that compensates for the loss or impairment of a speech function due to a congenital condition, an acquired disability, or a progressive neurological disease. The term includes only that equipment used for the purpose of communication. Formerly known as "augmentative communication device (ACD)."

"Synthesized speech" - Is a technology that translates a user's input into device-generated speech using algorithms representing linguistic rules, unlike prerecorded messages of digitized speech. A SGD that has synthesized speech is not limited to prerecorded messages but rather can independently create messages as communication needs dictate.

"Three- or four-wheeled scooter" - A three- or four-wheeled vehicle meeting the definition of scooter (see "scooter") and which has the following minimum features:

(1) Rear drive;

(2) A twenty-four volt system;

(3) Electronic or dynamic braking;

(4) A high to low speed setting; and

(5) Tires designed for indoor/outdoor use.

"Trendelenburg position" - A position in which the patient is lying on his or her back on a plane inclined thirty to forty degrees. This position makes the pelvis higher than the head, with the knees flexed and the legs and feet hanging down over the edge of the plane.

"Usual and customary charge" - ((~~The amount the provider typically charges to fifty percent or more of his or her patients who are not medical assistance clients.~~)) See WAC 182-500-0110.

"Warranty-period" - A guarantee or assurance, according to manufacturers' or provider's guidelines, of set duration from the date of purchase.

"Wheelchair - Manual" - A federally approved, nonmotorized wheelchair that is capable of being independently propelled and fits one of the following categories:

(1) Standard:

(a) Usually is not capable of being modified;

(b) Accommodates a person weighing up to two hundred fifty pounds; and

(c) Has a warranty period of at least one year.

(2) Lightweight:

(a) Composed of lightweight materials;

(b) Capable of being modified;

(c) Accommodates a person weighing up to two hundred fifty pounds; and

(d) Usually has a warranty period of at least three years.

(3) High-strength lightweight:

(a) Is usually made of a composite material;

(b) Is capable of being modified;

(c) Accommodates a person weighing up to two hundred fifty pounds;

(d) Has an extended warranty period of over three years; and

(e) Accommodates the very active person.

(4) Hemi:

(a) Has a seat-to-floor height lower than eighteen inches to enable an adult to propel the wheelchair with one or both feet; and

(b) Is identified by its manufacturer as "Hemi" type with specific model numbers that include the "Hemi" description.

(5) Pediatric: Has a narrower seat and shorter depth more suited to pediatric patients, usually adaptable to modifications for a growing child.

(6) Recliner: Has an adjustable, reclining back to facilitate weight shifts and provide support to the upper body and head.

(7) Tilt-in-space: Has a positioning system, which allows both the seat and back to tilt to a specified angle to reduce shear or allow for unassisted pressure releases.

(8) Heavy duty:

(a) Specifically manufactured to support a person weighing up to three hundred pounds; or

(b) Accommodating a seat width of up to twenty-two inches wide (not to be confused with custom manufactured wheelchairs).

(9) Rigid: Is of ultra-lightweight material with a rigid (nonfolding) frame.

(10) Custom heavy duty:

(a) Specifically manufactured to support a person weighing over three hundred pounds; or

(b) Accommodates a seat width of over twenty-two inches wide (not to be confused with custom manufactured wheelchairs).

(11) Custom manufactured specially built:

(a) Ordered for a specific client from custom measurements; and

(b) Is assembled primarily at the manufacturer's factory.

"Wheelchair - Power" - A federally approved, motorized wheelchair that can be independently driven by a client and fits one of the following categories:

(1) Custom power adaptable to:

(a) Alternative driving controls; and

(b) Power recline and tilt-in-space systems.

(2) Noncustom power: Does not need special positioning or controls and has a standard frame.

(3) Pediatric: Has a narrower seat and shorter depth that is more suited to pediatric patients. Pediatric wheelchairs are usually adaptable to modifications for a growing child.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-543-1100 DME and related supplies, complex rehabilitation technology, prosthetics, orthotics, medical supplies and related services—Client eligibility. (1) ((~~Durable medical equipment (DME) and related services, prosthetics and orthotics, medical supplies and related services are available to clients who are eligible for services under one of the following medical assistance programs:~~

~~(a) Categorically needy (CN);~~

~~(b) Children's health care as described in WAC 388-505-0210;~~

~~(c) Medically needy (MN);~~

~~(d) Disability lifeline (formerly GA-U/ADATSA) (within Washington state or designated border cities); or~~

~~(e) Alien emergency medical (AEM) as described in WAC 388-438-0110, when the medical services are necessary to treat a qualifying emergency medical condition.~~

~~(2)~~)) Refer to the table in WAC 182-501-0060 to see which Washington apple health (WAH) programs include DME and related services, complex rehabilitation technology (CRT), prosthetics and orthotics, medical supplies and related services in their benefit package.

(2) For clients eligible under an alien emergency medical (AEM) program, see WAC 182-507-0115.

(3) Clients who are eligible for services under medicare and medicaid (medically needy program-qualified medicare beneficiaries) are eligible for DME and related services, CRT, prosthetics and orthotics, medical supplies and related services.

(((~~3~~))) (4) Clients who are enrolled in a ((~~department contracted~~)) agency-contracted managed care organization (MCO) must arrange for DME and related services, prosthetics and orthotics, medical supplies and related services directly through his or her ((~~department-contracted~~)) agency-contracted MCO. The ((~~department~~)) agency does not pay for medical equipment and/or services provided to a client who is enrolled in a ((~~department-contracted~~)) agency-contracted MCO, but chose not to use one of the MCO's participating providers.

(((~~4~~))) (5) For clients who reside in a skilled nursing facility, see WAC ((~~388-543-5700~~)) 182-543-5700.

(6) Clients enrolled in the alternative benefits plan (defined in WAC 182-500-0010) are eligible for DME and related supplies, CRT, prosthetics, orthotics, medical supplies, and related equipment when used as a habilitative service to treat a qualifying condition in accordance with WAC 182-545-400.

AMENDATORY SECTION (Amending WSR 12-15-015, filed 7/10/12, effective 9/1/12)

WAC 182-543-2000 DME and related supplies, complex rehabilitation technology, prosthetics, orthotics, medical supplies and related services—Eligible providers and provider requirements. (1) The medicaid agency pays qualified providers for durable medical equipment (DME) and related supplies, complex rehabilitation technology (CRT), prosthetics, orthotics, medical supplies, repairs, and related services on a fee-for-service basis as follows:

(a) DME providers who are enrolled with medicare for DME and related repair services;

(b) Qualified CRT suppliers who are enrolled with medicare for DME and related repair services;

(c) Medical equipment dealers who are enrolled with medicare, pharmacies who are enrolled with medicare, and home health agencies under their national provider indicator (NPI) for medical supplies;

(((~~c~~))) (d) Prosthetics and orthotics providers who are licensed by the Washington state department of health in prosthetics and orthotics. Medical equipment dealers and pharmacies that do not require state licensure to provide selected prosthetics and orthotics may be paid for those selected prosthetics and orthotics only as long as the medical equipment dealers and pharmacies meet the medicare enrollment requirement;

(((~~d~~))) (e) Physicians who provide medical equipment and supplies in the office. The agency may pay separately for medical supplies, subject to the provisions in the ((~~department's~~)) agency's resource-based relative value scale fee schedule; and

(((~~e~~))) (f) Out-of-state orthotics and prosthetics providers who meet their state regulations.

(2) Providers and suppliers of ((~~durable medical equipment (~~))DME((~~)~~)) and related supplies, CRT, prosthetics, orthotics, medical supplies and related items must:

(a) Meet the general provider requirements in chapter 182-502 WAC;

(b) Have the proper business license and be certified, licensed and/or bonded if required, to perform the services billed to the ((~~department~~)) agency;

(c) Have a valid prescription;

(i) To be valid, a prescription must:

(A) Be written on the agency's Prescription Form (HCA 13-794). The agency's electronic forms are available online at: ((~~http://hrsa.dshs.wa.gov/mpforms.shtml~~)) http://www.hca.wa.gov/medicaid/forms/Pages/index.aspx;

(B) Be written by a physician, advanced registered nurse practitioner (ARNP), naturopathic physician, or physician's assistant certified (PAC);

(C) Be written, signed (including the prescriber's credentials), and dated by the prescriber on the same day and before delivery of the supply, equipment, or device. Prescriptions must not be back-dated;

(D) Be no older than one year from the date the prescriber signs the prescription; and

(E) State the specific item or service requested, diagnosis, estimated length of need (weeks, months, or years), and quantity.

(ii) For dual eligible medicare/medicaid clients when medicare is the primary payer and the ((~~department~~)) agency is being billed for the co-pay and/or deductible only, subsection (2)(a) of this section does not apply.

(d) Provide instructions for use of equipment;

(e) Furnish only new equipment to clients that includes full manufacturer and dealer warranties. See WAC 182-543-2250(3);

(f) Furnish documentation of proof of delivery, upon agency request (see WAC 182-543-2200); and

(g) Bill the agency using only the allowed procedure codes listed in the agency's published DME and related supplies, prosthetics and orthotics, medical supplies and related items ((~~medicaid provider guides~~)) billing instructions.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-543-2100 DME and related supplies, complex rehabilitation technology, prosthetics, orthotics, medical supplies and related services—Requests to include new equipment/supplies/technology. (1) An interested party may request the ((~~department~~)) medicaid agency to include new equipment/supplies in the ((~~department's~~)) agency's durable medical equipment (DME) and related supplies, complex rehabilitation technology (CRT), prosthetics, orthotics, medical supplies and related services billing instructions.

(2) The request should include credible evidence, including but not limited to:

(a) Manufacturer's literature;

(b) Manufacturer's pricing;

(c) Clinical research/case studies (included FDA approval, if required);

(d) Proof of certification from the Centers for Medicare and Medicaid Services (CMS), if applicable; and

(e) Any additional information the requester feels would aid the ((~~department~~)) agency in its determination.

(3) Requests should be sent to the DME Program Management Unit, P.O. Box 45505, Olympia WA 98504-5506.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-543-2200 DME and related supplies, complex rehabilitation technology, prosthetics, orthotics, medical supplies and related services—Proof of delivery. (1) When a provider delivers an item directly to the client or the client's authorized representative, the provider must furnish the proof of delivery when the ((~~department~~)) medicaid agency requests that information. All of the following apply:

(a) The ((~~department~~)) agency requires a delivery slip as proof of delivery((~~, and it~~)). The proof of delivery slip must:

(i) Be signed and dated by the client or the client's authorized representative (the date of signature must be the date the item was received by the client);

(ii) Include the client's name and a detailed description of the item(s) delivered, including the quantity and brand name; and

(iii) For durable medical equipment (DME) and complex rehabilitation technology (CRT) that may require future repairs, include the serial number.

(b) When the provider or supplier submits a claim for payment to the ((~~department~~)) agency, the date of service on the claim must be one of the following:

(i) For a one-time delivery, the date the item was received by the client or the client's authorized representative; or

(ii) For nondurable medical supplies for which the ((~~department~~)) agency has established a monthly maximum, on or after the date the item was received by the client or the client's authorized representative.

(2) When a provider uses a delivery/shipping service to deliver items which are not fitted to the client, the provider must furnish proof of delivery that the client received the equipment and/or supply, when the ((~~department~~)) agency requests that information.

(a) If the provider uses a delivery/shipping service, the tracking slip is the proof of delivery. The tracking slip must include:

(i) The client's name or a reference to the client's package(s);

(ii) The delivery service package identification number; and

(iii) The delivery address.

(b) If the provider/supplier does the delivering, the delivery slip is the proof of delivery. The delivery slip must include:

(i) The client's name;

(ii) The shipping service package identification number;

(iii) The quantity, detailed description(s), and brand name(s) of the items being shipped; and

(iv) For DME and CRT that may require future repairs, the serial number.

(c) When billing the ((~~department~~)) agency:

(i) Use the shipping date as the date of service on the claim if the provider uses a delivery/shipping service; or

(ii) Use the actual date of delivery as the date of service on the claim if the provider/supplier does the delivery.

(3) A provider must not use a delivery/shipping service to deliver items which must be fitted to the client.

(4) Providers must obtain prior authorization when required before delivering the item to the client. The item must be delivered to the client before the provider bills the ((~~department~~)) agency.

(5) The ((~~department~~)) agency does not pay for DME and related supplies, CRT, prosthetics and orthotics, medical supplies and related items furnished to the ((~~department's~~)) agency's clients when:

(a) The medical professional who provides medical justification to the ((~~department~~)) agency for the item provided

to the client is an employee of, has a contract with, or has any financial relationship with the provider of the item; or

(b) The medical professional who performs a client evaluation is an employee of, has a contract with, or has any financial relationship with a provider of DME and related supplies, CRT, prosthetics and orthotics, medical supplies, and related items.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-543-2250 DME and related supplies, complex rehabilitation technology, prosthetics, orthotics, medical supplies and related services—Rental or purchase. (1) The ((~~department~~)) medicaid agency bases its decision to rent or purchase durable medical equipment (DME) on the length of time the client needs the equipment.

(2) A provider must not bill the ((~~department~~)) agency for the rental or purchase of equipment supplied to the provider at no cost by suppliers/manufacturers.

(3) The ((~~department~~)) agency purchases new DME equipment and complex rehabilitation technology (CRT) only.

(a) A new DME item that is placed with a client initially as a rental item is considered a new item by the ((~~department~~)) agency at the time of purchase.

(b) A used DME item that is placed with a client initially as a rental item must be replaced by the supplier with a new item prior to purchase by the ((~~department~~)) agency.

(4) The ((~~department~~)) agency requires a dispensing provider to ensure the DME rented to a client is:

(a) In good working order; and

(b) Comparable to equipment the provider rents to individuals with similar medical equipment needs who are either private pay or who have other third-party coverage.

(5) The ((~~department's~~)) agency's minimum rental period for covered DME is one day.

(6) The ((~~department~~)) agency authorizes rental equipment for a specific period of time. The provider must request authorization from the ((~~department~~)) agency for any extension of the rental period.

(7) The ((~~department's~~)) agency's reimbursement amount for rented DME includes all of the following:

(a) Delivery to the client;

(b) Fitting, set-up, and adjustments;

(c) Maintenance, repair and/or replacement of the equipment; and

(d) Return pickup by the provider.

(8) The ((~~department~~)) agency considers rented equipment to be purchased after twelve months' rental unless the equipment is restricted as rental only.

(9) DME and related supplies, CRT, prosthetics, and orthotics purchased by the ((~~department~~)) agency for a client are the client's property.

(10) The ((~~department~~)) agency rents, but does not purchase, certain DME for clients. This includes, but is not limited to, the following:

(a) Bilirubin lights for newborns at home with jaundice; and

(b) Electric hospital-grade breast pumps.

(11) The ((~~department~~)) agency stops paying for any rented equipment effective the date of a client's death. The ((~~department~~)) agency prorates monthly rentals as appropriate.

(12) For a client who is eligible for both medicare and medicaid, the ((~~department~~)) agency pays only the client's coinsurance and deductibles. The ((~~department~~)) agency discontinues paying client's coinsurance and deductibles for rental equipment when either of the following applies:

(a) The reimbursement amount reaches medicare's reimbursement cap for the equipment; or

(b) Medicare considers the equipment purchased.

(13) The ((~~department~~)) agency does not obtain or pay for insurance coverage against liability, loss and/or damage to rental equipment that a provider supplies to a client.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-543-3000 Covered—Hospital beds, mattresses, and related equipment. (1) Hospital beds.

(a) The ((~~department~~)) medicaid agency covers, with prior authorization, one hospital bed in a ten-year period, per client, with the following limitations:

(i) A manual hospital bed as the primary option when the client has full-time caregivers; or

(ii) A semi-electric hospital bed only when:

(A) The client's medical need requires the client to be positioned in a way that is not possible in a regular bed and the position cannot be attained through less costly alternatives (e.g., the use of bedside rails, a trapeze, pillows, bolsters, rolled up towels or blankets);

(B) The client's medical condition requires immediate position changes;

(C) The client is able to operate the controls independently; and

(D) The client needs to be in the Trendelenburg position.

(b) The ((~~department~~)) agency bases the decision to rent or purchase a manual or semi-electric hospital bed on the length of time the client needs the bed.

(c) Rental - The ((~~department~~)) agency pays up to eleven months continuous rental of a hospital bed in a twelve-month period as follows:

(i) A manual hospital bed with mattress, with or without bed rails. The client must meet all of the following clinical criteria:

(A) Has a length of need/life expectancy that is twelve months or less;

(B) Has a medical condition that requires positioning of the body that cannot be accomplished in a standard bed (reason must be documented in the client's file);

(C) Has tried pillows, bolsters, and/or rolled up blankets/towels in client's own bed, and these have been determined to not be effective in meeting the client's positioning needs (nature of ineffectiveness must be documented in the client's file);

(D) Has a medical condition that necessitates upper body positioning at no less than a thirty-degree angle the majority of time the client is in the bed;

(E) Does not have full-time caregivers; and

(F) Does not also have a rental wheelchair.

(ii) A semi-electric hospital bed with mattress, with or without bed rails. The client must meet all of the following clinical criteria:

(A) Has a length of need/life expectancy that is twelve months or less;

(B) Has tried pillows, bolsters, and/or rolled up blankets/towels in own bed, and these have been determined to be ineffective in meeting positioning needs (nature of ineffectiveness must be documented in the client's file);

(C) Has a chronic or terminal condition such as chronic obstructive pulmonary disease (COPD), congestive ((~~health~~)) heart failure (CHF), lung cancer or cancer that has metastasized to the lungs, or other pulmonary conditions that cause the need for immediate upper body elevation;

(D) Must be able to independently and safely operate the bed controls; and

(E) Does not have a rental wheelchair.

(d) Purchase - The ((~~department~~)) agency pays, with prior authorization, for the initial purchase of a semi-electric hospital bed with mattress, with or without bed rails, when the following criteria are met:

(i) The client:

(A) Has a length of need/life expectancy that is twelve months or more;

(B) Has tried positioning devices such as pillows, bolsters, foam wedges, and/or rolled up blankets/towels in own bed, and these have been determined to be ineffective in meeting positioning needs (nature ((~~if~~)) of ineffectiveness must be documented in the client's file);

(C) Must be able to independently and safely operate the bed controls; and

(D) Is diagnosed:

(I) With quadriplegia;

(II) With tetraplegia;

(III) With duchenne muscular dystrophy;

(IV) With amyotrophic lateral sclerosis (ALS), often referred to as "Lou Gehrig's Disease";

(V) As ventilator-dependent; or

(VI) With ((~~chronic obstructive pulmonary disease (COPD) or congestive heart failure (CHF)~~)) COPD or CHF with aspiration risk or shortness of breath that causes the need for an immediate change of upper body positioning of more than thirty degrees.

(ii) Requests for prior authorization must be submitted in writing to the ((~~department~~)) agency and be accompanied by:

(A) A completed General Information for Authorization form (((~~DSHS~~)) HCA 13-835) and Hospital Bed Evaluation form (((~~DSHS~~)) HCA 13-747). The ((~~department's~~)) agency's electronic forms are available online (see WAC ((~~388-543-7000~~)) 182-543-7000, Authorization);

(B) Documentation of the client's life expectancy, in months and/or years, the client's diagnosis, the client's date of delivery and serial number of the hospital bed; and

(C) Be accompanied by written documentation, from the client or caregiver, indicating the client has not been previously provided a hospital bed, purchase or rental.

(2) Mattresses and related equipment - The ((~~department~~)) agency pays, with prior authorization, for the following:

(a) Pressure pad, alternating with pump - One in a five-year period;

(b) Dry pressure mattress - One in a five-year period;

(c) Gel or gel-like pressure pad for mattress - One in a five-year period;

(d) Gel pressure mattress - One in a five-year period;

(e) Water pressure pad for mattress - One in a five-year period;

(f) Dry pressure pad for mattress - One in a five-year period;

(g) Mattress, inner spring - One in a five-year period; and

(h) Mattress, foam rubber - One in a five-year period.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-543-3100 Covered—Patient lifts/traction, equipment/fracture, and frames/transfer boards. The ((~~department~~)) medicaid agency covers the purchase of the following with the stated limitations, without prior authorization:

(1) Patient lift, hydraulic, with seat or sling - One per client in a five-year period.

(2) Traction equipment - One per client in a five-year period.

(3) Trapeze bars - One per client in a five-year period. The ((~~department~~)) agency requires prior authorization for rental.

(4) Fracture frames - One per client in a five-year period. The ((~~department~~)) agency requires prior authorization for rental.

(5) Transfer board or devices - One per client in a five-year period.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-543-3200 Covered—Positioning devices. The ((~~department~~)) medicaid agency covers, without prior authorization, positioning devices with the following limitations:

(1) Positioning system/supine board (small or large), including padding, straps, adjustable armrests, footboard, and support blocks - One per client in a five-year period.

(2) Prone stander (infant, child, youth, or adult size) - One per client ((~~is~~)) in a five-year period. The prone stander must be prescribed by a physician and the client must not be residing in a skilled nursing facility.

(3) Adjustable standing frame (for child/adult who is thirty to sixty-eight inches tall), including two padded back support blocks, a chest strap, a pelvic strap, a pair of knee blocks, an abductor, and a pair of foot blocks - One per client in a five-year period.

(4) Positioning car seats - One per client, eight years of age and older or four feet nine inches or taller, in a five-year period.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-543-3300 Covered—Osteogenesis electrical stimulator (bone growth stimulator). (1) The ((~~department~~)) medicaid agency covers, with prior authorization, noninvasive osteogenesis electrical stimulators, limited to one per client, in a five-year period.

(2) The ((~~department~~)) agency pays for the purchase of nonspinal bone growth stimulators, only when:

(a) The stimulators have pulsed electromagnetic field (PEMF) simulation; and

(b) The client meets one or more of the following clinical criteria:

(i) Has a nonunion of a long bone fracture (which includes clavicle, humerus, phalanx, radius, ulna, femur, tibia, fibula, metacarpal and metatarsal) ((~~after~~)) where three months have elapsed since the date of injury without healing; or

(ii) Has a failed fusion of a joint other than in the spine where a minimum of nine months has elapsed since the last surgery.

(3) The ((~~department~~)) agency pays for the purchase of spinal bone growth stimulators, when:

(a) Prescribed by a neurologist, an orthopedic surgeon, or a neurosurgeon; and((~~;~~))

(b) The client meets one or more of the following clinical criteria:

(i) Has a failed spinal fusion where a minimum of nine months have elapsed since the last surgery; or

(ii) Is post-op from a multilevel spinal fusion surgery; or

(iii) Is post-op from spinal fusion surgery ((~~where~~)) and there is a history of a previously failed spinal fusion.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-543-3400 Covered—Communication devices/speech generating devices (SGD). (1) The ((~~department~~)) medicaid agency covers:

(a) One artificial larynx, any type, without prior authorization, per client in a five-year period; and

(b) One speech generating device (SGD), with prior authorization, per client every two years.

(2) The ((~~department~~)) agency pays only for those approved ((~~speech generating devices (~~))SGDs((~~)~~)) that have:

(a) Digitized speech output, using prerecorded messages;

(b) Synthesized speech output requiring message formation by spelling and access by physical contact with the device; or

(c) Synthesized speech output, permitting multiple methods of message formulation and multiple methods of device access.

(3) The ((~~department~~)) agency requires prior authorization for SGDs and reviews requests on a case-by-case basis. Requests to the ((~~department~~)) agency for prior authorization must meet all of the following:

(a) The client must have a severe expressive speech impairment and the client's medical condition warrants the use of a device to replace verbal communication (e.g., to communicate medical information); and

(b) The request must be in writing and be accompanied by:

(i) A completed General Information for Authorization form (((~~DSHS~~)) HCA 13-835). The ((~~department's~~)) agency's electronic forms are available online (see WAC ((~~388-543-7000~~)) 182-543-7000, Authorization); and

(ii) A completed Speech Language Pathologist (SLP) Evaluation for Speech Generating Devices ((~~form (DSHS~~)) (15-310) form. The ((~~department~~)) agency requires, at a minimum, the following information:

(A) A detailed description of the client's therapeutic history;

(B) A written assessment by a licensed ((~~speech language pathologist (~~))SLP((~~)~~)); and

(C) Documentation of all of the following:

(I) The client has reliable and consistent motor response, which can be used to communicate with the help of an SGD;

(II) The client has demonstrated the cognitive and physical abilities to utilize the equipment effectively and independently to communicate; and

(III) The client's treatment plan includes a training schedule for the selected device.

(iii) A copy of the prescription for the SGD from the client's treating physician written on ((~~a department~~)) an agency Prescription Form (((~~DSHS~~)) HCA 13-794) (see WAC ((~~388-543-2000~~)) 182-543-2000(2)).

(4) The ((~~department~~)) agency may require trial-use rental of a SGD. The ((~~department~~)) agency applies the rental costs for the trial-use to the purchase price.

(5) The ((~~department~~)) agency pays for the repair or modification of an SGD when all of the following are met:

(a) All warranties are expired;

(b) The cost of the repair or modification is less than fifty percent of the cost of a new SGD and the provider has submitted supporting documentation; and

(c) The repair has a warranty for a minimum of ninety days.

(6) The ((~~department~~)) agency does not pay for devices requested for the purpose of education.

(7) The ((~~department~~)) agency pays for replacement batteries for a SGD in accordance with WAC ((~~388-543-5500~~)) 182-543-5500(3). The ((~~department~~)) agency does not pay for back-up batteries for ((~~a~~)) an SGD.

(8) Clients who are eligible for both medicare and medicaid must apply first to medicare for an SGD. If medicare denies the request and the client requests an SGD from the ((~~department~~)) agency, the ((~~department~~)) agency evaluates the request according to the rules of this section.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-543-3500 Covered—Ambulatory aids (canes, crutches, walkers, related supplies). (1) The ((~~department~~)) medicaid agency covers the purchase of the following ambulatory aids with stated limitations, without prior authorization:

(a) Canes - One per client in a five-year period.

(b) Crutches - One per client in a five-year period.

(c) Walkers - One per client in a five-year period.

(2) The ((~~department~~)) agency pays for replacement underarm pads for crutches and replacement handgrips and tips for canes, crutches, and walkers. Prior authorization is not required.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-543-4000 Covered—Wheelchairs—General. (1) The ((~~department~~)) medicaid agency covers, with prior authorization, manual and power-drive wheelchairs for clients who reside at home. For clients who reside in a skilled nursing facility, see WAC ((~~388-543-5700~~)) 182-543-5700.

(2) For manual or power-drive wheelchairs for clients who reside at home, requests for prior authorization must include all of the following completed forms:

(a) General Information for Authorization form (((~~DSHS~~)) HCA 13-835). The ((~~department's~~)) agency's electronic forms are available online (see WAC ((~~388-543-7000~~)) 182-543-7000, Authorization);

(b) A Prescription Form (((~~DSHS~~)) HCA 13-794); and

(c) Medical Necessity for Wheelchair Purchase (for home clients only) form (((~~DSHS~~)) HCA 13-727) from the client's physician or therapist. The date on this form (((~~DSHS~~)) HCA 13-727) must not be prior to the date on the Prescription Form (((~~DSHS~~)) HCA 13-794).

(3) The ((~~department~~)) agency does not pay for manual or power-drive wheelchairs that have been delivered to a client without prior authorization from the ((~~department~~)) agency.

(4) When the ((~~department~~)) agency determines that a wheelchair is medically necessary, according to the process found in WAC ((~~388-501-0165, for six months or less, the department~~)) 182-501-0165, the agency rents or purchases a wheelchair for clients who live at home. For clients who reside in a skilled nursing facility, see WAC ((~~388-543-5700~~)) 182-543-5700.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-543-4100 Covered—Wheelchairs—Manual. The ((~~department~~)) medicaid agency covers the rental or purchase of a manual wheelchair for a home client who is nonambulatory or has limited mobility and requires a wheelchair to participate in normal daily activities. For clients who reside in a skilled nursing facility, see WAC ((~~388-543-5700~~)) 182-543-5700.

(1) The ((~~department~~)) agency determines the type of manual wheelchair for a home client as follows:

(a) A standard wheelchair if the client's medical condition requires the client to have a wheelchair to participate in normal daily activities;

(b) A standard lightweight wheelchair if the client's medical condition is such that the client:

(i) Cannot self-propel a standard weight wheelchair; or

(ii) Requires custom modifications that cannot be provided on a standard weight wheelchair.

(c) A high-strength, lightweight wheelchair for a client:

(i) Whose medical condition is such that the client cannot self-propel a lightweight or standard weight wheelchair; or

(ii) Requires custom modifications that cannot be provided on a standard weight or lightweight wheelchair.

(d) A heavy duty wheelchair for a client who requires a specifically manufactured wheelchair designed to:

(i) Support a person weighing three hundred pounds or over; or

(ii) Accommodate a seat width up to twenty-two inches wide (not to be confused with custom heavy duty wheelchairs).

(e) A custom heavy duty wheelchair for a client who requires a specifically manufactured wheelchair designed to:

(i) Support a person weighing three hundred pounds or over; or

(ii) Accommodate a seat width over twenty-two inches wide.

(f) A rigid wheelchair for a client:

(i) With a medical condition that involves severe upper extremity weakness;

(ii) Who has a high level of activity; and

(iii) Who is unable to self-propel any of the above categories of wheelchair.

(g) A custom manufactured wheelchair for a client with a medical condition requiring wheelchair customization that cannot be obtained on any of the categories of wheelchairs listed in this section.

(h) Pediatric wheelchairs/positioning strollers having a narrower seat and shorter depths more suited to pediatric patients, usually adaptable to modifications for a growing child.

(2) The ((~~department~~)) agency pays for both a manual wheelchair and a power-drive wheelchair only for noninstitutionalized clients in limited circumstances. See WAC ((~~388-543-4200~~)) 182-543-4200(5).

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-543-4200 Covered—Wheelchairs—Power-drive. (1) The ((~~department~~)) medicaid agency covers power-drive wheelchairs when the prescribing physician certifies that the following clinical criteria are met:

(a) The client can independently and safely operate a power-drive wheelchair;

(b) The client's medical condition negates his or her ability to self-propel any of the wheelchairs listed in the manual wheelchair category; and

(c) A power-drive wheelchair will:

(i) Provide the client the only means of independent mobility; or

(ii) Enable a child to achieve age-appropriate independence and developmental milestones.

(2) The following additional information is required for a three or four-wheeled power-drive scooter/power-operated vehicle (POV):

(a) The prescribing physician certifies that the client's condition is stable; and

(b) The client is unlikely to require a standard power-drive wheelchair within the next two years.

(3) When the ((~~department~~)) agency approves a power-drive wheelchair for a client who already has a manual wheelchair, the power-drive wheelchair becomes the client's primary chair, unless the client meets the criteria in subsection (5) of this section.

(4) The ((~~department~~)) agency pays to maintain only the client's primary wheelchair, unless the conditions of subsection (6) of this section apply.

(5) The ((~~department~~)) agency pays for one manual wheelchair and one power-drive wheelchair for noninstitutionalized clients only when one of the following circumstances applies:

(a) The architecture of the client's home is completely unsuitable for a power-drive wheelchair, such as narrow hallways, narrow doorways, steps at the entryway, and insufficient turning radius;

(b) The architecture of the client's home bathroom is such that power-drive wheelchair access is not possible, and the client needs a manual wheelchair to safely and successfully complete bathroom activities and maintain personal cleanliness; or

(c) The client has a power-drive wheelchair, but also requires a manual wheelchair because the power-drive wheelchair cannot be transported to meet the client's community, workplace, or educational activities. In this case, the manual wheelchair would allow the caregiver to transport the client in a standard automobile or van. The ((~~department~~)) agency requires the client's situation to meet the following conditions:

(i) The client's activities that require the second wheelchair must be located farther than one-fourth of a mile from the client's home; and

(ii) Cabulance, public buses, or personal transit are not available, practical, or possible for financial or other reasons.

(6) When the ((~~department~~)) agency approves both a manual wheelchair and a power-drive wheelchair for a noninstitutionalized client who meets one of the circumstances in subsection (5) of this section, the ((~~department~~)) agency pays to maintain both wheelchairs.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-543-4300 Covered—Wheelchairs—Modifications, accessories, and repairs. (1) The ((~~department~~)) agency covers, with prior authorization, wheelchair accessories and modifications that are specifically identified by the manufacturer as separate line item charges. To receive payment, providers must submit the following to the ((~~department~~)) agency:

(a) A completed General Information for Authorization form (((~~DSHS~~)) HCA 13-835). The ((~~department's~~)) agency's electronic forms are available online (see WAC ((~~388-543-7000~~)) 182-543-7000, Authorization);

(b) A completed Prescription Form (((~~DSHS~~)) HCA 13-794);

(c) A completed Medical Necessity for Wheelchair Purchase (for home clients only) form (((~~DSHS~~)) HCA 13-727). The date on this form (((~~DSHS~~)) HCA 13-727) must not be dated prior to the date on the Prescription Form (((~~DSHS-~~)) HCA 13-794);

(d) The make, model, and serial number of the wheelchair to be modified;

(e) The modification requested; and

(f) Any specific information regarding the client's medical condition that necessitates the modification.

(2) The ((~~department~~)) agency pays for transit option restraints only when used for client-owned vehicles.

(3) The ((~~department~~)) agency covers, with prior authorization, wheelchair repairs. To receive payment, providers must submit the following to the ((~~department~~)) agency:

(a) General Information for Authorization form (((~~DSHS~~)) HCA 13-835). The ((~~department's~~)) agency's electronic forms are available online (see WAC ((~~388-543-7000~~)) 182-543-7000);

(b) A completed Medical Necessity for Wheelchair Purchase form (for home clients only) (((~~DSHS~~)) HCA 13-727);

(c) The make, model, and serial number of the wheelchair to be repaired; and

(d) The repair requested.

(4) Prior authorization is required for the repair and modification of client-owned equipment.

NEW SECTION

WAC 182-543-4400 Covered—Complex rehabilitation technology. (1) The agency covers, with prior authorization, individually configured, complex rehabilitation technology (CRT) products.

(2) CRT must be supplied by a CRT supplier with the appropriate taxonomy number to bill for the items.

(3) Each site that a company operates must employ at least one CRT professional who has been certified by the Rehabilitation Engineering and Assistive Technology Society of North America (RESNA).

(4) The client must be evaluated by a licensed health care provider who performs specialty evaluations within their scope of practice (occupational or physical therapists) and who does not have a financial relationship with the supplier.

(a) At the evaluation, a CRT professional must also be present from the company ordering the equipment; or

(b) The CRT provider must be present at the evaluation to:

(i) Assist in selection of the appropriate CRT item(s); and

(ii) Provide training in the use of the selected items.

(5) The CRT provider must:

(a) Provide service and repairs by qualified technicians for all CRT products it sells; and

(b) Provide written information to the client at the time of delivery as to how the client may receive services and repairs.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-543-5000 Covered—Prosthetics/orthotics. (1) The ((~~department~~)) agency covers, without prior authori-

zation, the following prosthetics and orthotics, with stated limitations:

(a) Thoracic-hip-knee-ankle orthosis (THKAO) standing frame - One every five years.

(b) Preparatory, above knee "PTB" type socket, nonalignable system, pylon, no cover, SACH foot plaster socket, molded to model - One per lifetime, per limb.

(c) Preparatory, below knee "PTB" type socket, nonalignable system, pylon, no cover, SACH foot thermoplastic or equal, direct formed - One per lifetime, per limb.

(d) Socket replacement, below the knee, molded to patient model - One per twelve-month period, per limb.

(e) Socket replacement, above the knee/knee disarticulation, including attachment plate, molded to patient model - One per twelve-month period, per limb.

(f) All other prosthetics and orthotics are limited to one per twelve-month period per limb.

(2) The ((~~department~~)) agency pays only licensed prosthetic and orthotic providers to supply prosthetics and orthotics. This requirement does not apply to the following:

(a) Selected prosthetics and orthotics that do not require specialized skills to provide; and

(b) Out-of-state providers, who must meet the licensure requirements of that state.

(3) The ((~~department~~)) agency pays only for prosthetics or orthotics that are listed as such by the Centers for Medicare and Medicaid Services (CMS), ((~~formerly known as HCFA,~~)) that meet the definition of prosthetic ((~~and~~)) or orthotic as defined in WAC ((~~388-543-1000~~)) 182-543-1000 and are prescribed per WAC ((~~388-543-1100 and 388-543-1200~~)) 182-543-1100 and 182-543-1200.

(4) The ((~~department~~)) agency pays for repair or modification of a client's current prosthesis. To receive payment, all of the following must be met:

(a) All warranties are expired;

(b) The cost of the repair or modification is less than fifty percent of the cost of a new prosthesis and the provider has submitted supporting documentation; and

(c) The repair is warranted for a minimum of ninety days.

(5) The ((~~department~~)) agency requires the client to take responsibility for routine maintenance of a prosthetic or orthotic. If the client does not have the physical or mental ability to perform the task, the ((~~department~~)) agency requires the client's caregiver to be responsible. The ((~~department~~)) agency requires prior authorization for extensive maintenance to a prosthetic or orthotic.

(6) For prosthetics dispensed for purely cosmetic reasons, see WAC ((~~388-543-3800 [388-543-1300]~~)) 182-543-6000, Noncovered-DME.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-543-5700 Covered—DME and related supplies and complex rehabilitation technology for clients in skilled nursing facilities. (1) The ((~~department's~~)) agency's skilled nursing facility per diem rate, established in chapters 74.46 RCW, 388-96, and 388-97 WAC, includes any reusable and disposable medical supplies that may be required for a skilled nursing facility client, unless otherwise specified within this section.

(2) The ((~~department~~)) agency pays for the following covered DME and related supplies and complex rehabilitation technology (CRT) outside of the skilled nursing facility per diem rate, subject to the limitations in this section:

(a) Manual or power-drive wheelchairs (including CRT);

(b) Speech generating devices (SGD); and

(c) Specialty beds.

(3) The ((~~department~~)) agency pays for one manual or one power-drive wheelchair for clients who reside in a skilled nursing facility, with prior authorization, according to the requirements in WAC ((~~388-543-4100, 388-543-4200, and 388-543-4300~~)) 182-543-4100, 182-543-4200, and 182-543-4300. Requests for prior authorization must:

(a) Be for the exclusive full-time use of a skilled nursing facility resident;

(b) Not be included in the skilled nursing facility's per diem rate;

(c) Include a completed General Information for Authorization form (((~~DSHS~~)) HCA 13-835);

(d) Include a copy of the telephone order, signed by the physician, for the wheelchair assessment;

(e) Include a completed Medical Necessity for Wheelchair Purchase for Nursing Facility Clients form (((~~DSHS~~)) HCA 13-729).

(4) The ((~~department~~)) agency pays for wheelchair accessories and modifications that are specifically identified by the manufacturer as separate line item charges, with prior authorization. To receive payment, providers must submit the following to the ((~~department~~)) agency:

(a) A ((~~completed Prescription form (DSHS 13-794)~~)) copy of the telephone order, signed by the physician for the wheelchair accessories and modifications;

(b) A completed Medical Necessity for Wheelchair Purchase for Nursing Facility Clients form (((~~DSHS~~)) HCA 13-729). The date on this form ((~~(DSHS 13-727)~~)) (HCA 13-729) must not be prior to the date on the ((~~Prescription form (DSHS-13-794)~~)) telephone order. The ((~~department's~~)) agency's electronic forms are available online (see WAC ((~~388-543-7000~~)) 182-543-7000, Authorization);

(c) The make, model, and serial number of the wheelchair to be modified;

(d) The modification requested; and

(e) Specific information regarding the client's medical condition that necessitates modification.

(5) The ((~~department~~)) agency pays for wheelchair repairs, with prior authorization. To receive payment, providers must submit the following to the ((~~department~~)) agency:

(a) A completed Medical Necessity for Wheelchair Purchase for Nursing Facility Clients form (((~~DSHS~~)) HCA 13-729). The ((~~department's~~)) agency's electronic forms are available online (see WAC ((~~388-543-7000~~)) 182-543-7000, Authorization);

(b) The make, model, and serial number of the wheelchair to be repaired; and

(c) The repair requested.

(6) Prior authorization is required for the repair and modification of client-owned equipment.

(7) The skilled nursing facility must provide a house wheelchair as part of the per diem rate, when the client resides in a skilled nursing facility.

(8) When the client is eligible for both medicare and medicaid and is residing in a skilled nursing facility in lieu of hospitalization, the ((~~department~~)) agency does not reimburse for DME and related supplies, CRT, prosthetics, orthotics, medical supplies, related services, ((~~and~~)) or related repairs ((~~and~~)) or labor charges under fee-for-service (FFS).

(9) The ((~~department~~)) agency pays for the purchase and repair of a speech generating device (SGD), with prior authorization. The ((~~department~~)) agency pays for replacement batteries for SGDs in accordance with WAC ((~~388-543-5500~~)) 182-543-5500(3).

(10) The ((~~department~~)) agency pays for the purchase or rental of a specialty bed (a heavy duty bariatric bed is not a specialty bed), with prior authorization, when:

(a) The specialty bed is intended to help the client heal; and

(b) The client's nutrition and laboratory values are within normal limits.

(11) The ((~~department~~)) agency considers decubitus care products to be included in the skilled nursing facility per diem rate and does not reimburse for these separately.

(12) See WAC ((~~388-543-9200~~)) 182-543-9200 for reimbursement for wheelchairs and WAC 182-543-9250 for reimbursement for CRT.

(13) The ((~~department~~)) agency pays for the following medical supplies for a client in a skilled nursing facility outside the skilled nursing facility per diem rate:

(a) Medical supplies or services that replace all or part((~~s~~)) of the function of a permanently impaired or malfunctioning internal body organ. This includes, but is not limited to, the following:

(i) Colostomy and other ostomy bags and necessary supplies (see WAC 388-97-1060(3)); and

(ii) Urinary retention catheters, tubes, and bags, excluding irrigation supplies.

(b) Supplies for intermittent catheterization programs, for the following purposes:

(i) Long term treatment of atonic bladder with a large capacity; and

(ii) Short term management for temporary bladder atony.

(c) Surgical dressings required as a result of a surgical procedure, for up to six weeks post-surgery.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-543-6000 DME and related supplies, medical supplies and related services—Noncovered. The ((~~department~~)) medicaid agency pays for DME and related supplies, medical supplies and related services only when listed as covered in this chapter. The ((~~department~~)) agency evaluates a request for any durable medical equipment (DME) and related supplies, prosthetics, orthotics, and medical supplies listed as noncovered in this chapter under the provisions of WAC ((~~388-501-0160~~)) 182-501-0160. In addition to the noncovered services found in WAC ((~~388-501-0070~~)) 182-501-0070, the ((~~department~~)) agency does not cover:

(1) A client's utility bills, even if the operation or maintenance of medical equipment purchased or rented by the ((~~department~~)) agency for the client contributes to an increased utility bill;

(2) Instructional materials such as pamphlets and video tapes;

(3) Hairpieces or wigs;

(4) Material or services covered under manufacturers' warranties;

(5) Shoe lifts less than one inch, arch supports for flat feet, and nonorthopedic shoes;

(6) Supplies and equipment used during a physician office visit, such as tongue depressors and surgical gloves;

(7) Prosthetic devices dispensed for cosmetic reasons;

(8) Home improvements and structural modifications, including but not limited to the following:

(a) Automatic door openers for the house or garage;

(b) Electrical rewiring for any reason;

(c) Elevator systems and elevators;

(d) Installation of, or customization of existing, bathtubs or shower stalls;

(e) Lifts or ramps for the home;

(f) Overhead ceiling track lifts;

(g) Saunas;

(h) Security systems, burglar alarms, call buttons, lights, light dimmers, motion detectors, and similar devices;

(i) Swimming pools; and

(j) Whirlpool systems, such as jacuzzis, hot tubs, or spas.

(9) Nonmedical equipment, supplies, and related services, including but not limited to, the following:

(a) Back-packs, pouches, bags, baskets, or other carrying containers;

(b) Bedboards/conversion kits, and blanket lifters (e.g., for feet);

(c) Car seats for children seven years of age and younger or less than four feet nine inches tall, except for prior authorized positioning car seats under WAC ((~~388-543-3200~~)) 182-543-3200;

(d) Cleaning brushes and supplies, except for ostomy-related cleaners/supplies;

(e) Diathermy machines used to produce heat by high frequency current, ultrasonic waves, or microwave radiation;

(f) Electronic communication equipment, installation services, or service rates, including but not limited to, the following:

(i) Devices intended for amplifying voices (e.g., microphones);

(ii) Interactive communications computer programs used between patients and health care providers (e.g., hospitals, physicians), for self care home monitoring, or emergency response systems and services;

(iii) Two-way radios;

(iv) Rental of related equipment or services; and

(v) Devices requested for the purpose of education.

(g) Environmental control devices, such as air conditioners, air cleaners/purifiers, dehumidifiers, portable room heaters or fans (including ceiling fans), heating or cooling pads, and light boxes;

(h) Ergonomic equipment;

(i) ((~~Durable medical equipment~~)) DME that is used in a clinical setting;

(j) Exercise classes or equipment such as exercise mats, exercise balls, bicycles, tricycles, stair steppers, weights, or trampolines;

(k) Generators;

(l) Computer software other than speech generating software, printers, and computer accessories (such as anti-glare shields, backup memory cards);

(m) Computer utility bills, telephone bills, internet service bills, or technical support for computers or electronic notebooks;

(n) Any communication device that is useful to someone without severe speech impairment (including but not limited to cellular telephone and associated hardware, walkie-talkie, two-way radio, pager, or electronic notebook);

(o) Racing strollers/wheelchairs and purely recreational equipment;

(p) Room fresheners/deodorizers;

(q) Bidet or hygiene systems, "sharps" containers, paraffin bath units, and shampoo rings;

(r) Timers or electronic devices to turn things on or off, which are not an integral part of the equipment;

(s) Vacuum cleaners, carpet cleaners/deodorizers, and/or pesticides/insecticides; or

(t) Wheeled reclining chairs, lounge and/or lift chairs (including but not limited to geri-chair, posture guard, or lazy boy).

(10) Blood pressure monitoring:

(a) Sphygmomanometer/blood pressure apparatus with cuff and stethoscope;

(b) Blood pressure cuff only; and

(c) Automatic blood pressure monitor.

(11) Transcutaneous electrical nerve stimulation (TENS) devices and supplies, including battery chargers;

(12) Functional electrical stimulation (FES) bike;

(13) Wearable defibrillators;

(14) Disinfectant spray;

(15) Periwash;

(16) Bathroom equipment used inside or outside of the physical space of a bathroom:

(a) Bath stools;

(b) Bathtub wall rail (grab bars);

(c) Bed pans;

(d) Bedside commode chair;

(e) Control unit for electronic bowel irrigation/evacuation system;

(f) Disposable pack for use with electronic bowel system;

(g) Potty chairs;

(h) Raised toilet seat;

(i) Safety equipment (including but not limited to belt, harness or vest);

(j) Shower chairs;

(k) Shower/commode chairs;

(l) Sitz type bath or equipment;

(m) Standard and heavy duty bath chairs;

(n) Toilet rail;

(o) Transfer bench for tub or toilet;

(p) Urinal male/female.

(17) Personal and/or comfort items, including but not limited to the following:

(a) Bathroom and hygiene items, such as antiperspirant, astringent, bath gel, conditioner, deodorant, moisturizer, mouthwash, powder, shampoo, shaving cream, shower cap, shower curtains, soap (including antibacterial soap), toothpaste, towels, and weight scales;

(b) Full electric beds;

(c) Bedding items, such as mattress pads, blankets, mattress covers/bags, pillows, pillow cases/covers, sheets, and bumper pads;

((~~(c)~~)) (d) Bedside items, such as bed trays, carafes, and over-the-bed tables;

((~~(d)~~)) (e) Clothing and accessories, such as coats, gloves (including wheelchair gloves), hats, scarves, slippers, socks, custom vascular supports (CVS), surgical stockings, gradient compression stockings, and custom compression garments and lumbar supports for pregnancy;

((~~(e)~~)) (f) Clothing protectors, surgical masks, and other protective cloth furniture coverings;

((~~(f)~~)) (g) Cosmetics, including corrective formulations, hair depilatories, and products for skin bleaching, commercial sun screens, and tanning;

((~~(g)~~)) (h) Diverter valves and handheld showers for bathtub;

((~~(h)~~)) (i) Eating/feeding utensils;

((~~(i)~~)) (j) Emesis basins, enema bags, and diaper wipes;

((~~(j)~~)) (k) Health club memberships;

((~~(k)~~)) (l) Hot or cold temperature food and drink containers/holders;

((~~(l)~~)) (m) Hot water bottles and cold/hot packs or pads not otherwise covered by specialized therapy programs;

((~~(m)~~)) (n) Impotence devices;

((~~(n)~~)) (o) Insect repellants;

((~~(o)~~)) (p) Massage equipment;

((~~(p)~~)) (q) Medication dispensers, such as med-collators and count-a-dose, except as obtained under the compliance packaging program. See chapter ((~~388-530~~)) 182-530 WAC;

((~~(q)~~)) (r) Medicine cabinet and first-aid items, such as adhesive bandages (e.g., Band-Aids, Curads), cotton balls, cotton-tipped swabs, medicine cups, thermometers, and tongue depressors;

((~~(r)~~)) (s) Page turners;

((~~(s)~~)) (t) Radio and television;

((~~(t)~~)) (u) Telephones, telephone arms, cellular phones, electronic beepers, and other telephone messaging services;

((~~(u)~~)) (v) Toothettes and toothbrushes, waterpics, and periodontal devices whether manual, battery-operated, or electric;

(18) Certain wheelchair features and options including, but not limited to, the following:

(a) Attendant controls (remote control devices);

(b) Canopies, including those used for strollers and other equipment;

(c) Clothing guards to protect clothing from dirt, mud, or water thrown up by the wheels (similar to mud flaps for cars);

(d) Decals;

(e) Hub Lock brake;

(f) Identification devices (such as labels, license plates, or name plates);

(g) Lighting systems;

(h) Replacement key or extra key;

(i) Speed conversion kits; and

(j) Trays for clients in a skilled nursing facility.

(19) New ((~~durable medical equipment~~)) DME, supplies, or related technology that the ((~~department~~)) agency has not evaluated for coverage. See WAC ((~~388-543-2100~~)) 182-543-2100.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-543-7000 Authorization. (1) The ((~~department~~)) medicaid agency requires providers to obtain authorization for covered durable medical equipment (DME) and related supplies, complex rehabilitation technology (CRT), prosthetics, orthotics, medical supplies and related equipment((~~s~~)) as required in this chapter, in chapters ((~~388-501 and 388-502~~)) 182-501 and 182-502 WAC, and in published ((~~department~~)) billing instructions and/or ((~~numbered memoranda~~)) provider notices or when the clinical criteria required in this chapter are not met.

(a) For prior authorization (PA), a provider must submit a written request to the ((~~department~~)) agency as specified in the ((~~department's~~)) agency's published billing instructions (see WAC ((~~388-543-7100~~)) 182-543-7100). All requests for prior authorization must be accompanied by a completed General Information for Authorization form (((~~DSHS~~)) HCA 13-835) in addition to any program specific ((~~DSHS~~)) forms as required within this chapter. The ((~~department's~~)) agency's electronic forms are available online at: ((~~http://www.dshs.wa.gov/msa/forms/eforms.html~~)) http://www.hca.wa.gov/medicaid/forms/Pages/index.aspx.

(b) For expedited prior authorization (EPA), a provider must meet the clinically appropriate EPA criteria outlined in the ((~~department's~~)) agency's published billing instructions. The appropriate EPA number must be used when the provider bills the ((~~department~~)) agency (see WAC ((~~388-543-7200~~)) 182-543-7200).

(2) When a service requires authorization, the provider must properly request authorization in accordance with the ((~~department's~~)) agency's rules, billing instructions, and ((~~numbered memoranda~~)) provider notices.

(3) The ((~~department's~~)) agency's authorization of service(s) does not necessarily guarantee payment.

(4) When authorization is not properly requested, the ((~~department~~)) agency rejects and returns the request to the provider for further action. The ((~~department~~)) agency does not consider the rejection of the request to be a denial of service.

(5) Authorization requirements in this chapter are not a denial of service to the client.

(6) The ((~~department~~)) agency may recoup any payment made to a provider if the ((~~department~~)) agency later determines that the service was not properly authorized or did not meet the EPA criteria. Refer to WAC ((~~388-502-0100~~)) 182-502-0100 (1)(c).

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-543-7100 Prior authorization. (1) The ((~~department~~)) medicaid agency requires providers to obtain prior authorization for certain items and services before delivering that item or service to the client, except for dual-eligible medicare/medicaid clients when medicare is the primary payer. The item or service must also be delivered to the client before the provider bills the ((~~department~~)) agency.

(2) All prior authorization requests must be accompanied by a completed General Information for Authorization form (((~~DSHS~~)) HCA 13-835), in addition to any program specific ((~~department~~)) agency forms as required within this chapter. ((~~Department~~)) Agency forms are available online at ((~~http://www.dshs.wa.gov/msa/forms/eforms.html~~)) http://www.hca.wa.gov/medicaid/forms/Pages/index.aspx.

(3) When the ((~~department~~)) agency receives the initial request for prior authorization, the prescription(s) for those items or services must not be older than three months from the date the ((~~department~~)) agency receives the request.

(4) The ((~~department~~)) agency requires certain information from providers in order to prior authorize the purchase or rental of equipment. This information includes, but is not limited to, the following:

(a) The manufacturer's name;

(b) The equipment model and serial number;

(c) A detailed description of the item; and

(d) Any modifications required, including the product or accessory number as shown in the manufacturer's catalog.

(5) For prior authorization requests, the ((~~department~~)) agency requires the prescribing provider to furnish patient-specific justification for base equipment and each requested line item accessory or modification as identified by the manufacturer as a separate charge. The ((~~department~~)) agency does not accept general standards of care or industry standards for generalized equipment as justification.

(6) The ((~~department~~)) agency considers requests for new durable medical equipment (DME) and related supplies, complex rehabilitation technology (CRT), prosthetics, orthotics, medical supplies and related equipment((~~s~~)) that do not have assigned health care common procedure coding system (HCPCS) codes and are not listed in the ((~~department's~~)) agency's published issuances, including billing instructions or ((~~numbered memoranda~~)) provider notices. These items require prior authorization. The provider must furnish all of the following information to the ((~~department~~)) agency to establish medical necessity:

(a) A detailed description of the item(s) or service(s) to be provided;

(b) The cost or charge for the item(s);

(c) A copy of the manufacturer's invoice, price-list or catalog with the product description for the item(s) being provided; and

(d) A detailed explanation of how the requested item(s) differs from an already existing code description.

(7) The ((~~department~~)) agency does not pay for the purchase, rental, or repair of medical equipment that duplicates equipment that the client already owns ((~~or~~)), rents, or that the agency has authorized for the client. If the provider believes the purchase, rental, or repair of medical equipment

is not duplicative, the provider must request prior authorization and submit the following to the ((~~department~~)) agency:

(a) Why the existing equipment no longer meets the client's medical needs; or

(b) Why the existing equipment could not be repaired or modified to meet the client's medical needs.

(c) Upon request, documentation showing how the client's condition met the criteria for PA or EPA.

(8) A provider may resubmit a request for prior authorization for an item or service that the ((~~department~~)) agency has denied. The ((~~department~~)) agency requires the provider to include new documentation that is relevant to the request.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-543-7200 Limitation extension (LE). (1) The ((~~department~~)) medicaid agency limits the amount, frequency, or duration of certain covered medical supplies and equipment(MSE), durable medical equipment (DME), and related supplies, prosthetics, orthotics, medical supplies, and related services, and reimburses up to the stated limit without requiring prior authorization.

(2) Certain covered items have limitations on quantity and frequency. These limits are designed to avoid the need for prior authorization for items normally considered medically necessary and for quantities sufficient for a thirty-day supply for one client.

(3) The ((~~department~~)) agency requires a provider to request prior authorization for a limitation extension (LE) in order to exceed the stated limits for nondurable medical equipment and medical supplies. All requests for prior authorization must be accompanied by a completed General Information for Authorization form (((~~DSHS~~)) HCA 13-835) in addition to any program specific ((~~DSHS~~)) forms as required within this chapter. ((~~Department~~)) Agency forms are available online at ((~~http://www.dshs.wa.gov/msa/forms/eforms.html~~)) http://www.hca.wa.gov/medicaid/forms/Pages/index.aspx.

(4) The ((~~department~~)) agency evaluates such requests for LE under the provisions of WAC ((~~388-501-0169~~)) 182-501-0169.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-543-7300 Expedited prior authorization (EPA). (1) The expedited prior authorization process (EPA) is designed to eliminate the need for written and telephonic requests for prior authorization for selected durable medical equipment (DME) procedure codes.

(2) The ((~~department~~)) medicaid agency requires a provider to create an authorization number for EPA for selected DME procedure codes. The process and criteria used to create the authorization number is explained in the ((~~department~~)) agency published DME-related billing instructions. The authorization number must be used when the provider bills the ((~~department~~)) agency.

(3) Upon request, a provider must provide documentation to the ((~~department~~)) agency showing how the client's condition met the criteria for EPA.

(4) A written or telephone request for prior authorization is required when a situation does not meet the EPA criteria for selected DME procedure codes.

(5) The ((~~department~~)) agency may recoup any payment made to a provider under this section if the provider did not follow the expedited authorization process and criteria.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-543-8000 DME—Billing general. (1) A provider must not bill the ((~~department~~)) medicaid agency for the rental or purchase of equipment supplied to the provider at no cost by suppliers/manufacturers.

(2) The ((~~department~~)) agency does not pay a durable medical equipment (DME) provider for medical supplies used in conjunction with a physician office visit. The ((~~department~~)) agency pays the office physician for these supplies when appropriate. Refer to the ((~~department's~~)) agency's physician-related services/health care professional services billing instructions.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-543-8100 DME—Billing for managed care clients. If a fee-for-service (FFS) client enrolls in a ((~~department-contracted~~)) medicaid agency-contracted managed care organization (MCO), the following apply:

(1) The ((~~department~~)) agency stops paying for any rented equipment on the last day of the month preceding the month in which the client becomes enrolled in the MCO.

(2) The plan determines the client's continuing need for the equipment and is responsible for paying the provider.

(3) A client may become an MCO enrollee before the ((~~department~~)) agency completes the purchase of prescribed medical equipment. The ((~~department~~)) agency considers the purchase complete when the product is delivered and the ((~~department~~)) agency is notified of the serial number. If the client becomes an MCO enrollee before the ((~~department~~)) agency completes the purchase:

(a) The ((~~department~~)) agency rescinds the ((~~department's~~)) agency's authorization with the vendor until the MCO's primary care provider (PCP) evaluates the client; then

(b) The ((~~department~~)) agency requires the PCP to write a new prescription if the PCP determines the equipment is still medically necessary as defined in WAC ((~~388-500-0005~~)) 182-500-0070; then

(c) The MCO's applicable reimbursement policies apply to the purchase or rental of the equipment.

(4) If a client ((~~may be~~)) is disenrolled from an MCO and placed into fee-for-service before the MCO completes the purchase of prescribed medical equipment((~~.~~)):

(a) The ((~~department~~)) agency rescinds the MCO's authorization with the vendor until the client's primary care provider (PCP) evaluates the client; then

(b) The ((~~department~~)) agency requires the PCP to write a new prescription if the PCP determines the equipment is still medically necessary as defined in WAC ((~~388-500-0005~~)) 182-500-0070; then

(c) The ((~~department's~~)) agency's applicable reimbursement policies apply to the purchase or rental of the equipment.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-543-8200 ((~~DME —~~))Billing for clients eligible for medicare and medicaid. If a client is eligible for both medicare and medicaid, the following apply:

(1) The ((~~department~~)) medicaid agency requires a provider to accept medicare assignment before any medicaid reimbursement;

(2) In accordance with WAC ((~~388-502-0110~~)) 182-502-0110(3):

(a) If the service provided is covered by medicare and medicaid, the ((~~department~~)) agency pays only the deductible and/or coinsurance up to medicare's or medicaid's allowed amount, whichever is less.

(b) If the service provided is covered by medicare but is not covered by the ((~~department~~)) agency, the ((~~department~~)) agency pays only the deductible and/or coinsurance up to medicare's allowed amount.

AMENDATORY SECTION (Amending WSR 11-14-075, filed 6/30/11, effective 7/1/11)

WAC 182-543-9000 DME and related supplies, complex rehabilitation, prosthetics, orthotics, medical supplies and related services—General reimbursement. (1) The ((~~department~~)) medicaid agency pays qualified providers who meet all of the conditions in WAC ((~~388-502-0100~~)) 182-502-0100, for durable medical equipment (DME), supplies, repairs, and related services provided on a fee-for-service (FFS) basis as follows:

(a) To ((~~department-enrolled~~)) agency-enrolled DME providers, qualified complex rehabilitation technology (CRT) suppliers, pharmacies, and home health agencies under their national provider identifier (NPI) numbers, subject to the limitations of this chapter, and according to the procedures and codes in the ((~~department's~~)) agency's current DME billing instructions; and

(b) In accordance with the health care common procedure coding system (HCPCS) guidelines for product classification and code assignation.

(2) The ((~~department~~)) agency sets, evaluates, and updates the maximum allowable fees for DME and related supplies, CRT, prosthetics, orthotics, medical supplies and related services at least once yearly using available published information, including but not limited to:

(a) Commercial ((~~databases~~)) data bases;

(b) Manufacturers' catalogs;

(c) Medicare fee schedules; and

(d) Wholesale prices.

(3) The ((~~department~~)) agency may adopt policies, procedure codes, and/or rates that are inconsistent with those set by medicare if the ((~~department~~)) agency determines that such actions are necessary.

(4) The ((~~department~~)) agency updates the maximum allowable fees for DME and related supplies, CRT, prosthetics, orthotics, medical supplies and related services at least once per year, unless otherwise directed by the legislature or deemed necessary by the ((~~department~~)) agency.

(5) The ((~~department's~~)) agency's maximum payment for DME and related supplies, CRT, prosthetics, orthotics, medical supplies and related services is the lesser of either of the following:

(a) Providers' usual and customary charges; or

(b) Established rates, except as provided in WAC ((~~388-543-8200~~)) 182-543-8200.

(6) The ((~~department~~)) agency is the payor of last resort for clients with medicare or third party insurance.

(7) The ((~~department~~)) agency does not pay for medical equipment and/or services provided to a client who is enrolled in ((~~a department-contracted~~)) an agency-contracted managed care plan, but who did not use one of the plan's participating providers.

(8) The ((~~department's~~)) agency's reimbursement rate for purchased or rented covered DME and related supplies, prosthetics, orthotics, medical supplies and related services includes all of the following:

(a) Any adjustments or modifications to the equipment that are required within three months of the date of delivery or are covered under the manufacturer's warranty. This does not apply to adjustments required because of changes in the client's medical condition;

(b) Any pick-up and/or delivery fees or associated costs (e.g., mileage, travel time, gas, etc.);

(c) Telephone calls;

(d) Shipping, handling, and/or postage;

(e) Routine maintenance of DME that includes testing, cleaning, regulating, and assessing the client's equipment;

(f) Fitting and/or set-up; and

(g) Instruction to the client or client's caregiver in the appropriate use of the equipment, device, and/or supplies.

(9) DME, supplies, repairs, and related services supplied to eligible clients under the following reimbursement methodologies are included in those methodologies and are not reimbursed under fee-for-service:

((~~(i)~~)) (a) Hospice providers' per diem reimbursement;

((~~(ii)~~)) (b) Hospitals' diagnosis-related group (DRG) reimbursement;

((~~(iii)~~)) (c) Managed care plans' capitation rate;

((~~(iv)~~)) (d) Skilled nursing facilities' per diem rate; and

((~~(v)~~)) (e) Professional services' resource-based relative value system reimbursement (RBRVS) rate.

(10) The provider must make warranty information, including date of purchase, applicable serial number, model number or other unique identifier of the equipment, and warranty period, available to the ((~~department~~)) agency upon request.

(11) The dispensing provider who furnishes the equipment, supply or device to a client is responsible for any costs incurred to have a different provider repair the equipment when:

(a) Any equipment that the ((~~department~~)) agency considers purchased requires repair during the applicable warranty period;

(b) The provider refuses or is unable to fulfill the warranty; and

(c) The equipment, supply or device continues to be medically necessary.

(12) If the rental equipment, supply or device must be replaced during the warranty period, the ((~~department~~)) agency recoups fifty percent of the total amount previously paid toward rental and eventual purchase of the equipment, supply or device delivered to the client if:

(a) The provider is unwilling or unable to fulfill the warranty; and

(b) The equipment, supply or device continues to be medically necessary.

(13) See WAC ((~~388-543-9100, 388-543-9200, 388-543-9300, and 388-543-9400~~)) 182-543-9100, 182-543-9200, 182-543-9300, and 182-543-9400 for other reimbursement methodologies.

AMENDATORY SECTION (Amending WSR 12-16-059, filed 7/30/12, effective 8/30/12)

WAC 182-543-9100 Reimbursement method—Other DME. (1) The agency sets, evaluates and updates the maximum allowable fees for purchased other durable medical equipment (DME) at least once yearly using one or more of the following:

(a) The current medicare rate, as established by the federal centers for medicare and medicaid services (CMS), for a new purchase if a medicare rate is available;

(b) A pricing cluster; or

(c) On a by report basis.

(2) Establishing reimbursement rates for purchased other DME based on pricing clusters.

(a) A pricing cluster is based on a specific health care common procedure coding system (HCPCS) code.

(b) The agency's pricing cluster is made up of all the brands/models for which the agency obtains pricing information. However, the agency may limit the number of brands/models included in the pricing cluster. The agency considers all of the following when establishing the pricing cluster:

(i) A client's medical needs;

(ii) Product quality;

(iii) Introduction, substitution or discontinuation of certain brands/models; and/or

(iv) Cost.

(c) When establishing the fee for other DME items in a pricing cluster, the maximum allowable fee is the median amount of available manufacturers' list prices for all brands/models as noted in subsection (2)(b) of this section.

(3) The agency evaluates a by report (BR) item, procedure, or service for medical necessity, appropriateness and reimbursement value on a case-by-case basis. The agency calculates the reimbursement rate for these items at eighty percent of the manufacturer's list or manufacturer's suggested retail price (MSRP) as of July 31st of the base year or one hundred twenty-five percent of the wholesale acquisition cost from the manufacturer's invoice.

(4) Monthly rental reimbursement rates for other DME. The agency's maximum allowable fee for monthly rental is established using one of the following:

(a) For items with a monthly rental rate on the current medicare fee schedule as established by ((~~the federal Centers for Medicare and Medicaid Services (~~))CMS((~~)~~)), the agency equates its maximum allowable fee for monthly rental to the current medicare monthly rental rate;

(b) For items that have a new purchase rate but no monthly rental rate on the current medicare fee schedule as established by ((~~the federal Centers for Medicare and Medicaid Services (~~))CMS((~~)~~)), the agency sets the maximum allowable fee for monthly rental at one-tenth of the new purchase price of the current medicare rate;

(c) For items not included in the current medicare fee schedule as established by ((~~the federal Centers for Medicare and Medicaid Services (~~))CMS((~~)~~)), the agency considers the maximum allowable monthly reimbursement rate as by report. The agency calculates the monthly reimbursement rate for these items at one-tenth of eighty percent of the manufacturer's list or ((~~manufacturer's suggested retail price (~~))MSRP((~~)~~)).

(5) Daily rental reimbursement rates for other DME. The agency's maximum allowable fee for daily rental is established using one of the following:

(a) For items with a daily rental rate on the current medicare fee schedule as established by ((~~the Centers for Medicare and Medicaid Services (~~))CMS((~~)~~)), the agency equates its maximum allowable fee for daily rental to the current medicare daily rental rate;

(b) For items that have a new purchase rate but no daily rental rate on the current medicare fee schedule as established by CMS, the agency sets the maximum allowable fee for daily rental at one-three-hundredth of the new purchase price of the current medicare rate;

(c) For items not included in the current medicare fee schedule as established by CMS, the agency considers the maximum allowable daily reimbursement rate as by report. The agency calculates the daily reimbursement rate at one-three-hundredth of eighty percent of the manufacturer's list or ((~~manufacturer's suggested retail price (~~))MSRP((~~)~~)) as of July 31st of the base year or one hundred twenty-five percent of the wholesale acquisition cost from the manufacturer's invoice.

(6) The agency does not reimburse for DME and related supplies, prosthetics, orthotics, medical supplies, related services, and related repairs and labor charges under fee-for-service ((~~(FFS)~~)) when the client is any of the following:

(a) An inpatient hospital client;

(b) Eligible for both medicare and medicaid, and is staying in a skilled nursing facility in lieu of hospitalization;

(c) Terminally ill and receiving hospice care; or

(d) Enrolled in a risk-based managed care plan that includes coverage for such items and/or services.

(7) The agency rescinds any purchase order for a prescribed item if the equipment was not delivered to the client before the client:

(a) Dies;

(b) Loses medical eligibility;

(c) Becomes covered by a hospice agency; or

(d) Becomes covered by a managed care organization.

(8) A provider may incur extra costs for customized equipment that may not be easily resold. In these cases, for purchase orders rescinded in subsection (7) of this section, the agency may pay the provider an amount it considers

appropriate to help defray these extra costs. The agency requires the provider to submit justification sufficient to support such a claim.

(9) The agency may adopt policies, procedure codes, and/or rates that are inconsistent with those set by medicare if the agency determines that such actions are necessary.

AMENDATORY SECTION (Amending WSR 12-16-059, filed 7/30/12, effective 8/30/12)

WAC 182-543-9200 Reimbursement method—Wheelchairs. (1) The agency reimburses a DME provider for purchased wheelchairs based on the ((~~specific brand and model of wheelchair dispensed. The agency decides which brands and/or models of wheelchairs are eligible for reimbursement based on all of the following:~~

~~(a) A client's medical needs;~~

~~(b) Product quality;~~

~~(c) Cost; and~~

~~(d) Available alternatives~~)) assigned health care common procedure coding system (HCPCS) code. The agency requires providers to make sure the specific brand and model of wheelchairs dispensed are coded according to the Centers for Medicare and Medicaid Services' (CMS) pricing, data analysis, and coding (PDAC) web site.

(2) The agency sets, evaluates and updates the maximum allowable fees at least once yearly for wheelchair purchases((~~,~~)) and wheelchair rentals((~~, and wheelchair accessories (e.g., cushions and backs)~~)) using the lesser of the following:

(a) The current medicare fees;

(b) ((~~The actual invoice for the specific item~~)) A pricing cluster; or

(c) On a by-report (BR) basis.

(3) Establishing reimbursement rates for purchased wheelchairs based on pricing clusters.

(a) A pricing cluster is based on a specific health care common procedure coding system (HCPCS) code.

(b) The agency's pricing cluster is made up of all the brands/models for which the agency obtains pricing information. However, the agency may limit the number of brands/models included in the pricing cluster. The agency considers all of the following when establishing a pricing cluster:

(i) A client's medical needs;

(ii) Product quality;

(iii) Introduction, substitution or discontinuation of certain brands/models; and

(iv) Cost.

(c) When establishing the fee for wheelchair items in a pricing cluster, the maximum allowable fee is the median amount of available manufacturers' list prices for all brands/models as noted in (b) of this subsection.

(4) The agency evaluates a BR item, procedure, or service for medical necessity, appropriateness and reimbursement value on a case-by-case basis. The agency calculates the reimbursement rate for these items at a percentage of the manufacturer's list or manufacturer's suggested retail price (MSRP) as of January 31st of the base year, or a percentage of the wholesale acquisition cost (AC). The agency uses the following percentages:

((~~(i)~~)) (a) For basic standard wheelchairs, sixty-five percent of MSRP or one hundred forty percent of AC;

((~~(ii)~~)) (b) For ((~~add-on accessories and~~)) parts, eighty-four percent of MSRP or one hundred forty percent of AC;

((~~(iii)~~)) (c) For ((~~up-charge modifications and~~)) seat and back cushions, eighty percent of MSRP or one hundred forty percent of AC((~~;~~

~~(iv) For all other manual wheelchairs, eighty percent of MSRP or one hundred forty percent of AC; and~~

~~(v) For all other power drive wheelchairs, eighty five percent of MSRP or one hundred forty percent of AC.~~

~~(3)~~)).

(5) The agency may adopt policies, procedure codes, and/or rates that are inconsistent with those set by medicare if the agency determines that such actions are necessary.

NEW SECTION

WAC 182-543-9250 Reimbursement method—Complex rehabilitation technology. (1) The agency reimburses a complex rehabilitation technology (CRT) provider for purchased CRT products based on the assigned health care common procedure coding system (HCPCS) code. The agency requires providers to make sure the specific brand and model of CRT products dispensed are coded according to the Centers for Medicare and Medicaid Services' (CMS) pricing, data analysis, and coding (PDAC) web site.

(2) The agency sets, evaluates, and updates the maximum allowable fees at least once yearly for CRT products using the lesser of the following:

(a) The current medicare fees;

(b) A pricing cluster; or

(c) On a by-report basis.

(3) To establish a rate based on a pricing cluster, the agency uses the following methodology:

(a) The pricing cluster is based on a specific HCPCS code;

(b) The pricing cluster includes all brands/models for which the agency obtains pricing information;

(c) The agency may limit the number of brands/models included in the pricing cluster based on the following:

(i) Product quality;

(ii) Introduction, substitution or discontinuation of certain brands/models; and

(iii) Cost, when there are equally effective substantially less costly alternatives available.

(d) When establishing the fee for CRT products in a pricing cluster, the maximum allowable fee is the median cost of all manufacturers' list prices for all brands/models in the cluster.

(4) The agency evaluates by-report (BR) items, procedure, or service for medical necessity, appropriateness and reimbursement value on a case-by-case basis. The agency calculates the reimbursement rate for these items at a percentage of the manufacturer's suggested retail price (MSRP) as of January 31st of the base year, or a percentage of the wholesale acquisition cost (AC) from the manufacturer's invoice. The agency uses the following percentages:

(a) For add-on CRT accessories and parts, eighty-four percent of MSRP or one hundred forty percent of AC;

(b) For up-charge modifications, seating systems, back and seat cushions, eighty percent of MSRP or one hundred forty percent of AC;

(c) For CRT manual wheelchair base, eighty percent of MSRP or one hundred forty percent of AC; and

(d) For CRT power-drive wheelchair base, eighty-five percent of MSRP or one hundred forty percent of AC.

(5) The agency may adopt policies, procedure codes, and/or rates that are inconsistent with those set by medicare if the agency determines that such actions are necessary to:

(a) Assure that payments are sufficient to enlist providers and maintain access to care and services; or

(b) Comply with legislative budget directives specifically reducing available funds for optional programs as an alternative to eliminating the optional program.

WSR 14-08-036
PERMANENT RULES
OFFICE OF INSURANCE COMMISSIONER

[Insurance Commissioner Matter No. R 2014-01—Filed March 26, 2014, 6:56 a.m., effective April 26, 2014]

Effective Date of Rule: Thirty-one days after filing.

Purpose: This new rule repeals WAC 284-43-970, 284-43-975, 284-43-980 and 284-43-985, relating to child only open enrollment requirements and amends WAC 284-170-420 aligning Washington state open enrollment requirements with federal open enrollment requirements.

Citation of Existing Rules Affected by this Order: Repealing WAC 284-43-970, 284-43-975, 284-43-980 and 284-43-985; and amending WAC 284-170-420.

Statutory Authority for Adoption: RCW 48.02.060, 48.18.120(2), 48.44.050, and 48.46.200.

Other Authority: 45 C.F.R. Parts 144, 146 and 147.

Adopted under notice filed as WSR 14-03-131 on January 22, 2014.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 1, Repealed 4; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 1, Repealed 4.

Date Adopted: March 25, 2014.

Mike Kreidler
Insurance Commissioner

REPEALER

The following sections of the Washington Administrative Code are repealed:

WAC 284-43-970	Purpose and scope.
WAC 284-43-975	Definitions.
WAC 284-43-980	Preexisting conditions.
WAC 284-43-985	Enrollment of persons under age nineteen.

AMENDATORY SECTION (Amending WSR 14-01-042, filed 12/11/13, effective 1/1/14)

WAC 284-170-420 Individual market open enrollment requirements. (1) For purposes of this section, "open enrollment" means a specific period of time each year during which enrollment in a health benefit plan is permitted. This section applies to plans offered in the individual market.

(2) An issuer must limit the dates for enrollment in plans offered on the individual market off the health benefit exchange to the same time period for open enrollment established by the health benefit exchange.

(3) ((~~In addition to the open enrollment period established by the exchange, an issuer participating in the off-exchange individual market must hold an open enrollment period between March 15th and April 30th each year, making its child-only policies available to those under age nineteen.~~

~~(4)~~)) An issuer must prominently display information on its web site about open enrollment periods and special enrollment periods applicable to its plans offered either on or off the health benefit exchange.

(a) The web site information about enrollment periods must provide a consumer with the ability to access or request and receive an application packet for enrollment at any time.

(b) The displayed information must include details written in plain language explaining what constitutes a qualifying event for special enrollment.

((~~(5)~~)) (4) Written notice of open enrollment must be provided to enrolled persons at some point between September 1st and September 30th of each year.

WSR 14-08-038
PERMANENT RULES
HEALTH CARE AUTHORITY
(Washington Apple Health)

[Filed March 26, 2014, 9:45 a.m., effective April 26, 2014]

Effective Date of Rule: Thirty-one days after filing.

Purpose: To comply with 3ESSB 5034, chapter 4, Laws of 2013, Operating budget, section 213(9), line 17, page 80, the health care authority will establish a new disproportionate share hospital payment program for sole community hospitals.

Citation of Existing Rules Affected by this Order: Amending WAC 182-550-4900.

Statutory Authority for Adoption: RCW 41.05.021.

Other Authority: 3ESSB 5034, chapter 4, Laws of 2013.

Adopted under notice filed as WSR 14-05-026 on February 10, 2014.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 1, Amended 1, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 1, Amended 1, Repealed 0.

Date Adopted: March 26, 2014.

Kevin M. Sullivan
Rules Coordinator

AMENDATORY SECTION (Amending WSR 12-20-029, filed 9/26/12, effective 10/27/12)

WAC 182-550-4900 Disproportionate share hospital (DSH) payments—General provisions. (1) As required by Section 1902 (a)(13)(A) of the Social Security Act (42 U.S.C. 1396 (a)(13)(A)) and RCW 74.09.730, the medicaid agency makes payment adjustments to eligible hospitals that serve a disproportionate number of low-income clients with special needs. These adjustments are also known as disproportionate share hospital (DSH) payments.

(2) No hospital has a legal entitlement to any DSH payment. A hospital may receive DSH payments only if:

(a) It satisfies the requirements of 42 U.S.C. 1396r-4;

(b) It satisfies all the requirements of agency rules and policies; and

(c) The legislature appropriates sufficient funds.

(3) For purposes of eligibility for DSH payments, the following definitions apply:

(a) "Base year" means the twelve-month medicare cost report year that ended during the calendar year immediately preceding the year in which the state fiscal year (SFY) for which the DSH application is being made begins.

(b) "Case mix index (CMI)" means the average of diagnosis related group (DRG) weights for all of an individual hospital's DRG-paid medicaid claims during the SFY two years prior to the SFY for which the DSH application is being made.

(c) "Charity care" means necessary hospital care rendered to persons unable to pay for the hospital services or unable to pay the deductibles or coinsurance amounts required by a third-party payer. The charity care amount is determined in accordance with the hospital's published charity care policy.

(d) "DSH reporting data file (DRDF)" means the information submitted by hospitals to the agency which the agency uses to verify medicaid client eligibility and applicable inpatient days.

(e) "Hospital-specific DSH cap" means the maximum amount of DSH payments a hospital may receive from the agency during a SFY. If a hospital does not qualify for DSH, the agency will not calculate the hospital-specific DSH cap and the hospital will not receive DSH payments.

(f) "Inpatient medicaid days" means inpatient days attributed to clients eligible for Title XIX medicaid programs. Excluded from this count are inpatient days attributed to clients eligible for state administered programs, medicare Part A, Title XXI, the refugee program and the TAKE CHARGE program.

(g) "Low income utilization rate (LIUR)" the sum of two percentages:

(i) The ratio of payments received by the hospital for patient services provided to clients under medicaid (including managed care), plus cash subsidies received by the hospital from state and local governments for patient services, divided by total payments received by the hospital from all patient categories; plus

(ii) The ratio of inpatient charity care charges less inpatient cash subsidies received by the hospital from state and local governments, less contractual allowances and discounts, divided by total charges for inpatient services.

(h) "Medicaid inpatient utilization rate (MIPUR)" is calculated as a fraction (expressed as a percentage), the numerator of which is the hospital's number of inpatient days attributable to clients who (for such days) were eligible for medical assistance during the base year (regardless of whether such clients received medical assistance on a fee-for-service basis or through a managed care entity), and the denominator of which is the total number of the hospital's inpatient days in that period. "Inpatient days" include each day in which a person (including a newborn) is an inpatient in the hospital, whether or not the person is in a specialized ward and whether or not the person remains in the hospital for lack of suitable placement elsewhere.

(i) "Medicare cost report year" means the twelve-month period included in the annual cost report a medicare-certified hospital or institutional provider is required by law to submit to its fiscal intermediary.

(j) "Nonrural hospital" means a hospital that:

(i) Is not participating in the "full cost" public hospital certified public expenditure (CPE) payment program as described in WAC 182-550-4650;

(ii) Is not designated as an "institution for mental diseases (IMD)" as defined in WAC 182-550-2600 (2)(d);

(iii) Is not a small rural hospital as defined in (n) of this subsection; and

(iv) Is located in the state of Washington or in a designated bordering city. For DSH purposes, the agency considers as nonrural any hospital located in a designated bordering city.

(k) "Obstetric services" means routine, nonemergency obstetric services and the delivery of babies.

(l) "Service year" means the one year period used to measure the costs and associated charges for hospital services. The service year may refer to a hospital's fiscal year or medicare cost report year, or to a state fiscal year.

(m) "Statewide disproportionate share hospital (DSH) cap" is the maximum amount per SFY that the state can dis-

tribute in DSH payments to all qualifying hospitals during a SFY.

(n) "Small rural hospital" means a hospital that:

(i) Is not participating in the "full cost" public hospital certified public expenditure (CPE) payment program as described in WAC 182-550-4650;

(ii) Is not designated as an "institution for mental diseases (IMD)" as defined in WAC 182-550-2600 (2)(d);

(iii) Has fewer than seventy-five acute beds;

(iv) Is located in the state of Washington; and

(v) Is located in a city or town with a nonstudent population of no more than seventeen thousand eight hundred six in calendar year 2008, as determined by population data reported by the Washington state office of financial management population of cities, towns and counties used for the allocation of state revenues. This nonstudent population is used for SFY 2010, which begins July 1, 2009. For each subsequent SFY, the nonstudent population is increased by two percent.

(o) "Uninsured patient" is a person without creditable coverage as defined in 45 C.F.R. 146.113. (An "insured patient," for DSH program purposes, is a person with creditable coverage, even if the insurer did not pay the full charges for the service.) To determine whether a service provided to an uninsured patient may be included for DSH application and calculation purposes, the agency considers only services that would have been covered and paid through the agency's fee-for-service process.

(4) To be considered for a DSH payment for each SFY, a hospital must meet the criteria in this section:

(a) DSH application requirement.

(i) Only a hospital located in the state of Washington or in a designated bordering city is eligible to apply for and receive DSH payments. An institution for mental disease (IMD) owned and operated by the state of Washington is exempt from the DSH application requirement.

(ii) A hospital that meets DSH program criteria is eligible for DSH payments in any SFY only if the agency receives the hospital's DSH application by the deadline posted on the agency's web site.

(b) DSH application review and correction period.

(i) This subsection applies only to DSH applications that meet the requirements under (a) of this subsection.

(ii) The agency reviews and may verify any information provided by the hospital on a DSH application. However, each hospital has the responsibility for ensuring its DSH application is complete and accurate.

(iii) If the agency finds that a hospital's application is incomplete or contains incorrect information, the agency will notify the hospital. The hospital must resubmit a new, corrected application. The agency must receive the new DSH application from the hospital by the deadline for corrected DSH applications posted on the agency's web site.

(iv) If a hospital finds that its application is incomplete or contains incorrect information, it may choose to submit changes and/or corrections to the DSH application. The agency must receive the corrected, complete, and signed DSH application from the hospital by the deadline for corrected DSH applications posted on the agency's web site.

(c) Official DSH application.

(i) The agency considers as official the last signed DSH application submitted by the hospital as of the deadline for corrected DSH applications. A hospital cannot change its official DSH application. Only those hospitals with an official DSH application are eligible for DSH payments.

(ii) If the agency finds that a hospital's official DSH application is incomplete or contains inaccurate information that affects the hospital's LIDSH payment(s), the hospital does not qualify for, will not receive, and cannot retain, LIDSH payment(s). Refer to WAC 182-550-5000.

(5) A hospital is a disproportionate share hospital for a specific SFY if the hospital satisfies the medicaid inpatient utilization rate (MIPUR) requirement (discussed in (a) of this subsection), and the obstetric services requirement (discussed in (b) of this subsection).

(a) The hospital must have a MIPUR of one percent or more; and

(b) Unless one of the exceptions described in (i)(A) or (B) of this subsection applies, the hospital must have at least two obstetricians who have staff privileges at the hospital and who have agreed to provide obstetric services to eligible individuals.

(i) The obstetric services requirement does not apply to a hospital that:

(A) Provides inpatient services predominantly to individuals younger than age eighteen; or

(B) Did not offer nonemergency obstetric services to the general public as of December 22, 1987, when section 1923 of the Social Security Act was enacted.

(ii) For hospitals located in rural areas, "obstetrician" means any physician with staff privileges at the hospital to perform nonemergency obstetric procedures.

(6) To determine a hospital's MIPUR, the agency uses inpatient days as follows:

(a) The total inpatient days on the official DSH application if this number is greater than the total inpatient hospital days on the medicare cost report; and

(b) The MMIS medicaid days as determined by the DSH reporting data file (DRDF) process if the Washington state medicaid days on the official DSH application do not match the eligible days on the final DRDF. If the hospital did not submit a DRDF, the agency uses paid medicaid days from MMIS.

(7) The agency administers the following DSH programs (depending on legislative budget appropriations):

(a) Low income disproportionate share hospital (LIDSH);

(b) ((~~Institution for mental diseases disproportionate share hospital (IMDDSH):~~

~~(e)~~)) Medical care services disproportionate share hospital (MCSDSH);

(((~~(d)~~))) (c) Small rural disproportionate share hospital (SRDSH);

(((~~(e)~~))) (d) Small rural indigent assistance disproportionate share hospital (SRIADSH);

(((~~(f)~~))) (e) Nonrural indigent assistance disproportionate share hospital (NRIADSH);

(((~~(g)~~))) (f) Public hospital disproportionate share hospital (PHDSH);

(((~~(h) Psychiatric indigent inpatient disproportionate share hospital (PHDSH); and~~

~~(i)~~))) (g) Children's health program disproportionate share hospital (CHPDSH); and

(h) Sole community disproportionate share hospital (SCDSH).

(8) ((~~Except for IMDDSH,~~)) The agency allows a hospital to receive any one or all of the DSH payment it qualifies for, up to the individual hospital's DSH cap (see subsection (10) of this section) and provided that total DSH payments do not exceed the statewide DSH cap. ((~~See WAC 182-550-5130 regarding IMDDSH.~~)) To be eligible for payment under multiple DSH programs, a hospital must meet:

(a) The basic requirements in subsection (5) of this section; and

(b) The eligibility requirements for the particular DSH payment, as discussed in the applicable DSH program WAC.

(9) For each SFY, the agency calculates DSH payments for each DSH program for eligible hospitals using data from each hospital's base year. The agency does not use base year data for ((~~GAUDSH and PHDSH~~)) MCSDSH and CHPDSH payments, which are calculated based on specific claims data.

(10) The agency's total DSH payments to a hospital for any given SFY cannot exceed the hospital-specific DSH cap for that SFY. Except for critical access hospitals (CAHs), the agency determines a hospital's DSH cap as follows. The agency:

(a) Uses the overall ratio of costs-to-charges (RCC) to determine costs for:

(i) Medicaid services, including medicaid services provided under managed care organization (MCO) plans; and

(ii) Uninsured charges; then

(b) Subtracts all payments related to the costs derived in (a) of this subsection; then

(c) Makes any adjustments required and/or authorized by federal statute or regulation.

(11) A CAH's DSH cap is based strictly on the cost to the hospital of providing services to medicaid clients served under MCO plans, and uninsured patients. To determine a CAH's DSH cap amount, the agency:

(a) Uses the overall RCC to determine costs for:

(i) Medicaid services provided under MCO plans; and

(ii) Uninsured charges; then

(b) Subtracts the total payments made by, or on behalf of, the medicaid clients serviced under MCO plans, and uninsured patients.

(12) In any given federal fiscal year, the total of the agency's DSH payments cannot exceed the statewide DSH cap as published in the federal register.

(13) If the agency's DSH payments for any given federal fiscal year exceed the statewide DSH cap, the agency will adjust DSH payments to each hospital to account for the amount overpaid. The agency makes adjustments in the following program order:

(a) PHDSH;

(b) SRIADSH;

(c) SRDSH;

(d) SCDSH;

(e) NRIADSH;

(((~~e~~))) (f) MCSDSH;

(((~~f~~))) (g) CHPDSH;

(((~~g) PHDSH;~~

~~(h) IMDDSH;~~))) and

(((~~i~~))) (h) LIDSH.

(14) If the statewide DSH cap is exceeded, the agency will recoup DSH payments made under the various DSH programs, in the order of precedence described in subsection (13) of this section, starting with PHDSH, until the amount exceeding the statewide DSH cap is reduced to zero. See specific program ((~~WACs~~)) regulations in the Washington Administrative Code for description of how amounts to be recouped are determined.

(15) The total amount the agency may distribute annually under a particular DSH program is capped by legislative appropriation((~~, except for PHDSH, GAUDSH, and PHDSH, which are not fixed amounts~~)). Any changes in payment amount to a hospital in a particular DSH program means a redistribution of payments within that DSH program. When necessary, the agency will recoup from hospitals to make additional payments to other hospitals within that DSH program.

(16) If funds in a specific DSH program need to be redistributed because of legislative, administrative, or other state action, only those hospitals eligible for that DSH program will be involved in the redistribution.

(a) If an individual hospital has been overpaid by a specified amount, the agency will recoup that overpayment amount from the hospital and redistribute it among the other eligible hospitals in the DSH program. The additional DSH payment to be given to each of the other hospitals from the recouped amount is proportional to each hospital's share of the particular DSH program.

(b) If an individual hospital has been underpaid by a specified amount, the agency will pay that hospital the additional amount owed by recouping from the other hospitals in the DSH program. The amount to be recouped from each of the other hospitals is proportional to each hospital's share of the particular DSH program.

(17) All information related to a hospital's DSH application is subject to audit by the agency or its designee. The agency determines the extent and timing of the audits. For example, the agency or its designee may choose to do a desk review of an individual hospital's DSH application and/or supporting documentation, or audit all hospitals that qualified for a particular DSH program after payments have been distributed under that program.

(18) If a hospital's submission of incorrect information or failure to submit correct information results in DSH overpayment to that hospital, the agency will recoup the overpayment amount, in accordance with the provisions of RCW 74.09.220 and 43.20B.695.

(19) DSH calculations use fiscal year data, and DSH payments are distributed based on funding for a specific SFY. Therefore, unless otherwise specified, changes and clarifications to DSH program rules apply for the full SFY in which the rules are adopted.

NEW SECTION

WAC 182-550-5380 Payment method—Sole community disproportionate share hospital (SCDSH). (1) The medicaid agency's sole community disproportionate share hospital (SCDSH) program is a program for in-state hospitals that:

(a) Were certified by the Centers for Medicare and Medicaid Services (CMS) as sole community hospitals as of January 1, 2013;

(b) Had less than one hundred fifty acute care licensed beds in state fiscal year (SFY) 2011;

(c) Qualify under Section 1923(d) of the Social Security Act; and

(d) Are not participating in the certified public expenditure (CPE) program.

(2) The agency pays qualifying hospitals SCDSH payments from a legislatively appropriated pool. This distribution is based on the hospital's medicaid payments. To determine the hospital's SCDSH payments, the agency:

(a) Identifies the sum of the medicaid payments to the individual hospital during the SFY two years prior to the current SFY for which DSH application is being made. These medicaid payment amounts:

(i) Are based on historical data;

(ii) Include payments from the agency; and

(iii) Include payments reported on encounter data supplied by agency-contracted managed care organizations.

(b) Divides the medicaid payment amount in (a) of this subsection by the sum of the medicaid payment amounts for all qualifying hospitals during the same period to determine the hospital's percentage; and

(c) Applies this percentage to the total dollars in the pool to determine the hospital's SCDSH payment.

(3) The SCDSH payments to a hospital eligible under this program may not exceed the hospital's DSH cap calculated according to WAC 182-550-4900(10).

(4) SCDSH payments are subject to the availability of DSH funds under the statewide DSH cap. If the statewide DSH cap is exceeded, the agency will recoup DSH payments in the order specified in WAC 182-550-4900 (13) and (14).

WSR 14-08-040

PERMANENT RULES

HEALTH CARE AUTHORITY

(Public Employees Benefits Board)

[Admin. 2014-01—Filed March 26, 2014, 11:40 a.m., effective April 26, 2014]

Effective Date of Rule: Thirty-one days after filing.

Purpose: Amends existing rules and adds two new rules in Title 182 WAC specific to the public employees benefits board (PEBB) program with the following effect:

1. Implements PEBB policy resolutions and 3ESSB 5034:

- Adding a definition for tobacco products;
- Adding a definition for tobacco use;
- Adding a definition for premium surcharge;
- Adding a definition for premium surcharge implementation period;
- Adding a new section to describe the requirements regarding the premium surcharges;
- Amending when a subscriber may change health plans;
- Amending when a subscriber may make changes to their premium payment plan;
- Adding a special open enrollment event (SOE) for change in the cost of insurance coverage because of a premium surcharge;
- Amending employer group participation requirements to require K-12 school districts, educational service districts, and employer groups to collect from their employees the premium surcharge;
- Amending when an employee may waive or return from waiving PEBB medical coverage; and
- Amending when a subscriber may enroll or remove dependents.

2. Implements PEBB policy resolutions and Executive Order 13-06:

- Adding a new section to describe the PEBB wellness incentive program eligibility and procedural requirements.

3. In addition to these specific changes, some changes were made to improve readability.

Citation of Existing Rules Affected by this Order: Amending chapters 182-08, 182-12 and 182-16 WAC.

Statutory Authority for Adoption: RCW 41.05.160.

Other Authority: 3ESSB 5034 and PEBB policy resolutions.

Adopted under notice filed as WSR 14-05-047 on February 14, 2014.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 1, Amended 11, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 1, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 3, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 2, Amended 11, Repealed 0.

Date Adopted: March 26, 2014.

Kevin M. Sullivan

Rules Coordinator

AMENDATORY SECTION (Amending WSR 13-22-019, filed 10/28/13, effective 1/1/14)

WAC 182-08-015 Definitions. The following definitions apply throughout this chapter unless the context clearly indicates other meaning:

"Affordable Care Act" means the federal Patient Protection and Affordable Care Act, P.L. 111-148, as amended by the federal Health Care and Education Reconciliation Act of 2010, P.L. 111-152, or federal regulations or guidance issued under the Affordable Care Act.

"Annual open enrollment" means an annual event set aside for a period of time when subscribers may make changes to their health plan enrollment and salary reduction elections for the following plan year. Subscribers may transfer from one health plan to another, enroll or remove dependents from coverage, enroll in or waive enrollment in a medical plan, or employees may enroll in or change their election under the DCAP, the medical FSA, or the premium payment plan.

"Authority" or "HCA" means the health care authority.

"Benefits eligible position" means any position held by an employee who is eligible for benefits under WAC 182-12-114, with the exception of employees who establish eligibility under WAC 182-12-114 (2) or (3)(a)(ii).

"Board" means the public employees benefits board established under provisions of RCW 41.05.055.

"Comprehensive employer-sponsored medical" includes insurance coverage continued by the employee or his or her dependent under COBRA. It does not include an employer's retiree coverage, with the exception of a federal retiree plan.

"Creditable coverage" means coverage that meets the definition of "creditable coverage" under RCW 48.66.020 (13)(a) and includes payment of medical and hospital benefits.

"Defer" means to postpone enrollment or interrupt enrollment in a PEBB medical insurance by a retiree or eligible survivor.

"Dependent" means a person who meets eligibility requirements in WAC 182-12-260, except that "surviving spouses, state registered domestic partners and dependent children" of emergency service personnel who are killed in the line of duty is defined in WAC 182-12-250.

"Dependent care assistance program" or "DCAP" means a benefit plan whereby state and public employees may pay for certain employment related dependent care with pretax dollars as provided in the salary reduction plan authorized in chapter 41.05 RCW.

"Director" means the director of the authority.

"Effective date of enrollment" means the first date when an enrollee is entitled to receive covered benefits.

"Employer group" means those employee organizations representing state civil service employees, counties, municipalities, political subdivisions, the Washington health benefit exchange, tribal governments, school districts, and educational service districts participating in PEBB insurance coverage under contractual agreement as described in WAC 182-08-245.

"Employing agency" means a division, department, or separate agency of state government, including an institution of higher education; a county, municipality, school district, educational service district, or other political subdivision; charter school; or a tribal government covered by chapter 41.05 RCW.

"Enrollee" means a person who meets all eligibility requirements defined in chapter 182-12 WAC, who is enrolled in PEBB benefits, and for whom applicable premium payments have been made.

"Exchange" means the Washington health benefit exchange established in RCW 43.71.020, and any other health benefit exchange established under the Affordable Care Act.

"Exchange coverage" means coverage offered by a qualified health plan through an exchange.

"Faculty" means an academic employee of an institution of higher education whose workload is not defined by work hours but whose appointment, workload, and duties directly serve the institution's academic mission; as determined under the authority of its enabling statutes, its governing body, and any applicable collective bargaining agreement.

"Federal retiree plan" means the Federal Employees' Health Benefits Program (FEHB) and Tricare.

"Health plan" or "plan" means a plan offering medical coverage or dental coverage, or both developed by the public employees benefits board and provided by a contracted vendor or self-insured plans administered by the HCA.

"Institutions of higher education" means the state public research universities, the public regional universities, The Evergreen State College, the community and technical colleges, and the state board for community and technical colleges.

"Insurance coverage" means any health plan, life insurance, long-term care insurance, LTD insurance, or property and casualty insurance administered as a PEBB benefit.

"Layoff," for purposes of this chapter, means a change in employment status due to an employer's lack of funds or an employer's organizational change.

"LTD insurance" includes basic long-term disability insurance paid for by the employing agency and long-term disability insurance offered to employees on an optional basis.

"Life insurance" includes basic life insurance paid for by the employing agency, life insurance offered to employees on an optional basis, and retiree life insurance.

"Medical flexible spending arrangement" or "medical FSA" means a benefit plan whereby state and public employees may reduce their salary before taxes to pay for medical expenses not reimbursed by insurance as provided in the salary reduction plan authorized in chapter 41.05 RCW.

"PEBB" means the public employees benefits board.

"PEBB appeals committee" means the committee that considers appeals relating to the administration of PEBB benefits by the PEBB program. The director has delegated the authority to hear appeals at the level below an administrative hearing to the PEBB appeals committee.

"PEBB benefits" means one or more insurance coverages or other employee benefits administered by the PEBB program within the health care authority.

"PEBB program" means the program within the HCA which administers insurance and other benefits for eligible employees (as defined in WAC 182-12-114), eligible retired

and disabled employees (as defined in WAC 182-12-171), eligible dependents (as defined in WAC 182-12-250 and 182-12-260) and others as defined in RCW 41.05.011.

"Premium payment plan" means a benefit plan whereby state and public employees may pay their share of group health plan premiums with pretax dollars as provided in the salary reduction plan.

"Premium surcharge" means a payment required from a subscriber, in addition to the subscriber's premium contribution, due to an enrollee's tobacco use or a subscriber's spouse or domestic partner choosing not to enroll in his or her employer-based group medical insurance when:

• Premiums are less than ninety-five percent of Uniform Medical Plan (UMP) Classic premiums; and

• The actuarial value of benefits is at least ninety-five percent of the actuarial value of UMP Classic benefits.

"Premium surcharge implementation period" means the period from April 1 through May 15, 2014, when subscribers may change their health plan enrollment and premium payment plan election to be effective July 1, 2014. Subscribers may change health plans and enroll or remove dependents from coverage. Additionally, employees may enroll in or waive enrollment in a medical plan and enroll in or change their premium payment plan election.

"Qualified health plan" means a medical plan that is certified to be offered through an exchange.

"Salary reduction plan" means a benefit plan whereby state and public employees may agree to a reduction of salary on a pretax basis to participate in the DCAP, medical FSA, or premium payment plan as authorized in chapter 41.05 RCW.

"Seasonal employee" means an employee hired to work during a recurring, annual season with a duration of three months or more, and anticipated to return each season to perform similar work.

"Special open enrollment" means a period of time when subscribers may make changes to their health plan enrollment and salary reduction elections outside of the annual open enrollment period when specific life events occur. Subscribers may ((~~transfer from one~~)) change health plans ((~~to another,~~)) and enroll or remove dependents from coverage. Additionally, employees may enroll in or waive enrollment in a medical plan, and ((~~employees~~)) may enroll in or change their election under the DCAP, medical FSA, or the premium payment plan. For special open enrollment events as they relate to specific PEBB benefits, see WAC 182-08-198, 182-08-199, 182-12-128, and 182-12-262.

"State agency" means an office, department, board, commission, institution, or other separate unit or division, however designated, of the state government and all personnel thereof. It includes the legislature, executive branch, and agencies or courts within the judicial branch, as well as institutions of higher education and any unit of state government established by law.

"Subscriber" means the employee, retiree, COBRA beneficiary or eligible survivor who has been designated by the HCA as the individual to whom the HCA and contracted vendors will issue all notices, information, requests and premium bills on behalf of enrollees.

"Termination of the employment relationship" means that an employee resigns or an employee is terminated and the employing agency has no anticipation that the employee will be rehired.

"Tobacco products" means any product made with or derived from tobacco that is intended for human consumption, including any component, part, or accessory of a tobacco product. This includes, but is not limited to, cigars, cigarettes, chewing tobacco, snuff, and other tobacco products. It does not include United States Food and Drug Administration (FDA) approved quit aids or e-cigarettes until their tobacco related status is determined by the FDA.

"Tobacco use" means any use of tobacco products within the past two months. Tobacco use, however, does not include the religious or ceremonial use of tobacco.

"Tribal government" means an Indian tribal government as defined in Section 3(32) of the Employee Retirement Income Security Act of 1974 (ERISA), as amended, or an agency or instrumentality of the tribal government, that has government offices principally located in this state.

"Waive" means to interrupt an eligible employee's enrollment in a PEBB health plan because the employee is enrolled in other comprehensive group medical coverage as required under WAC 182-12-128, or is on approved educational leave and obtains comprehensive group health plan coverage as allowed under WAC 182-12-136.

NEW SECTION

WAC 182-08-185 What are the requirements regarding premium surcharges? (1) A subscriber's account will incur a premium surcharge when any enrollee engages in tobacco use.

(a) A subscriber must attest to whether any enrollee on his or her PEBB medical plan engages in tobacco use. The subscriber must attest during the following times:

(i) During the premium surcharge implementation period from April 1 through May 15, 2014;

(ii) No later than thirty-one days after an employee is newly eligible or regains eligibility for the employer contribution toward PEBB benefits as described in WAC 182-08-197;

(iii) When there is a change in the tobacco use status of any enrollee on the subscriber's PEBB medical plan; and

(iv) Whenever a dependent is enrolled in PEBB medical coverage on the subscriber's account.

Exception: (1) A subscriber enrolled in both medicare parts A and B and in the medicare risk pool is not required to provide an attestation and no premium surcharge will be imposed on the subscriber's account.
(2) An employee who waives medical enrollment according to WAC 182-12-128 is not required to provide an attestation and no premium surcharge will be applied to his or her account until the employee enrolls in a PEBB medical plan.

(b) A subscriber's account will incur a premium surcharge when a subscriber fails to attest to the tobacco use status of all enrollees as described in subsection (1)(a) of this section.

Note: A subscriber, who failed to submit or submitted an inaccurate attestation, may submit an attestation by August 29, 2014, to seek reimbursement for tobacco use premium surcharges imposed in July and August of 2014.

(c) The PEBB program will provide a reasonable alternative for enrollees who use tobacco products so a subscriber can avoid the tobacco use premium surcharge:

(i) All enrollees have access to a free tobacco cessation program through their medical plan. A subscriber can avoid the surcharge if enrollees who use tobacco products enroll in their plan's tobacco cessation program.

(ii) The PEBB program will work with a subscriber to accommodate a physician's recommendation that addresses an enrollee's use of tobacco products.

(iii) A subscriber may contact the PEBB program for information on how to avoid the tobacco use premium surcharge.

(2) A subscriber's account will incur a premium surcharge if an enrolled spouse or domestic partner chose not to enroll in employer-based group medical insurance that has premiums less than ninety-five percent of the UMP Classic's premiums and benefits with an actuarial value of at least ninety-five percent of the actuarial value of the UMP Classic's benefits.

(a) A subscriber who enrolls a spouse or domestic partner must attest during the following times:

(i) During the premium surcharge implementation period from April 1 through May 15, 2014;

(ii) No later than thirty-one days after the employee is newly eligible or regains eligibility for the employer contribution towards PEBB benefits as described in WAC 182-08-197;

(iii) Whenever a spouse or domestic partner is enrolled in medical coverage on the subscriber's account;

(iv) During the annual open enrollment; or

(v) When there is a change in the spouse's or domestic partner's employer-based group medical insurance.

Exception: (1) A subscriber enrolled in both medicare parts A and B and in the medicare risk pool is not required to provide an attestation and no premium surcharge will be imposed on the subscriber's account.

(2) An employee who waives medical enrollment according to WAC 182-12-128 is not required to provide an attestation and no premium surcharge will be applied to his or her account until the employee enrolls in a PEBB medical plan.

(3) An employee who covers his or her spouse or domestic partner who has waived his or her own PEBB medical must attest, but a premium surcharge will not be applied.

(b) A premium surcharge will be applied to the account of subscribers who do not attest as described in (a) of this subsection.

Note: A subscriber, who failed to submit or submitted an inaccurate attestation, may submit an attestation by August 29, 2014, to seek reimbursement for the WAC 182-08-185(2) premium surcharges imposed in July and August of 2014.

AMENDATORY SECTION (Amending WSR 13-22-019, filed 10/28/13, effective 1/1/14)

WAC 182-08-198 When may a subscriber change health plans? Subscribers may change health plans at the following times:

(1) **During annual open enrollment:** Subscribers may change health plans during the annual open enrollment. The subscriber must submit the required enrollment forms to change his or her health plan no later than the end of the annual open enrollment. Enrollment in the new health plan will begin January 1st of the following year.

(2) **During a special open enrollment:** Subscribers may change health plans outside of the annual open enrollment if a special open enrollment event occurs. The change in enrollment must be allowable under Internal Revenue Code (IRC) and correspond to and be consistent with the event that creates the special open enrollment for the subscriber, the subscriber's dependent, or both. To make a health plan change, the subscriber must submit the required enrollment forms (and a completed disenrollment form, if required) no later than sixty days after the event occurs. Employees submit the enrollment forms to their employing agency. All other subscribers submit the enrollment forms to the public employees benefits board (PEBB) program. Subscribers must provide evidence of the event that created the special open enrollment. New health plan coverage will begin the first day of the month following the later of the event date or the date the form is received. If that day is the first of the month, the change in enrollment begins on that day. If the special open enrollment is due to the birth, adoption, or assumption of legal obligation for total or partial support in anticipation of adoption of a child, health plan coverage will begin the month in which the birth, adoption, or assumption of legal obligation for total or partial support in anticipation of adoption occurs. Any one of the following events may create a special open enrollment:

(a) Subscriber acquires a new dependent due to:

(i) Marriage or registering a domestic partnership;

(ii) Birth, adoption or when the subscriber has assumed a legal obligation for total or partial support in anticipation of adoption;

(iii) A child becoming eligible as an extended dependent through legal custody or legal guardianship; or

(iv) A child becoming eligible as a dependent with a disability;

(b) Subscriber or a subscriber's dependent loses other coverage under a group health plan or through health insurance coverage, as defined by the Health Insurance Portability and Accountability Act (HIPAA);

(c) Subscriber or a subscriber's dependent has a change in employment status that affects the subscriber's or the subscriber's dependent's eligibility for their employer contribution toward group health coverage;

(d) Subscriber or a subscriber's dependent has a change in residence that affects health plan availability. If the subscriber moves and the subscriber's current health plan is not available in the new location the subscriber must select a new health plan. If the subscriber does not select a new health plan, the PEBB program may change the subscriber's health plan as described in WAC 182-08-196(2);

(e) A court order or national medical support notice (see also WAC 182-12-263) requires the subscriber or any other individual to provide insurance coverage for an eligible dependent of the subscriber (a former spouse or former registered domestic partner is not an eligible dependent);

(f) Subscriber or a subscriber's dependent becomes entitled to coverage under medicaid or a state children's health

insurance program (CHIP), or the subscriber or a subscriber's dependent loses eligibility for coverage under medicaid or CHIP;

(g) Subscriber or a subscriber's dependent becomes eligible for state premium assistance subsidy for PEBB health plan coverage from medicaid or a state children's health insurance program (CHIP);

(h) Subscriber or a subscriber's dependent becomes entitled to coverage under medicare, or the subscriber or a subscriber's dependent loses eligibility for coverage under medicare, or enrolls in or cancels enrollment in a medicare Part D plan. If the subscriber's current health plan becomes unavailable due to the subscriber's or a subscriber's dependent's entitlement to medicare, the subscriber must select a new health plan as described in WAC 182-08-196(1);

(i) Subscriber or a subscriber's dependent's current health plan becomes unavailable because the subscriber or enrolled dependent is no longer eligible for a health savings account (HSA). The health care authority (HCA) may require evidence that the subscriber or subscriber's dependent is no longer eligible for an HSA;

(j) Subscriber or a subscriber's dependent experiences a disruption of care that could function as a reduction in benefits for the subscriber or the subscriber's dependent for a specific condition or ongoing course of treatment. The subscriber may not change their health plan election if the subscriber's or dependent's physician stops participation with the subscriber's health plan unless the PEBB program determines that a continuity of care issue exists. The PEBB program will consider but not limit its consideration to the following:

(i) Active cancer treatment such as chemotherapy or radiation therapy for up to ninety days or until medically stable; or

(ii) Transplant within the last twelve months; or

(iii) Scheduled surgery within the next sixty days (elective procedures within the next sixty days do not qualify for continuity of care); or

(iv) Recent major surgery still within the postoperative period of up to eight weeks; or

(v) Third trimester of pregnancy.

If the employee is having premiums taken from payroll on a pretax basis, a plan change will not be approved if it would conflict with provisions of the salary reduction plan authorized under RCW 41.05.300.

(3) **During the premium surcharge implementation period**: Subscribers may change health plans during the premium surcharge implementation period from April 1 through May 15, 2014. The subscriber must submit the required enrollment forms to change his or her health plan no later than May 15, 2014. Enrollment in the new health plan will begin July 1, 2014.

AMENDATORY SECTION (Amending WSR 13-22-019, filed 10/28/13, effective 1/1/14)

WAC 182-08-199 When may an employee enroll in or change his or her election under the premium payment plan, medical flexible spending arrangement (FSA) or dependent care assistance program (DCAP)? An employee who is eligible to participate in the state's salary reduction plan as described in WAC 182-12-116 may enroll in or change his or her election under the premium payment plan, medical flexible spending arrangement (FSA), or dependent care assistance program (DCAP) at the following times:

(1) When newly eligible under WAC 182-12-114, as described in WAC 182-08-197(1).

(2) **During annual open enrollment:** An eligible employee may enroll in or change his or her election under the state's premium payment plan, medical FSA or DCAP during the annual open enrollment. The employee must submit, in paper or online, the required enrollment form to enroll or reenroll no later than the last day of the annual open enrollment. The enrollment or new election will be effective January 1st of the following year.

(3) **During a special open enrollment:** An employee may enroll or change his or her election under the state's premium payment plan, medical FSA or DCAP outside of the annual open enrollment if a special open enrollment event occurs. The enrollment or change in ((~~enrollment~~)) election must be allowable under Internal Revenue Code (IRC) and correspond to and be consistent with the event that creates the special open enrollment. To make a change or enroll, the employee must submit the required enrollment forms as instructed on the forms no later than sixty days after the event occurs. The employee must provide evidence of the event that created the special open enrollment.

For purposes of this section, an eligible dependent includes any person who qualifies as a dependent of the employee for tax purposes under IRC Section 152 without regard to the income limitations of that section. It does not include a state registered domestic partner unless the domestic partner otherwise qualifies as a dependent for tax purposes under IRC Section 152.

(a) **Premium payment plan.** An employee may enroll or change his or her election under the premium payment plan when any of the following special open enrollment events occur, if the requested change corresponds to and is consistent with the event. The enrollment or change in election will be effective the first day of the month following the later of the event date or the date the form is received. If that day is the first of the month, the enrollment or change in ((~~enrollment~~)) election begins on that day. If the special open enrollment is due to the birth, adoption or assumption of legal obligation for total or partial support in anticipation of adoption of a child, the enrollment or change in election will begin the first of the month in which the event occurs.

(i) Employee acquires a new dependent due to:

• Marriage;

• Registering a domestic partnership when the dependent is a tax dependent of the subscriber;

• Birth, adoption, or when the subscriber has assumed a legal obligation for total or partial support in anticipation of adoption;

• A child becoming eligible as an extended dependent through legal custody or legal guardianship; or

• A child becoming eligible as a dependent with a disability;

(ii) Employee's dependent no longer meets public employees benefits board (PEBB) eligibility criteria because:

• Employee has a change in marital status;

• Employee's domestic partnership with a domestic partner who is a tax dependent is dissolved or terminated;

• An eligible dependent child turns age twenty-six or otherwise does not meet dependent child eligibility criteria;

• An eligible dependent ceases to be eligible as an extended dependent or as a dependent with a disability; or

• An eligible dependent dies.

(iii) Employee or an employee's dependent loses other coverage under a group health plan or through health insurance coverage, as defined by the Health Insurance Portability and Accountability Act (HIPAA);

(iv) Employee or an employee's dependent has a change in employment status that affects the employee's or a dependent's eligibility for their employer contribution toward group health coverage;

(v) Employee or an employee's dependent has a change in enrollment under another employer plan during its annual open enrollment that does not align with the PEBB program's annual open enrollment;

(vi) Employee or an employee's dependent has a change in residence that affects health plan availability;

(vii) Employee's dependent has a change in residence from outside of the United States to within the United States;

(viii) A court order or national medical support notice (see also WAC 182-12-263) requires the employee or any other individual to provide insurance coverage for an eligible dependent of the subscriber (a former spouse or former registered domestic partner is not an eligible dependent);

(ix) Employee or an employee's dependent becomes entitled to coverage under medicaid or a state children's health insurance program (CHIP), or the subscriber or a subscriber's dependent loses eligibility for coverage under medicaid or CHIP;

(x) Employee or an employee's dependent becomes eligible for state premium assistance subsidy for PEBB health plan coverage from medicaid or a state children's health insurance program (CHIP);

(xi) Employee or an employee's dependent becomes entitled to coverage under medicare, or the employee or an employee's dependent loses eligibility for coverage under medicare, or enrolls in or cancels enrollment in a medicare Part D plan;

(xii) Employee or an employee's dependent's current health plan becomes unavailable because the employee or enrolled dependent is no longer eligible for a health savings account (HSA). The health care authority (HCA) may require evidence that the employee or employee's dependent is no longer eligible for an HSA;

(xiii) Employee has a change in the cost of insurance coverage because of a premium surcharge;

(xiv) Employee or an employee's dependent experiences a disruption of care that could function as a reduction in benefits for the employee or the employee's dependent for a specific condition or ongoing course of treatment. The employee may not change their health plan election if the employee's or dependent's physician stops participation with the employee's health plan unless the PEBB program determines that a continuity of care issue exists. The PEBB program will consider but not limit its consideration to the following:

• Active cancer treatment such as chemotherapy or radiation therapy for up to ninety days or until medically stable; or

• Transplant within the last twelve months; or

• Scheduled surgery within the next sixty days (elective procedures within the next sixty days do not qualify for continuity of care); or

• Recent major surgery still within the postoperative period of up to eight weeks; or

• Third trimester of pregnancy.

If the employee is having premiums taken from payroll on a pretax basis, a plan change will not be approved if it would conflict with provisions of the salary reduction plan authorized under RCW 41.05.300.

(b) **Flexible spending account (FSA).** An employee may enroll or change his or her election under the medical FSA when any one of the following special open enrollment events occur, if the requested change corresponds to and is consistent with the event. The enrollment or change in election will be effective the first day of the month following approval by the FSA administrator.

(i) Employee acquires a new dependent due to:

• Marriage;

• Registering a domestic partnership if the domestic partner qualifies as a tax dependent of the subscriber;

• Birth, adoption, or when the subscriber has assumed a legal obligation for total or partial support in anticipation of adoption;

• A child becoming eligible as an extended dependent through legal custody or legal guardianship; or

• A child becoming eligible as a dependent with a disability.

(ii) Employee's dependent no longer meets PEBB eligibility criteria because:

• Employee has a change in marital status;

• Employee's domestic partnership with a domestic partner who qualifies as a tax dependent is dissolved or terminated;

• An eligible dependent child turns age twenty-six or otherwise does not meet dependent child eligibility criteria;

• An eligible dependent ceases to be eligible as an extended dependent or as a dependent with a disability; or

• An eligible dependent dies.

(iii) Employee or an employee's dependent loses other coverage under a group health plan or through health insurance coverage, as defined by the Health Insurance Portability and Accountability Act (HIPAA);

(iv) Employee or an employee's dependent has a change in employment status that affects the employee's or a dependent's eligibility for the FSA;

(v) A court order or national medical support notice requires the employee or any other individual to provide insurance coverage for an eligible dependent of the subscriber (a former spouse or former registered domestic partner is not an eligible dependent);

(vi) Employee or an employee's dependent becomes entitled to coverage under medicaid or a state children's health insurance program (CHIP), or the employee or an employee's dependent loses eligibility for coverage under medicaid or CHIP;

(vii) Employee or an employee's dependent becomes entitled to coverage under medicare.

(c) **Dependent care assistance program (DCAP).** An employee may enroll or change his or her election under the DCAP when any one of the following special open enrollment events occur, if the requested change corresponds to and is consistent with the event. The enrollment or change in election will be effective the first day of the month following approval by the DCAP administrator.

(i) Employee acquires a new dependent due to:

• Marriage;

• Registering a domestic partnership if the domestic partner qualifies as a tax dependent of the subscriber;

• Birth, adoption, or when the subscriber has assumed a legal obligation for total or partial support in anticipation of adoption;

• A child becoming eligible as an extended dependent through legal custody or legal guardianship; or

• A child becoming eligible as a dependent with a disability.

(ii) Employee or an employee's dependent has a change in employment status that affects the employee's or a dependent's eligibility for DCAP;

(iii) Employee or an employee's dependent has a change in enrollment under another employer plan during its annual open enrollment that does not align with the PEBB program's annual open enrollment;

(iv) Employee changes dependent care provider; the change to DCAP can reflect the cost of the new provider;

(v) Employee or the employee's spouse experiences a change in the number of qualifying individuals as defined in IRC Section 21 (b)(1);

(vi) Employee's dependent care provider imposes a change in the cost of dependent care; employee may make a change in the DCAP to reflect the new cost if the dependent care provider is not a relative as defined in Section 152 (d)(1) through (5), incorporating the rules of Section 152 (b)(1) through (3) of the IRC.

(4) **During the premium surcharge implementation period**: An eligible employee may enroll in or change his or her election under the state's premium payment plan from April 1 through May 15, 2014. The employee must submit, in paper or online, the required enrollment form to enroll or change his or her election no later than May 15, 2014. The enrollment or change in election will begin July 1, 2014.

AMENDATORY SECTION (Amending WSR 13-22-019, filed 10/28/13, effective 1/1/14)

WAC 182-08-245 Employer group participation requirements. This section applies to an employer group as defined in WAC 182-08-015 that is approved to purchase insurance for its employees through a contract with the health care authority (HCA).

(1) Prior to enrollment of employees in public employees benefits board (PEBB) insurance coverage, the employer group must:

(a) Remit to the authority the required start-up fee in the amount publicized by the PEBB program;

(b) Sign a contract with the authority;

(c) Determine employee and dependent eligibility and terms of enrollment for insurance coverage in accordance with the criteria outlined in the employer group's contract with the authority;

(d) Determine eligibility in order to ensure the PEBB program's continued status as a governmental plan under Section 3(32) of the Employee Retirement Income Security Act of 1974 (ERISA) as amended. This means that only employees whose services are substantially all in the performance of essential governmental functions but not in the performance of commercial activities, whether or not those activities qualify as essential governmental functions may be considered eligible by the employer group; and

(e) Ensure PEBB health plans are the only employer-sponsored health plans available to groups of employees eligible for PEBB insurance coverage under the contract.

(2) Pay premiums in accordance with its contract with the authority based on the following premium structure:

(a) The premium rate structure for K-12 school districts and educational service districts will be a composite rate equal to the rate charged to state agencies plus an amount equal to the employee premium based on health plan choice and family enrollment. Districts must collect an amount equal to the premium surcharge(s) applied to an employee's account by the authority from their employees and include the funds in their payment to the authority.

Exception: The authority will allow districts that enrolled prior to September 1, 2002, to continue participation based on a tiered rate structure. The authority may require the district to change to a composite rate structure with ninety days advance written notice.

(b) The premium rate structure for employer groups other than districts described in (a) of this subsection will be a tiered rate based on health plan choice and family enrollment. Employer groups must collect an amount equal to the premium surcharge(s) applied to an employee's account by the authority from their employees and include the funds in their payment to the authority.

Exception: The authority will allow employer groups that enrolled prior to January 1, 1996, to continue to participate based on a composite rate structure. The authority may require the employer group to change to a tiered rate structure with ninety days advance written notice.

(3) If an employer group wants to make subsequent changes to the contract, the changes must be submitted to the authority for approval.

(4) The employer group must maintain participation in PEBB insurance coverage for at least one full year. An employer group may only end participation at the end of a plan year unless the authority approves a mid-year termination. To end participation, an employer group must provide written notice to the PEBB program at least sixty days before the requested termination date.

(5) Upon approval to purchase insurance through a contract with the authority, the employer group must provide a list of employees and dependents that are enrolled in COBRA benefits and the remaining number of months available to them based on their qualifying event. These employees and dependents may enroll in PEBB medical and dental as

COBRA enrollees for the remainder of the months available to them based on their qualifying event.

(6) Enrollees in PEBB insurance coverage under one of the continuation of coverage provisions allowed under chapter 182-12 WAC or retirees included in the transfer unit as allowed under WAC 182-08-237 cease to be eligible as of the last day of the contract and may not continue enrollment beyond the end of the month in which the contract is terminated.

Exception: If an employer group, other than a school district or educational service district, ends participation, retired and disabled employees who began participation before September 15, 1991, are eligible to continue enrollment in PEBB insurance coverage if the employee continues to meet the procedural and eligibility requirements of WAC 182-12-171. Employees who enrolled after September 15, 1991, who are enrolled in PEBB retiree insurance cease to be eligible under WAC 182-12-171, but may continue health plan enrollment under COBRA (see WAC 182-12-146).

AMENDATORY SECTION (Amending WSR 13-22-019, filed 10/28/13, effective 1/1/14)

WAC 182-12-109 Definitions. The following definitions apply throughout this chapter unless the context clearly indicates another meaning:

"Affordable Care Act" means the federal Patient Protection and Affordable Care Act, P.L. 111-148, as amended by the federal Health Care and Education Reconciliation Act of 2010, P.L. 111-152, or federal regulations or guidance issued under the Affordable Care Act.

"Annual open enrollment" means an annual event set aside for a period of time when subscribers may make changes to their health plan enrollment and salary reduction elections for the following plan year. Subscribers may transfer from one health plan to another, enroll or remove dependents from coverage, enroll or waive enrollment in a medical plan, or employees may enroll in or change their election under the DCAP, the medical FSA, or the premium payment plan.

"Authority" or "HCA" means the health care authority.

"Benefits eligible position" means any position held by an employee who is eligible for benefits under WAC 182-12-114, with the exception of employees who establish eligibility under WAC 182-12-114 (2) or (3)(a)(ii).

"Board" means the public employees benefits board established under provisions of RCW 41.05.055.

"Comprehensive employer-sponsored medical" includes insurance coverage continued by the employee or his or her dependent under COBRA. It does not include an employer's retiree coverage, with the exception of a federal retiree plan.

"Creditable coverage" means coverage that meets the definition of "creditable coverage" under RCW 48.66.020 (13)(a) and includes payment of medical and hospital benefits.

"Defer" means to postpone enrollment or interrupt enrollment in a PEBB medical insurance by a retiree or eligible survivor.

"Dependent" means a person who meets eligibility requirements in WAC 182-12-260, except that "surviving spouses, state registered domestic partners, and dependent children" of emergency service personnel who are killed in the line of duty is defined in WAC 182-12-250.

"Dependent care assistance program" or "DCAP" means a benefit plan whereby state and public employees may pay for certain employment related dependent care with pretax dollars as provided in the salary reduction plan authorized in chapter 41.05 RCW.

"Director" means the director of the authority.

"Effective date of enrollment" means the first date when an enrollee is entitled to receive covered benefits.

"Employer group" means those employee organizations representing state civil service employees, counties, municipalities, political subdivisions, the Washington health benefit exchange, tribal governments, school districts, and educational service districts participating in PEBB insurance coverage under contractual agreement as described in WAC 182-08-245.

"Employing agency" means a division, department, or separate agency of state government, including an institution of higher education; a county, municipality, school district, educational service district, or other political subdivision; charter school; or a tribal government covered by chapter 41.05 RCW.

"Enrollee" means a person who meets all eligibility requirements defined in chapter 182-12 WAC, who is enrolled in PEBB benefits, and for whom applicable premium payments have been made.

"Exchange" means the Washington health benefit exchange established in RCW 43.71.020, and any other health benefit exchange established under the Affordable Care Act.

"Exchange coverage" means coverage offered by a qualified health plan through an exchange.

"Faculty" means an academic employee of an institution of higher education whose workload is not defined by work hours but whose appointment, workload, and duties directly serve the institution's academic mission, as determined under the authority of its enabling statutes, its governing body, and any applicable collective bargaining agreement.

"Federal Retiree Plan" means the Federal Employees Health Benefits program (FEHB) and Tricare.

"Health plan" or "plan" means a plan offering medical coverage or dental coverage, or both developed by the public employees benefits board and provided by a contracted vendor or self-insured plans administered by the HCA.

"Institutions of higher education" means the state public research universities, the public regional universities, The Evergreen State College, the community and technical colleges, and the state board for community and technical colleges.

"Insurance coverage" means any health plan, life insurance, long-term care insurance, LTD insurance, or property and casualty insurance administered as a PEBB benefit.

"Layoff," for purposes of this chapter, means a change in employment status due to an employer's lack of funds or an employer's organizational change.

"Life insurance" includes basic life insurance paid for by the employing agency, life insurance offered to employees on an optional basis, and retiree life insurance.

"LTD insurance" includes basic long-term disability insurance paid for by the employing agency and long-term disability insurance offered to employees on an optional basis.

"Medical flexible spending arrangement" or "medical FSA" means a benefit plan whereby state and public employees may reduce their salary before taxes to pay for medical expenses not reimbursed by insurance as provided in the salary reduction plan authorized in chapter 41.05 RCW.

"PEBB" means the public employees benefits board.

"PEBB appeals committee" means the committee that considers appeals relating to the administration of PEBB benefits by the PEBB program. The director has delegated the authority to hear appeals at the level below an administrative hearing to the PEBB appeals committee.

"PEBB benefits" means one or more insurance coverages or other employee benefits administered by the PEBB program within the health care authority.

"PEBB program" means the program within the HCA which administers insurance and other benefits for eligible employees (as defined in WAC 182-12-114), eligible retired and disabled employees (as defined in WAC 182-12-171), eligible dependents (as defined in WAC 182-12-250 and 182-12-260) and others as defined in RCW 41.05.011.

"Premium payment plan" means a benefit plan whereby state and public employees may pay their share of group health plan premiums with pretax dollars as provided in the salary reduction plan.

"Premium surcharge" means a payment required from a subscriber, in addition to the subscriber's premium contribution, due to an enrollee's tobacco use or a subscriber's spouse or domestic partner choosing not to enroll in his or her employer-based group medical insurance when:

• Premiums are less than ninety-five percent of Uniform Medical Plan (UMP) Classic premiums; and

• The actuarial value of benefits is at least ninety-five percent of the actuarial value of UMP Classic benefits.

"Premium surcharge implementation period" means the period from April 1 through May 15, 2014, when subscribers may change their health plan enrollment and premium payment plan election to be effective July 1, 2014. Subscribers may change health plans and enroll or remove dependents from coverage. Additionally, employees may enroll in or waive enrollment in a medical plan and enroll in or change their premium payment plan election.

"Qualified health plan" means a medical plan that is certified to be offered through an exchange.

"Salary reduction plan" means a benefit plan whereby state and public employees may agree to a reduction of salary on a pretax basis to participate in the DCAP, medical FSA, or premium payment plan as authorized in chapter 41.05 RCW.

"Seasonal employee" means an employee hired to work during a recurring, annual season with a duration of three months or more, and anticipated to return each season to perform similar work.

"Special open enrollment" means a period of time when subscribers may make changes to their health plan enrollment and salary reduction elections outside of the annual open enrollment period when specific life events occur. Subscribers may ((~~transfer from one~~)) change health plans ((~~to another,~~)) and enroll or remove dependents from coverage. Additionally, employees may enroll in or waive enrollment in a medical plan, ((~~or employees~~)) and may enroll in or change their election under the DCAP, medical FSA, or the premium payment plan. For special open enrollment events as they relate to specific PEBB benefits, see WAC 182-08-198, 182-08-199, 182-12-128, and 182-12-262.

"State agency" means an office, department, board, commission, institution, or other separate unit or division, however designated, of the state government and all personnel thereof. It includes the legislature, executive branch, and agencies or courts within the judicial branch, as well as institutions of higher education and any unit of state government established by law.

"Subscriber" means the employee, retiree, COBRA beneficiary or eligible survivor who has been designated by the HCA as the individual to whom the HCA and contracted vendors will issue all notices, information, requests and premium bills on behalf of enrollees.

"Termination of the employment relationship" means that an employee resigns or an employee is terminated and the employing agency has no anticipation that the employee will be rehired.

"Tobacco products" means any product made with or derived from tobacco that is intended for human consumption, including any component, part, or accessory of a tobacco product. This includes, but is not limited to, cigars, cigarettes, chewing tobacco, snuff, and other tobacco products. It does not include United States Food and Drug Administration (FDA) approved quit aids or e-cigarettes until their tobacco related status is determined by the FDA.

"Tobacco use" means any use of tobacco products within the past two months. Tobacco use, however, does not include the religious or ceremonial use of tobacco.

"Tribal government" means an Indian tribal government as defined in Section 3(32) of the Employee Retirement Income Security Act of 1974 (ERISA), as amended, or an agency or instrumentality of the tribal government, that has government offices principally located in this state.

"Waive" means to interrupt an eligible employee's enrollment in a PEBB health plan because the employee is enrolled in other comprehensive group medical coverage as required under WAC 182-12-128, or is on approved educational leave and obtains comprehensive group health plan coverage as allowed under WAC 182-12-136.

AMENDATORY SECTION (Amending WSR 13-22-019, filed 10/28/13, effective 1/1/14)

WAC 182-12-128 When may an employee waive or enroll in medical plans? Employees must enroll in dental, basic life and basic long-term disability insurance (unless the employing agency does not participate in these public employees benefits board (PEBB) insurance coverages). However, employees may waive PEBB medical if they have other comprehensive group medical coverage.

(1) Employees may waive enrollment in PEBB medical by submitting the required enrollment form to their employing agency during the following times:

(a) **When the employee becomes eligible:** Employees may waive medical when they become eligible for PEBB benefits. Employees must indicate they are waiving medical on the required enrollment form they submit to their employing agency no later than thirty-one days after the date they become eligible (see WAC 182-08-197). Medical will be waived as of the date the employee becomes eligible for PEBB benefits.

(b) **During the annual open enrollment:** Employees may waive medical during the annual open enrollment if they submit the required enrollment form to their employing agency before the end of the annual open enrollment. Medical will be waived beginning January 1st of the following year.

(c) **During a special open enrollment:** Employees may waive medical during a special open enrollment as described in subsection (4) of this section.

(d) **During the premium surcharge implementation period:** Employees may waive PEBB medical coverage during the premium surcharge implementation period from April 1 through May 15, 2014. The employee must submit the required enrollment form no later than May 15, 2014. Medical coverage will be waived beginning July 1, 2014.

(2) If an employee waives medical, the employee's eligible dependents may not be enrolled in medical.

(3) Once medical is waived, enrollment is only allowed during the following times:

(a) During the annual open enrollment;

(b) During a special open enrollment created by an event that allows for enrollment outside of the annual open enrollment as described in subsection (4) of this section. In addition to the required forms, the PEBB program will require the employee to provide evidence of eligibility and evidence of the event that creates a special open enrollment;

(c) During the premium surcharge implementation period from April 1 through May 15, 2014. The employee must submit the required enrollment forms no later than May 15, 2014. Enrollment in medical will begin July 1, 2014.

(4) **Special open enrollment:** Employees may waive enrollment in medical or enroll in medical if a special open enrollment event occurs. The change in enrollment must be allowable under the Internal Revenue Code (IRC) and correspond to and be consistent with the event that creates the special open enrollment for the employee, the employee's dependent, or both. Employees must provide evidence of the event that created the special open enrollment. Any one of the following events may create a special open enrollment:

(a) Employee acquires a new dependent due to:

(i) Marriage or registering a domestic partnership;

(ii) Birth, adoption or when the subscriber has assumed a legal obligation for total or partial support in anticipation of adoption;

(iii) A child becoming eligible as an extended dependent through legal custody or legal guardianship; or

(iv) A child becoming eligible as a dependent with a disability;

(b) Employee or an employee's dependent loses other coverage under a group health plan or through health insurance coverage, as defined by the Health Insurance Portability and Accountability Act (HIPAA);

(c) Employee or an employee's dependent has a change in employment status that affects the employee's or employee's dependent's eligibility for their employer contribution toward group health coverage;

(d) Employee or an employee's dependent has a change in enrollment under another employer group plan during its annual open enrollment that does not align with the PEBB program's annual open enrollment;

(e) Employee's dependent has a change in residence from outside of the United States to within the United States;

(f) A court order or national medical support notice (see also WAC 182-12-263) requires the employee or any other individual to provide insurance coverage for an eligible dependent of the subscriber (a former spouse or former registered domestic partner is not an eligible dependent);

(g) Employee or an employee's dependent becomes entitled to coverage under medicaid or a state children's health insurance program (CHIP), or the employee or an employee's dependent loses eligibility for coverage under medicaid or CHIP;

(h) Employee or an employee's dependent becomes eligible for state premium assistance subsidy for PEBB health plan coverage from medicaid or a state children's health insurance program (CHIP).

To waive or enroll during a special open enrollment, the employee must submit the required forms to his or her employing agency no later than sixty days after the event that creates the special open enrollment.

Medical will be waived the end of the month following the later of the event date or the date the form is received. If the later day is the first of the month, medical will be waived the last day of the previous month. If the special open enrollment is due to the birth, adoption or assumption of legal obligation for total or partial support in anticipation of adoption of a child, medical will be waived the first of the month in which the event occurs.

Enrollment in medical will begin the first day of the month following the later of the event date or the date the form is received. If that day is the first of the month, coverage is effective on that day. If the special open enrollment is due to the birth, adoption or assumption of legal obligation for total or partial support in anticipation of adoption of a child, enrollment in medical will begin the first of the month in which the event occurs.

AMENDATORY SECTION (Amending WSR 13-22-019, filed 10/28/13, effective 1/1/14)

WAC 182-12-262 When may subscribers enroll or remove eligible dependents? (1) **Enrolling dependents in health plan coverage.** A dependent must be enrolled in the same health plan coverage as the subscriber, and the subscriber must be enrolled to enroll his or her dependent except as provided in WAC 182-12-205 (1)(c). Subscribers may enroll eligible dependents at the following times:

(a) **When the subscriber becomes eligible** and enrolls in public employees benefits board (PEBB) insurance coverage. If eligibility is verified and the dependent is enrolled, the dependent's effective date will be the same as the subscriber's effective date.

(b) **During the annual open enrollment.** PEBB health plan coverage begins January 1st of the following year.

(c) **During special open enrollment.** Subscribers may enroll dependents during a special open enrollment as described in subsection (3) of this section. The subscriber must satisfy the enrollment requirements as described in subsection (4) of this section.

(d) **During the premium surcharge implementation period.** Subscribers may enroll dependents during the premium surcharge implementation period from April 1 through May 15, 2014. Employees must submit the required enrollment forms to their employing agency and all other subscribers submit the required forms to the PEBB program no later than May 15, 2014. PEBB health plan coverage will begin July 1, 2014.

(2) **Removing dependents from a subscriber's health plan coverage.**

(a) **A dependent's eligibility for enrollment in health plan coverage ends the last day of the month the dependent** meets the eligibility criteria in WAC 182-12-250 or 182-12-260. Employees must notify their employing agency. All other subscribers must notify the PEBB program. Consequences for not submitting notice within sixty days of any dependent ceasing to be eligible may include, but are not limited to:

(i) The dependent may lose eligibility to continue health plan coverage under one of the continuation coverage options described in WAC 182-12-270;

(ii) The subscriber may be billed for claims paid by the health plan for services that were rendered after the dependent lost eligibility;

(iii) The subscriber may not be able to recover subscriber-paid insurance premiums for dependents that lost their eligibility; and

(iv) The subscriber may be responsible for premiums paid by the state for the dependent's health plan coverage after the dependent lost eligibility.

(b) **Employees have the opportunity to remove dependents:**

(i) During the annual open enrollment. The dependent will be removed the last day of December; or

(ii) During a special open enrollment as described in subsections (3) and (4)(f) of this section; or

(iii) During the premium surcharge implementation period. Subscribers may remove dependents during the premium surcharge implementation period from April 1 through May 15, 2014. To remove a dependent the employee must submit the required form no later than May 15, 2014. The dependent will be removed June 30, 2014.

(c) **Retirees, survivors, and enrollees with PEBB continuation coverage under WAC 182-12-133, 182-12-141, 182-12-142, 182-12-146, or 182-12-148 may remove dependents** from their coverage outside of the annual open enrollment or a special open enrollment by providing written notice to the PEBB program. Unless otherwise approved by the PEBB program, the dependent will be removed from the subscriber's coverage prospectively.

(3) **Special open enrollment.** Subscribers may enroll or remove their dependents outside of the annual open enrollment if a special open enrollment event occurs. The change in enrollment must correspond to and be consistent with the event that creates the special open enrollment for the subscriber, the subscriber's dependents, or both.

• Health plan coverage will begin the first of the month following the later of the event date or the date the form is received. If that day is the first of the month, the change in enrollment begins on that day.

• Enrollment of extended dependents or dependents with a disability will be the first day of the month following eligibility certification.

• Dependents will be removed from the subscriber's health plan coverage the last day of the month following the later of the event date or the date the form is received. If that day is the first of the month, the change in enrollment will be made the last day of the previous month.

• If the special open enrollment is due to the birth or adoption of a child, or when the subscriber has assumed a legal obligation for total or partial support in anticipation of adoption of a child, health plan coverage will begin or end the month in which the event occurs.

Any one of the following events may create a special open enrollment:

(a) Subscriber acquires a new dependent due to:

(i) Marriage or registering a domestic partnership;

(ii) Birth, adoption, or when a subscriber has assumed a legal obligation for total or partial support in anticipation of adoption;

(iii) A child becoming eligible as an extended dependent through legal custody or legal guardianship; or

(iv) A child becoming eligible as a dependent with a disability;

(b) Subscriber or a subscriber's dependent loses other coverage under a group health plan or through health insurance coverage, as defined by the Health Insurance Portability and Accountability Act (HIPAA);

(c) Subscriber or a subscriber's dependent has a change in employment status that affects the subscriber's or the subscriber's dependent's eligibility for their employer contribution toward group health coverage;

(d) Subscriber or a subscriber's dependent has a change in enrollment under another employer plan during its annual open enrollment that does not align with the PEBB program's annual open enrollment;

(e) Subscriber's dependent has a change in residence from outside of the United States to within the United States;

(f) A court order or national medical support notice (see also WAC 182-12-263) requires the subscriber or any other individual to provide insurance coverage for an eligible dependent of the subscriber (a former spouse or former registered domestic partner is not an eligible dependent);

(g) Subscriber or a subscriber's dependent becomes entitled to coverage under medicaid or a state children's health insurance program (CHIP), or the subscriber or a subscriber's dependent loses eligibility for coverage under medicaid or CHIP;

(h) Subscriber or a subscriber's dependent becomes eligible for state premium assistance subsidy for PEBB health plan coverage from medicaid or a state children's health insurance program (CHIP).

(4) **Enrollment requirements. Subscribers must submit the required enrollment forms within the time frames described in this subsection.** Employees submit the required forms to their employing agency. All other subscribers submit the required forms to the PEBB program. In addition to the required forms indicating dependent enrollment, the subscriber must provide the required documents as evidence of the dependent's eligibility; or as evidence of the event that created the special open enrollment.

(a) If a subscriber wants to enroll his or her eligible dependent(s) when the subscriber becomes eligible to enroll in PEBB benefits, the subscriber must include the dependent's enrollment information on the required forms that the subscriber submits within the relevant time frame described in WAC 182-08-197, 182-08-187, 182-12-171, or 182-12-250.

(b) If a subscriber wants to enroll eligible dependents during the annual open enrollment, the subscriber must submit the required forms no later than the last day of the annual open enrollment.

(c) If a subscriber wants to enroll newly eligible dependents, the subscriber must submit the required enrollment forms no later than sixty days after the dependent becomes eligible except as provided in (d) of this subsection.

(d) If a subscriber wants to enroll a newborn or child whom the subscriber has adopted or has assumed a legal obligation for total or partial support in anticipation of adoption, the subscriber should notify the PEBB program by submitting an enrollment form as soon as possible to ensure timely payment of claims. If adding the child increases the premium, the subscriber must submit the required enrollment form no later than twelve months after the date of the birth, adoption, or the date the legal obligation is assumed for total or partial support in anticipation of adoption.

(e) If the subscriber wants to enroll a child age twenty-six or older as a child with a disability, the subscriber must submit the required form(s) no later than sixty days after the last day of the month in which the child reaches age twenty-six or within the relevant time frame described in WAC 182-12-262 (4)(a), (b), and (f).

(f) If the subscriber wants to change a dependent's enrollment status during a special open enrollment, the subscriber must submit the required forms no later than sixty days after the event that creates the special open enrollment.

(g) If a subscriber wants to enroll eligible dependents during the premium surcharge implementation period from April 1 through May 15, 2014, the subscriber must submit required forms no later than May 15, 2014.

NEW SECTION

WAC 182-12-300 Public employees benefits board (PEBB) wellness incentive program eligibility and procedural requirements. The public employees benefits board (PEBB) annually determines the design of the PEBB wellness incentive program.

(1) All subscribers, except PEBB subscribers who are enrolled in both medicare parts A and B, and in the medicare risk pool, are eligible to participate in the PEBB wellness incentive program.

(2) To receive a PEBB wellness incentive the following plan year, eligible subscribers must complete PEBB wellness incentive program requirements by the latest date below:

(a) June 30th; or

(b) Within sixty days after their effective date of PEBB medical, but no later than December 31st.

(3) Subscribers who do not complete the requirements of subsection (2) of this section, except as noted, within the time frame described are not eligible to receive a PEBB wellness incentive the following plan year.

Note: All eligible subscribers can earn a wellness incentive. Subscribers who cannot complete the wellness incentive program requirements may be able to earn the same incentive by different means. The PEBB program will work with enrollees (and their physician, if they wish) to define an individual wellness program that provides the opportunity to qualify for the same incentive in light of the enrollee's health status.

(4) A PEBB wellness incentive will be provided only if:

(a) The funding rate provided by the legislature is designed to provide a PEBB wellness incentive program or a PEBB wellness incentive, or both; or

(b) Specific appropriations are provided for wellness incentives.

AMENDATORY SECTION (Amending WSR 13-22-019, filed 10/28/13, effective 1/1/14)

WAC 182-16-020 Definitions. As used in this chapter the term:

"Authority" or "HCA" means the health care authority.

"Dependent care assistance program" or "DCAP" means a benefit plan whereby state and public employees may pay for certain employment related dependent care with pretax dollars as provided in the salary reduction plan authorized in chapter 41.05 RCW.

"Director" means the director of the authority.

"Employer group" means those employee organizations representing state civil service employees, counties, municipalities, political subdivisions, the Washington health benefit exchange, tribal governments, school districts, and educational service districts participating in PEBB insurance coverage under contractual agreement as described in WAC 182-08-245.

"Employing agency" means a division, department, or separate agency of state government, including an institution of higher education; a county, municipality, school district, educational service district, or other political subdivision; charter school; or a tribal government covered by chapter 41.05 RCW.

"Enrollee" means a person who meets all eligibility requirements defined in chapter 182-12 WAC, who is enrolled in PEBB benefits, and for whom applicable premium payments have been made.

"Health plan" or "plan" means a plan offering medical coverage or dental coverage, or both developed by the public employees benefits board and provided by a contracted vendor or self-insured plans administered by the HCA.

"Institutions of higher education" means the state public research universities, the public regional universities, The Evergreen State College, the community and technical col-

leges, and the state board for community and technical colleges.

"Insurance coverage" means any health plan, life insurance, long-term care insurance, LTD insurance, or property and casualty insurance administered as a PEBB benefit.

"LTD insurance" includes basic long-term disability insurance paid for by the employing agency and long-term disability insurance offered to employees on an optional basis.

"Medical flexible spending arrangement" or "medical FSA" means a benefit plan whereby state and public employees may reduce their salary before taxes to pay for medical expenses not reimbursed by insurance as provided in the salary reduction plan authorized in chapter 41.05 RCW.

"PEBB" means the public employees benefits board.

"PEBB appeals committee" means the committee that considers appeals relating to the administration of PEBB benefits by the PEBB program. The director has delegated the authority to hear appeals at the level below an administrative hearing to the PEBB appeals committee.

"PEBB benefits" means one or more insurance coverages or other employee benefits administered by the PEBB program within the health care authority.

"PEBB program" means the program within the HCA which administers insurance and other benefits for eligible employees (as defined in WAC 182-12-114), eligible retired and disabled employees (as defined in WAC 182-12-171), eligible dependents (as defined in WAC 182-12-250 and 182-12-260), and others as defined in RCW 41.05.011.

"Premium payment plan" means a benefit plan whereby state and public employees may pay their share of group health plan premiums with pretax dollars as provided in the salary reduction plan.

"Premium surcharge" means a payment required from a subscriber, in addition to the subscriber's premium contribution, due to an enrollee's tobacco use or a subscriber's spouse or domestic partner choosing not to enroll in his or her employer-based group medical insurance when:

• Premiums are less than ninety-five percent of Uniform Medical Plan (UMP) Classic premiums; and

• The actuarial value of benefits is at least ninety-five percent of the actuarial value of UMP Classic benefits.

"Salary reduction plan" means a benefit plan whereby state and public employees may agree to a reduction of salary on a pretax basis to participate in the DCAP, medical FSA, or premium payment plan as authorized in chapter 41.05 RCW.

"State agency" means an office, department, board, commission, institution, or other separate unit or division, however designated, of the state government and all personnel thereof. It includes the legislature, executive branch, and agencies or courts within the judicial branch, as well as institutions of higher education and any unit of state government established by law.

"Subscriber" means the employee, retiree, COBRA beneficiary or eligible survivor who has been designated by the HCA as the individual to whom the HCA and contracted vendors will issue all notices, information, requests and premium bills on behalf of enrollees.

"Tobacco products" means any product made with or derived from tobacco that is intended for human consumption, including any component, part, or accessory of a tobacco product. This includes, but is not limited to, cigars, cigarettes, chewing tobacco, snuff, and other tobacco products. It does not include United States Food and Drug Administration (FDA) approved quit aids or e-cigarettes until their tobacco related status is determined by the FDA.

"Tobacco use" means any use of tobacco products within the past two months. Tobacco use, however, does not include the religious or ceremonial use of tobacco.

"Tribal government" means an Indian tribal government as defined in Section 3(32) of the Employee Retirement Income Security Act of 1974 (ERISA), as amended, or an agency or instrumentality of the tribal government, that has government offices principally located in this state.

AMENDATORY SECTION (Amending WSR 12-20-022, filed 9/25/12, effective 11/1/12)

WAC 182-16-025 Where do members appeal decisions regarding eligibility, enrollment, premium payments, premium surcharges, a PEBB wellness incentive, or the administration of benefits? (1) Any employee of a state agency or his or her dependent aggrieved by a decision made by the employing state agency with regard to public employee benefits eligibility ((~~or~~)), enrollment, or premium surcharge may appeal that decision to the employing state agency by the process outlined in WAC 182-16-030.

Note: Eligibility decisions address whether a subscriber or a subscriber's dependent is entitled to insurance coverage, as described in public employees benefits board (PEBB) rules and policies. Enrollment decisions address the application for PEBB benefits as described in PEBB rules and policies including, but not limited to, the submission of proper documentation and meeting enrollment deadlines.

(2) Any employee of an employer group or his or her dependent who is aggrieved by a decision made by an employer group with regard to PEBB eligibility ((~~or~~)), enrollment, premium surcharge, or a PEBB wellness incentive, may appeal that decision to the employer group through the process established by the employer group.

Exception: Appeals by an employee of an employer group or his or her dependent based on eligibility or enrollment decisions regarding life insurance or LTD insurance must be made to the PEBB appeals committee by the process described in WAC 182-16-032.

(3) Any subscriber or dependent aggrieved by a decision made by the PEBB program with regard to public employee benefits eligibility, enrollment, ((~~or~~)) premium payments, premium surcharge, or a PEBB wellness incentive, may appeal that decision to the PEBB appeals committee by the process described in WAC 182-16-032.

(4) Any PEBB enrollee aggrieved by a decision regarding the administration of a PEBB medical plan, self-insured dental plan, insured dental plan, life insurance or LTD insurance may appeal that decision by following the appeal provisions of those plans, with the exception of eligibility, enrollment, and premium payment determinations.

(5) Any PEBB enrollee aggrieved by a decision regarding the administration of PEBB long-term care insurance or

property and casualty insurance may appeal that decision by following the appeal provisions of those plans.

(6) Any PEBB enrollee aggrieved by a decision regarding the medical flexible spending arrangement (FSA) or dependent care assistance program (DCAP) offered under the state's salary reduction plan may appeal that decision by the process described in WAC 182-16-036.

AMENDATORY SECTION (Amending WSR 12-20-022, filed 9/25/12, effective 11/1/12)

WAC 182-16-030 How can an employee or an employee's dependent appeal a decision made by a state agency about eligibility, premium surcharge, or enrollment in benefits? (1) An eligibility, premium surcharge, or enrollment decision made by an employing state agency may be appealed by submitting a written request for review to the employing state agency. The employing state agency must receive the request for review within thirty days of the date of the initial denial notice. The contents of the request for review are to be provided in accordance with WAC 182-16-040.

(a) Upon receiving the request for review, the employing state agency shall make a complete review of the initial denial by one or more staff who did not take part in the initial denial. As part of the review, the employing state agency may hold a formal meeting or hearing, but is not required to do so.

(b) The employing state agency shall render a written decision within thirty days of receiving the request for review. The written decision shall be sent to the appellant.

(c) A copy of the employing state agency's written decision shall be sent to the employing state agency's administrator or designee and to the public employees benefits board (PEBB) appeals manager. The employing state agency's written decision shall become the employing state agency's final decision effective fifteen days after the date it is rendered.

(d) The employing state agency may reverse eligibility, premium surcharge, or enrollment decisions based only on circumstances that arose due to delays caused by the employing state agency or error(s) made by the employing state agency.

(2) Any employee or employee's dependent who disagrees with the employing state agency's decision in response to a request for review, as described in subsection (1) of this section, may appeal that decision by submitting a notice of appeal to the PEBB appeals committee. The PEBB appeals manager must receive the notice of appeal within thirty days of the date of the employing state agency's written decision on the request for review.

The contents of the notice of appeal are to be provided in accordance with WAC 182-16-040.

(a) The PEBB appeals manager shall notify the appellant in writing when the notice of appeal has been received.

(b) The PEBB appeals committee shall render a written decision to the appellant within thirty days of receiving the notice of appeal. The committee may extend the thirty-day time requirement for rendering a decision upon issuing a written finding of good cause explaining the cause for the delay.

(c) Any appellant who disagrees with the decision of the PEBB appeals committee may request an administrative hearing, as described in WAC 182-16-050.

AMENDATORY SECTION (Amending WSR 12-20-022, filed 9/25/12, effective 11/1/12)

WAC 182-16-032 How can a decision made by the public employees benefits board (PEBB) program regarding eligibility, enrollment, ((~~or~~)) premium payments, premium surcharge, or a PEBB wellness incentive; or a decision made by an employer group regarding life insurance or LTD insurance be appealed? (1) An eligibility, enrollment, ((~~or~~)) premium payment, premium surcharge, or a PEBB wellness incentive decision made by the public employees benefits board (PEBB) program may be appealed by submitting a notice of appeal to the PEBB appeals committee.

(2) An eligibility or enrollment decision made by an employer group regarding life insurance or LTD insurance may be appealed by submitting a notice of appeal to the PEBB appeals committee.

(3) The contents of the notice of appeal are to be provided in accordance with WAC 182-16-040.

(4) The notice of appeal from an employee or employee's dependent must be received by the PEBB appeals manager within thirty days of the date of the denial notice.

(5) The notice of appeal from a retiree, self-pay enrollee, or dependent of a retiree or self-pay enrollee must be received by the PEBB appeals manager within sixty days of the date of the denial notice.

(6) The PEBB appeals manager shall notify the appellant in writing when the notice of appeal has been received.

(7) The PEBB appeals committee shall render a written decision to the appellant within thirty days of receiving the notice of appeal. The committee may extend the thirty-day time requirement for rendering a decision upon issuing a written finding of good cause explaining the cause for the delay.

(8) Any appellant who disagrees with the decisions of the PEBB appeals committee may request an administrative hearing, as described in WAC 182-16-050.

WSR 14-08-046
PERMANENT RULES
DEPARTMENT OF HEALTH

[Filed March 27, 2014, 1:32 p.m., effective April 27, 2014]

Effective Date of Rule: Thirty-one days after filing.

Purpose: Title 246 WAC, Department of health, the rules are in response to SHB 2056 (chapter 10, Laws of 2012), which changed the term "boarding homes" to "assisted living facilities" in many statutes. The department identified WACs that contained the term "boarding homes" and changed them to read "assisted living facilities." These rules accomplish the work outlined in SHB 2056.

Citation of Existing Rules Affected by this Order: See Statutory Authority below.

Statutory Authority for Adoption:
1. WAC 246-15-010
(Whistleblower complaints in health care settings)
Statutory authority - RCW 43.70.075
2. WAC 246-50-010
(Coordinated quality improvement program)
Statutory authority - RCW 43.70.510
3. WAC 246-100-011 and 246-100-203
(Communicable and certain other diseases)
Statutory authority - RCW 70.24.130
4. WAC 246-217-010
(Food worker cards)
Statutory authority - RCW 69.06.010
5. WAC 246-260-010
(Water recreation facilities)
Statutory authority - RCW 70.90.120
6. WAC 246-291-010
(Group B Public Water Systems)
Statutory authority - RCW 43.20.050
7. WAC 246-310-020, 246-310-120, 246-310-130, 246-310-210, and 246-310-380
(Certificate of need)
Statutory authority - RCW 70.38.135
8. WAC 246-314-010
(Construction review services)
Statutory authority - RCW 43.70.040
9. WAC 246-320-010
(Hospital licensing regulations)
Statutory authority - RCW 43.70.040
Other Authority: Chapter 10, Laws of 2012.

Adopted under notice filed as WSR 14-01-074 on December 16, 2013.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 14, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 14, Repealed 0.

Date Adopted: March 25, 2014.

John Wiesman, DrPH, MPH
Secretary

AMENDATORY SECTION (Amending WSR 97-02-013, filed 12/20/96, effective 1/20/97)

WAC 246-15-010 Definitions. The words and phrases in this chapter have the following meanings unless the context clearly indicates otherwise.

(1) "Consumer" means:

(a) An individual receiving health care or services from a health care facility or health care professional;

(b) A person pursuant to RCW 7.70.065 authorized to provide informed consent to health care on behalf of (a) of this subsection who is not competent to consent.

(2) "Department" means the Washington state department of health.

(3) "Employee" means an individual employed by a health care facility or health care professional at the time the:

(a) Alleged improper quality of care occurred; or

(b) Alleged improper quality of care is discovered.

(4) "Good faith" means an honest and reasonable belief in the truth of the allegation.

(5) "Health care" means any care, service, or procedure provided by a health care facility or a health care provider:

(a) To diagnose, treat, or maintain a patient's physical or mental condition; or

(b) That affects the structure or function of the human body.

(6) "Health care facility" includes the following:

(a) Adult residential rehabilitation centers regulated pursuant to chapter 71.12 RCW;

(b) Alcoholism treatment facilities regulated pursuant to chapter 71.12 RCW;

(c) Alcoholism hospitals regulated pursuant to chapter 71.12 RCW;

(d) Ambulance and aid services regulated pursuant to chapter 18.73 RCW;

(e) ((~~Boarding homes~~)) Assisted living facilities regulated pursuant to chapter 18.20 RCW;

(f) Childbirth centers regulated pursuant to chapter 18.46 RCW;

(g) Home care agencies regulated pursuant to chapter 70.127 RCW;

(h) Home health agencies regulated pursuant to chapter 70.127 RCW;

(i) Hospice agencies regulated pursuant to chapter 70.127 RCW;

(j) Hospitals regulated pursuant to chapter 70.41 RCW;

(k) Pharmacies regulated pursuant to chapter 18.64 RCW;

(l) Private psychiatric hospitals regulated pursuant to chapter 71.12 RCW;

(m) Residential treatment facilities for psychiatrically impaired children and youth regulated pursuant to chapter 71.12 RCW;

(n) Rural health care facilities regulated pursuant to chapter 70.175 RCW.

(7) "Health care provider," "health care professional," "professional" or "provider" mean a person who is licensed, certified, registered or otherwise authorized by the law of this state to provide health care in the ordinary course of business or practice of a profession.

(8) "Improper quality of care," as defined in RCW 43.70.075, means any practice, procedure, action, or failure to act that violates any state law or rule of the applicable state health licensing authority under Title 18 RCW or chapters 70.41, 70.96A, 70.127, 70.175, 71.05, 71.12, and 71.24 RCW, and enforced by the department of health. Improper quality of care shall not include good faith personnel actions

related to employee performance or actions taken according to established terms and conditions of employment. Good faith personnel action will not prevent investigations of alleged improper quality of care.

(9) "Whistleblower" means a consumer, employee, or health care professional who in good faith reports alleged quality of care concerns to the department of health.

AMENDATORY SECTION (Amending WSR 06-03-123, filed 1/18/06, effective 2/18/06)

WAC 246-50-010 Definitions. The words and phrases in this chapter have the following meanings unless the context clearly indicates otherwise.

(1) "Alternative program" means a coordinated quality improvement program determined by the department to be substantially equivalent to RCW 70.41.200(1).

(2) "Department" means the Washington state department of health.

(3) "Governing body" means:

(a) The person, persons or board responsible for the health care entity; or

(b) In the case of a provider group where no person, persons or board is in charge of all providers; the person, persons or group identified by the provider group is responsible for the coordinated quality improvement program.

(4) "Health care entity" means a health care institution, medical facility, provider group, professional society or organization, health care service contractors, health maintenance organizations, health carriers approved under chapter 48.43 RCW, and any other person or entity providing health care coverage under chapter 48.42 RCW that is subject to the jurisdiction of any state agency or any subdivision thereof, authorized by RCW 43.70.510 to have a department-approved coordinated quality improvement program.

(5) "Health care institution" or "medical facility" includes the following:

(a) Adult residential rehabilitation centers regulated under chapter 71.12 RCW;

(b) Alcohol and drug treatment facilities and hospitals regulated under chapter 70.96A RCW;

(c) Emergency medical care and transportation services regulated under chapter 18.73 RCW;

(d) ((~~Boarding homes~~)) Assisted living facilities regulated under chapter 18.20 RCW;

(e) Childbirth centers regulated under chapter 18.46 RCW;

(f) Community mental health centers regulated under chapter 71.05 or 71.24 RCW;

(g) Home health agencies, home care agencies, hospice care centers, and hospice agencies regulated under chapter 70.127 RCW;

(h) Medical test sites regulated under chapter 70.42 RCW;

(i) Nursing homes regulated under chapter 18.51 RCW;

(j) Pharmacies regulated under chapter 18.64 RCW;

(k) Private psychiatric hospitals and residential treatment facilities for psychiatrically impaired children and youth regulated under chapter 71.12 RCW;

(l) Rural health care facilities regulated under chapter 70.175 RCW;

(m) Organizations that provide designated trauma care services individually or jointly under chapter 70.168 RCW;

(n) Facilities owned and operated by a political subdivision or instrumentality of the state, including, but not limited to:

(i) Public health departments;

(ii) Fire districts and departments;

(iii) Soldiers' and veterans' homes;

(iv) State mental health institutions;

(v) Health clinics operated by educational institutions;

(vi) Department of corrections health care facilities;

(vii) County jail health clinics;

(viii) County drug and alcohol treatment facilities; and

(ix) Public hospital districts;

(o) Facilities required by federal law and implementing regulations, including, but not limited to:

(i) Native American health facilities; and

(ii) Veterans' affairs health services; and

(p) Other facilities that the department determines meet the definition of "health care facility" in RCW 48.43.005.

(6) "Health care provider" or "provider" means:

(a) A person regulated under Title 18 RCW to practice health or health related services or otherwise practicing health care services in this state consistent with state law; or

(b) An employee or agent of a person described in (a) of this subsection, acting in the course and scope of the employee's or agent's employment performing health care or auxiliary services.

(7) "Health care provider group" or "provider group" means an organized body or consortium of five or more providers in total.

(8) "Negative health care outcome" means a patient death or impairment of bodily function other than those related to the natural course of illness, disease or proper treatment in accordance with generally accepted health care standards.

(9) "Professional society or organization" means a group of health care professionals, including, but not limited to, state or local health care professional associations.

(10) "Program" means coordinated quality improvement program under RCW 43.70.510.

AMENDATORY SECTION (Amending WSR 05-11-110, filed 5/18/05, effective 6/18/05)

WAC 246-100-011 Definitions. The following definitions shall apply in the interpretation and enforcement of chapter 246-100 WAC:

(1) "Acquired immunodeficiency syndrome (AIDS)" means illness, disease, or conditions defined and described by the Centers for Disease Control, U.S. Public Health Service, Morbidity and Mortality Weekly Report (MMWR), December 18, 1992, Volume 41, Number RR-17. A copy of this publication is available for review at the department and at each local health department.

(2) "AIDS counseling" means counseling directed toward:

(a) Increasing the individual's understanding of acquired immunodeficiency syndrome; and

(b) Assessing the individual's risk of HIV acquisition and transmission; and

(c) Affecting the individual's behavior in ways to reduce the risk of acquiring and transmitting HIV infection.

(3) "Anonymous HIV testing" means that the name or identity of the individual tested for HIV will not be recorded or linked to the HIV test result. However, once the individual testing positive receives HIV health care or treatment services, reporting of the identity of the individual to the state or local public health officer is required.

(4) "Board" means the Washington state board of health.

(5) "Case" means a person, alive or dead, having been diagnosed to have a particular disease or condition by a health care provider with diagnosis based on clinical or laboratory criteria or both.

(6) "Child day care facility" means an agency regularly providing care for a group of children for less than twenty-four hours a day and subject to licensing under chapter 74.15 RCW.

(7) "Communicable disease" means an illness caused by an infectious agent which can be transmitted from one person, animal, or object to another person by direct or indirect means including transmission via an intermediate host or vector, food, water, or air.

(8) "Confidential HIV testing" means that the name or identity of the individual tested for HIV will be recorded and linked to the HIV test result, and that the name of the individual testing positive for HIV will be reported to the state or local health officer in a private manner.

(9) "Contaminated" or "contamination" means containing or having contact with infectious agents or chemical or radiological materials that pose an immediate threat to present or future public health.

((~~[(10)]~~)) (10) "Contamination control measures" means the management of persons, animals, goods, and facilities that are contaminated, or suspected to be contaminated, in a manner to avoid human exposure to the contaminant, prevent the contaminant from spreading, and/or effect decontamination.

(11) "Department" means the Washington state department of health.

(12) "Detention" or "detainment" means physical restriction of activities of an individual by confinement for the purpose of controlling or preventing a serious and imminent threat to public health and may include physical plant, facilities, equipment, and/or personnel to physically restrict activities of the individual to accomplish such purposes.

(13) "Disease control measures" means the management of persons, animals, goods, and facilities that are infected with, suspected to be infected with, exposed to, or suspected to be exposed to an infectious agent in a manner to prevent transmission of the infectious agent to humans.

(14) "Health care facility" means:

(a) Any facility or institution licensed under chapter 18.20 RCW, ((~~boarding home~~)) assisted living facilities, chapter 18.46 RCW, birthing centers, chapter 18.51 RCW, nursing homes, chapter 70.41 RCW, hospitals, or chapter 71.12 RCW, private establishments, clinics, or other settings where one or more health care providers practice; and

(b) In reference to a sexually transmitted disease, other settings as defined in chapter 70.24 RCW.

(15) "Health care provider" means any person having direct or supervisory responsibility for the delivery of health care who is:

(a) Licensed or certified in this state under Title 18 RCW; or

(b) Is military personnel providing health care within the state regardless of licensure.

(16) "HIV testing" means conducting a laboratory test or sequence of tests to detect the human immunodeficiency virus (HIV) or antibodies to HIV performed in accordance with requirements to WAC 246-100-207. To assure that the protection, including but not limited to, pre- and post-test counseling, consent, and confidentiality afforded to HIV testing as described in chapter 246-100 WAC also applies to the enumeration of CD4 + (T4) lymphocyte counts (CD4 + counts) and CD4 + (T4) percents of total lymphocytes (CD4 + percents) when used to diagnose HIV infection, CD4 + counts and CD4 + percents will be presumed HIV testing except when shown by clear and convincing evidence to be for use in the following circumstances:

(a) Monitoring previously diagnosed infection with HIV;

(b) Monitoring organ or bone marrow transplants;

(c) Monitoring chemotherapy;

(d) Medical research; or

(e) Diagnosis or monitoring of congenital immunodeficiency states or autoimmune states not related to HIV.

The burden of proving the existence of one or more of the circumstances identified in (a) through (e) of this subsection shall be on the person asserting such existence.

(17) "Infectious agent" means an organism such as a virus, rickettsia, bacteria, fungus, protozoan, or helminth that is capable of producing infection or infectious disease.

(18) "Isolation" means the separation, for the period of communicability or contamination, of infected or contaminated persons or animals from others in such places and under such conditions as to prevent or limit the direct or indirect transmission of the infectious agent or contaminant from those infected or contaminated to those who are susceptible or who may spread the agent or contaminant to others.

(19) "Local health department" means the city, town, county, or district agency providing public health services to persons within the area, as provided in chapter 70.05 RCW and chapter 70.08 RCW.

(20) "Local health officer" means the individual having been appointed under chapter 70.05 RCW as the health officer for the local health department, or having been appointed under chapter 70.08 RCW as the director of public health of a combined city-county health department, or his or her delegee appointed by the local board of health.

(21) "Nosocomial infection" means an infection acquired in a hospital or other health care facility.

(22) "Outbreak" means the occurrence of cases of a disease or condition in any area over a given period of time in excess of the expected number of cases.

(23) "Post-test counseling" means counseling after the HIV test when results are provided and directed toward:

(a) Increasing the individual's understanding of human immunodeficiency virus (HIV) infection;

(b) Affecting the individual's behavior in ways to reduce the risk of acquiring and transmitting HIV infection;

(c) Encouraging the individual testing positive to notify persons with whom there has been contact capable of spreading HIV;

(d) Assessing emotional impact of HIV test results; and

(e) Appropriate referral for other community support services.

(24) "Pretest counseling" means counseling provided prior to HIV testing and aimed at:

(a) Helping an individual to understand:

(i) Ways to reduce the risk of human immunodeficiency virus (HIV) transmission;

(ii) The nature, purpose, and potential ramifications of HIV testing;

(iii) The significance of the results of HIV testing; and

(iv) The dangers of HIV infection; and

(b) Assessing the individual's ability to cope with the results of HIV testing.

(25) "Principal health care provider" means the attending physician or other health care provider recognized as primarily responsible for diagnosis and treatment of a patient or, in the absence of such, the health care provider initiating diagnostic testing or therapy for a patient.

(26) "Quarantine" means the limitation of freedom of movement of such well persons or domestic animals as have been exposed to, or are suspected to have been exposed to, an infectious agent, for a period of time not longer than the longest usual incubation period of the infectious agent, in such manner as to prevent effective contact with those not so exposed.

(27) "School" means a facility for programs of education as defined in RCW 28A.210.070 (preschool and kindergarten through grade twelve).

(28) "Sexually transmitted disease (STD)" means a bacterial, viral, fungal, or parasitic disease or condition which is usually transmitted through sexual contact, including:

(a) Acute pelvic inflammatory disease;

(b) Chancroid;

(c) Chlamydia trachomatis infection;

(d) Genital and neonatal herpes simplex;

(e) Genital human papilloma virus infection;

(f) Gonorrhea;

(g) Granuloma inguinale;

(h) Hepatitis B infection;

(i) Human immunodeficiency virus infection (HIV) and acquired immunodeficiency syndrome (AIDS);

(j) Lymphogranuloma venereum;

(k) Nongonococcal urethritis (NGU); and

(l) Syphilis.

(29) "Spouse" means any individual who is the marriage partner of an HIV-infected individual, or who has been the marriage partner of the HIV-infected individual within the ten-year period prior to the diagnosis of HIV-infection, and evidence exists of possible exposure to HIV.

(30) "State health officer" means the person designated by the secretary of the department to serve as statewide health officer, or, in the absence of such designation, the person having primary responsibility for public health matters in the state.

(31) "Suspected case" or "suspected to be infected" means the local health officer, in his or her professional judgment, reasonably believes that infection with a particular infectious agent is likely based on signs and symptoms, laboratory evidence, or contact with an infected individual, animal, or contaminated environment.

(32) "Veterinarian" means an individual licensed under provisions of chapter 18.92 RCW, veterinary medicine, surgery, and dentistry and practicing animal health care.

AMENDATORY SECTION (Amending WSR 05-11-110, filed 5/18/05, effective 6/18/05)

WAC 246-100-203 Special diseases—Sexually transmitted diseases—Health officer orders. (1) A state or local health officer within his or her jurisdiction may, in accordance with RCW 70.24.024, issue orders for medical examination, testing, and/or counseling, as well as orders to cease and desist specific activities, when he or she knows or has reason to believe that a person has a sexually transmitted disease and is engaging in conduct endangering the public health.

(a) For purposes of this section, "reason to believe" means a health officer's belief that is based on:

(i) Laboratory test results confirming or suggestive of a STD; or

(ii) A health care provider's direct observation of clinical signs confirming an individual has or is likely to have a STD; or

(iii) Information obtained directly from an individual infected with a STD about the identity of his or her sexual or needle-sharing contacts when:

(A) Contact with the infected individual occurred during a period when the disease may have been infectious; and

(B) The contact was sufficient to transmit the disease; and

(C) The infected individual is, in the health officer's judgment, credible and believable.

(b) "Conduct endangering the public health" for the purposes of RCW 70.24.024 and this section, means:

(i) Anal, oral, or vaginal intercourse for all sexually transmitted diseases;

(ii) For HIV and Hepatitis B:

(A) Anal, oral, or vaginal intercourse; and/or

(B) Sharing of injection equipment; and/or

(C) Donating or selling blood, blood products, body tissues, or semen; and

(iii) Activities described in (b)(i) and (ii) of this subsection resulting in introduction of blood, semen, and/or vaginal fluids to:

(A) Mucous membranes;

(B) Eyes;

(C) Open cuts, wounds, lesions; or

(D) Interruption of epidermis.

(c) State and local health officers and their authorized representatives shall have authority to issue written orders for medical examination, testing, and/or counseling under chapter 70.24 RCW, only after:

(i) All other efforts to protect public health have failed, including reasonable efforts to obtain the voluntary cooperation of the person to be affected by the order; and

(ii) They have sufficient evidence to "reasonably believe" the individual to be affected by the order:

(A) Has a sexually transmitted disease; and

(B) Is engaging in "conduct endangering public health"; and

(iii) They have investigated and confirmed the existence of "conduct endangering the public health" by:

(A) Interviewing sources to assess their credibility and accuracy; and

(B) Interviewing the person to be affected by the order; and

(iv) They have incorporated all information required in RCW 70.24.024 in a written order.

(d) State and local health officers and their authorized representatives shall have authority to issue written orders for treatment under RCW 70.24.022 only after laboratory test results or direct observation of clinical signs or assessment of clinical data by a physician confirm the individual has, or is likely to have, a sexually transmitted disease.

(e) State and local health officers and their authorized representatives shall have authority to issue written orders to cease and desist from specified activities under RCW 70.24.-024 only after:

(i) They have determined the person to be affected by the order is engaging in "conduct endangering public health"; and

(ii) Laboratory test results, or direct observation of clinical signs or assessment of clinical data by a physician, confirm the individual has, or is likely to have, a sexually transmitted disease; and

(iii) They have exhausted procedures described in subsection (8)(a) of this section; and

(iv) They have enlisted, if appropriate, court enforcement of the orders described in (c) and (d) of this subsection.

(f) Written orders to cease and desist from specified activities shall be for an initial period of time not to exceed three months, and may be renewed by the health officer for periods of time not to exceed three months provided all requirements of RCW 70.24.024 regarding notification, confidentiality, right to a judicial hearing, and right to counsel are met again at the time of renewal.

(2) A state or local health officer within his or her jurisdiction may, in accordance with RCW 70.24.034, bring action in superior court to detain a person in a designated or approved facility when he or she knows or has reason to believe that person has a sexually transmitted disease and continues to engage in behaviors that present an imminent danger to the public health.

(a) "Behaviors that present an imminent danger to public health" or "BPID" for the purposes of detention in accordance with RCW 70.24.034 and this section means the following activities, under conditions specified below, performed by an individual with a laboratory-confirmed HIV infection:

(i) Anal or vaginal intercourse without a latex condom; or

(ii) Shared use of blood-contaminated injection equipment;

(iii) Donating or selling HIV-infected blood, blood products, or semen; and

(iv) Activities described in (a)(i) and (ii) of this subsection constitute BPID only if:

(A) The infected individual received post-test counseling as described in WAC 246-100-209 prior to repeating activities; and

(B) The infected individual did not inform the persons with whom the activities occurred of his or her infectious status.

(b) State and local health officers and their authorized representatives shall have authority to seek court orders for detainment under RCW 70.24.034 only for persons infected with HIV and only after:

(i) Exhausting procedures described in subsection (1) of this section; and

(ii) Enlisting, if appropriate, court enforcement of orders to cease and desist; and

(iii) Having sufficient evidence to "reasonably believe" the person is engaging in BPID.

(c) A local health officer may notify the state health officer if he or she determines:

(i) The criteria for BPID are met by an individual; and

(ii) Such individual fails to comply with a cease and desist order affirmed or issued by a court.

(d) A local or state health officer may request the prosecuting attorney to file an action in superior court to detain an individual specified in this subsection. The requesting local or state health officer or authorized representative shall:

(i) Notify the department prior to recommending the detainment setting where the individualized counseling and education plan may be carried out consistent with subsection (9)(d), (e), and (f) of this section;

(ii) Make a recommendation to the court for placement of such individual consistent with (e), (f), and (g) of this subsection; and

(iii) Provide to the court an individualized plan for education and counseling consistent with (f) of this subsection.

(e) State board of health requirements for detainment of individuals demonstrating BPID include:

(i) Sufficient number of staff, caregivers, and/or family members to:

(A) Provide round-the-clock supervision, safety of detainee, and security; and

(B) Limit and restrict activities to prevent BPID; and

(C) Make available any medical, psychological, or nursing care when needed; and

(D) Provide access to AIDS education and counseling; and

(E) Immediately notify the local or state health officer of unauthorized absence or elopement; and

(ii) Sufficient equipment and facilities to provide:

(A) Meals and nourishment to meet nutritional needs; and

(B) A sanitary toilet and lavatory; and

(C) A bathing facility; and

(D) Bed and clean bedding appropriate to size of detainee; and

(E) A safe detention setting appropriate to chronological and developmental age of detainee; and

(F) A private sleeping room; and

(G) Prevention of sexual exploitation;

(iii) Sufficient access to services and programs directed toward cessation of BPID and providing:

(A) Linguistically, socially, culturally, and developmentally appropriate ongoing AIDS education and counseling; and

(B) Psychological and psychiatric evaluation and counseling; and

(C) Implementation of court-ordered plan for individualized counseling and education consistent with (g) of this subsection;

(iv) If required, provide access to isolation and/or restraint in accordance with restraint and seclusion rules in WAC 275-55-263 (2)(c);

(v) Maintain a safe, secure environment free from harassment, physical danger, and sexual exploitation.

(f) Washington state board of health standards for an individualized counseling and education plan for a detainee:

(i) Consideration of detainee's personal and environmental characteristics, culture, social group, developmental age, and language;

(ii) Identification of habitual and addictive behavior and relapse pattern;

(iii) Identification of unique risk factors and possible cross-addiction leading to behavior presenting imminent danger to public health;

(iv) Identification of obstacles to behavior change and determination of specific objectives for desired behavior;

(v) Provision of information about acquisition and transmission of HIV infection;

(vi) Teaching and training of individual coping skills to prevent relapse to BPID;

(vii) Specific counseling for chemical dependency, if required;

(viii) Identification of and assistance with access to community resources, including social services and self-help groups appropriate to provide ongoing support and maintenance of behavior change; and

(ix) Designation of a person primarily responsible for counseling and/or education who:

(A) Completed pretest and post-test counselor training approved by the office on AIDS; and

(B) Received training, as approved by the office on AIDS, focused on facilitating behavior change related to preventing BPID; and

(C) Has a postgraduate degree in social work, psychology, counseling, psychosocial nursing, or other allied profession; and

(D) Completed at least one year clinical experience after postgraduate education with a primary focus on individualized behavior change; and

(E) Is a certified counselor under chapter 18.19 RCW;

(x) Designation and provision of a qualified counselor under WAC 275-19-145 when the detainee is assessed to have a drug or alcohol problem.

(g) The state board of health designates the following settings appropriate for detainment provided a setting meets requirements in (e)(i), (ii), (iii), (iv), and (v) of this subsection:

(i) Homes, care facilities, or treatment institutions operated or contracted by the department;

(ii) Private homes, as recommended by the local or state health officer;

(iii) ((~~Boarding homes~~)) Assisted living facilities licensed under chapter 18.20 RCW;

(iv) Nursing homes licensed under chapter 18.51 RCW;

(v) Facilities licensed under chapter 71.12 RCW, including:

(A) Psychiatric hospitals, per chapter 246-322 WAC;

(B) Alcoholism treatment centers if certified for substance use under chapter 275-19 WAC;

(C) Adult residential rehabilitation centers, per chapter 246-325 WAC;

(D) Private adult treatment homes, per chapter 246-325 WAC;

(E) Residential treatment facilities for psychiatrically impaired children and youth, per chapter 246-323 WAC;

(vi) A hospital licensed under chapter 70.41 RCW.

AMENDATORY SECTION (Amending WSR 04-16-100, filed 8/3/04, effective 9/3/04)

WAC 246-217-010 Definitions. As used in this chapter of the rules and regulations, the following definitions apply:

(1) "Additional food safety training" means completion of a comprehensive training program on food safety of at least four hours in length. Training may include topics such as: Proper cooking, hot-holding, cold-holding and cooling of potentially hazardous foods; cross-contamination prevention; HACCP and/or proper hand washing techniques. Approval of training programs shall be obtained from jurisdictional health departments or the department by the training provider. Approval of training programs must be obtained in advance.

(2) "Applicant" means an individual applying to obtain an initial or renewal food worker card.

(3) "Department" means the Washington state department of health.

(4) "Food service establishment" means:

(a) A place, location, operation, site, or facility where food is manufactured, prepared, processed, packaged, dispensed, distributed, sold, served, or offered to the consumer regardless of whether or not compensation for food occurs, including but not limited to:

(i) Restaurants, snack bars, cafeterias, taverns, bars;

(ii) Retail food stores, supermarkets, retail meat markets, retail fish markets, retail bakeries, delicatessens;

(iii) Institutional operations licensed by the department, the state department of social and health services or local health officer, such as schools, hospitals, jails, prisons, nursing homes, ((~~boarding homes~~)) assisted living facilities, and child care facilities;

(iv) Central preparation sites, including caterers;

(v) Satellite servicing locations;

(vi) Temporary food service establishments or mobile food units;

(vii) Bed and breakfast operations;

(viii) Remote feeding sites;

(ix) Adult family homes; and

(x) Vending machines dispensing potentially hazardous foods.

(b) This term does not include:

(i) Private homes where food is prepared or served for consumption by household members and/or their guests;

(ii) Establishments offering only commercially prepackaged nonpotentially hazardous foods;

(iii) Commercial food processing establishments, licensed and regulated by the USDA, FDA, or WSDA; and

(iv) Farmers exempt from licensure under RCW 36.71.090.

(5) "Food service worker" means an individual who works (or intends to work) with or without pay in a food service establishment and handles unwrapped or unpackaged food or who may contribute to the transmission of infectious diseases through the nature of his/her contact with food products and/or equipment and facilities. This does not include persons who simply assist residents or patients in institutional facilities with meals, or students in K-12 schools who periodically assist with school meal service.

(6) "Food worker card" means a food and beverage service workers' permit as required under chapter 69.06 RCW.

(7) "Health officer" means the county, city-county, or district health officer of a jurisdictional health department, or his/her authorized representative, or the representative of the department.

(8) "Jurisdictional health department" refers to one of the following:

(a) Local health district as defined in chapter 70.46 RCW.

(b) City-county health department as defined in chapter 70.08 RCW.

(c) County health department as defined in chapter 70.05 RCW.

(9) "Person" means any individual, partnership, corporation, association, or other legal entity or agency of state, county, or municipal government, or agency of the federal government which is subject to the jurisdiction of the state.

(10) "Secretary" means the secretary of the state department of health.

AMENDATORY SECTION (Amending WSR 12-17-102, filed 8/17/12, effective 9/17/12)

WAC 246-260-010 Definitions, abbreviations, and acronyms. The definitions in this section apply throughout this chapter unless the context clearly indicates otherwise.

(1) "ALTI" means Advanced Lifeguard Training International.

(2) "ANSI" means American National Standards Institute.

(3) "APHA" means American Public Health association.

(4) "Approved" means the department or local health officer has stated in writing that the design plans and specifications are in accordance with this chapter.

(5) "APSP" means Association of Pool and Spa Professionals.

(6) "ARC" means American Red Cross.

(7) "Architect" means a registered architect currently licensed under chapter 18.08 RCW in Washington state.

(8) "ASA" means American Standards Association.

(9) "ASHRAE" means American Society of Heating, Refrigeration and Air Conditioning Engineers.

(10) "ASTM" means American Society for Testing and Materials.

(11) "Attendant" means a person appointed by the owner or manager meeting the training requirements of this chapter who monitors activities and conditions for the purpose of ensuring bather safety.

(12) "AWWA" means American Waterworks Association.

(13) "Bathing beach" means a bathing place, together with buildings and appurtenances, on a natural pond, lake, stream, or other body of fresh or salt water that is open to the public for bathing by express permission of the owner, operated for a fee, or openly advertised as a place for bathing by the public.

(14) "Board" means the state board of health.

(15) "Branch line" means suction piping between a junction fitting and a suction outlet.

(16) "Commercial strength ammonia" means ammonia having a strength of twenty-six degrees Baume.

(17) "Communication system" means any combination of devices permitting the passage of messages between personnel and/or personnel and bathers. Systems can include but are not limited to two-way radios, hard wired intercoms, horns, whistles, hand signals, direct voice, signs, or equivalent.

(18) "Contaminant" means any physical, chemical, or biological substance present in the WRF water which may adversely affect the health or safety of the bather or the quality of the water.

(19) "CPR" means cardiopulmonary resuscitation.

(20) "CPSC" means U.S. Consumer Product Safety Commission.

(21) "Cross-connection" means any physical arrangement connecting:

(a) Potable water system directly or indirectly, with anything other than another potable water system; or

(b) WRF pool to any water source capable of contaminating either the WRF pool, its components, or potable water source as a result of backflow.

(22) "DE" means diatomaceous earth.

(23) "Department" means the Washington state department of health.

(24) "Deep water" means water greater than five feet in depth.

(25) "Diving envelope" means the minimum dimensions of an area within the pool necessary to provide entry from a diving board, platform, or pool decking intended for users to dive.

(26) "E&A" means Ellis and Associates.

(27) "Engineer" means a registered professional engineer currently licensed under chapter 18.43 RCW.

(28) "EPA" means U.S. Environmental Protection Agency.

(29) "Equalizer line outlet" means a suction outlet located on the pool wall below the waterline and connected

by pipe to the body of a skimmer to prevent air from being drawn into the pump if the water level drops below the skimmer weir.

(30) "F" means Fahrenheit.

(31) "Fall zones" mean the areas under and around play toys where a person playing on them could fall. These areas should be free of obstacles or other equipment so that there's plenty of room. Basic guidelines include the following:

(a) Fall zones should extend a minimum of six feet in all directions from the perimeter of the play toy equipment.

(b) If the height of an adjacent play toy is thirty inches or more, the minimum distance between pieces of play equipment should be at least nine feet.

(32) "FINA" means Federation Internationale de Natation Amateur.

(33) "fps" means feet per second.

(34) "General use pool" means any swimming, spa, wading, or spray pool regulated by this chapter not meeting the definition of a "limited use pool."

(35) "gpm" means gallons per minute.

(36) "Handhold" means a structure not over twelve inches above the water line around the perimeter of the pool wall, affording physical means for the bather to grasp the pool sides.

(37) "IAPMO" means International Association of Plumbing and Mechanical Officials.

(38) "Illness or injury report" means the written record of all facts regarding an injury or illness associated with the WRF.

(39) "Innovative design feature" means a design feature, equipment, device, or operative procedure not specifically covered by these rules or chapter 246-262 WAC.

(40) "Junction fitting" means a pipe fitting in the shape of a "T" or a "Y" used to connect suction outlets to a pump or a balancing tank, and provides two branch line connections and one trunk line connection.

(41) "Licensed medical practitioner" includes medical doctor, osteopath, chiropractor, naturopath, and medical therapist currently licensed in Washington state.

(42) "Lifeguard" means a person meeting the training requirements of these rules appointed by the owner or manager to maintain surveillance over the bathers on the deck or in the pool and to supervise bather safety.

(43) "Lifeguard station" means designated work station of a lifeguard.

(44) "Lifesaving equipment" means emergency equipment and barrier protection.

(45) "Lifesaving Society" means the organization in Canada that establishes training requirements and standards for lifeguard training.

(46) "Limited use pool" means:

(a) Any swimming, spa, wading, or spray pool regulated by this chapter at an apartment, ((~~boarding home~~)) assisted living facility, condominium, fraternity, home owners association, hotel, mobile home park, motel, recreational vehicle park, sorority or rental housing unit for the use of the persons living or residing at the facility and their resident's invited guests.

(b) When organized programs are provided at the facility (including, but not limited to, formal swimming or diving lessons, swim meets, or exercise classes), for users besides those specified under the limited use category, the pool facility shall be considered to be a general use pool during periods of such activity.

(47) "Local health officer" means the health officer of the city, county, or city-county department or district or a representative authorized by the local health officer.

(48) "Main drain" means a submerged suction outlet for transferring water from a swimming pool, spa pool, or wading pool.

(49) "mg/l" means milligrams per liter. When requirements in this regulation specify limits for liquid volume measurements using mg/l or ppm, either may be used depending on the type of testing equipment available.

(50) "NAUI" means National Association of Underwater Instructors.

(51) "NSF" means National Sanitation Foundation.

(52) "NSPI" means National Spa and Pool Institute.

(53) "Outlet drain" means a drain for transferring water from a spray pool.

(54) "Owner" means a person owning and responsible for a WRF or their authorized agent.

(55) "PADI" means Professional Association of Diving Instructors.

(56) "Person" means an individual, firm, partnership, copartnership, corporation, company, association, club, government entity, or organization of any kind.

(57) "Physical plant" refers to pool shell, piping, lighting, ventilation, locker rooms, chemical storage rooms, mechanical rooms, or other structural facility components that are not readily modified. It does not include pumps, filters or disinfection systems.

(58) "Play toy" is a water feature added to a pool for use by bathers that provides activity or action that enhances the overall use of the water environment. Such feature may include, but not be limited to, fixed stationary features, inflatable or floatable equipment, or other equipment with the intent to invite bathers to play on or around the feature.

(59) "Pool" means swimming pool, wading pool, spray pool, or spa pool or the like.

(60) "ppm" means parts per million. See notation under mg/l for use.

(61) "Private club" means a group or organization requiring membership enrollment.

(62) "Radius of curvature" means the radius arc denoting the curved surface from the point of departure from the springline (vertical sidewall) of the pool to the pool bottom.

(63) "Response time" means time between bather distress and initiation of rescue assistance contact by a lifeguard in facilities providing lifeguards.

(64) "Recreational water contact facility" means an artificial water associated facility with design and operational features that provide patron recreational activity which is different from that associated with a conventional swimming pool and purposefully involves immersion of the body partially or totally in the water, and that includes but is not limited to water slides, wave pools, and water lagoons. These facilities are regulated by chapter 246-262 WAC.

(65) "Secretary" means the secretary of the department.

(66) "Serious injury" means any injury:

(a) Requiring emergency service response where a person requires medical treatment as determined by the emergency medical response personnel; or

(b) Resulting in a person seeking medical attention at a medical facility, hospital emergency room or admittance to a hospital.

(67) "Shallow water" means water equal to or less than five feet in depth.

(68) "Shallow water lifeguard" means a person appointed by the owner or manager to supervise bather safety in water depths not exceeding five feet who meets the training requirements of this chapter.

(69) "Spa pool" means a pool designed for relaxation or recreational use where the user is usually sitting, reclining, or at rest and the pool is not drained, cleaned, and refilled for each user. The spa pool may include, but not be limited to, hydrojet circulation, hot water, cold water, mineral baths, air induction bubbles in any combination.

(70) "Spray pool" means a pool or artificially constructed depression for use by bathers in which water is sprayed, but is not allowed to pond in the bottom of the pool.

(71) "Springline" means the point where the pool wall breaks from vertical and begins its arc in the radius of curvature (for cove construction) to the bottom of the pool.

(72) "Suction fitting standard" means the ANSI/APSP-16 2011, Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, and Hot Tubs.

(73) "Suction outlet" means a fitting, fitting assembly and related components including the sump or bulkhead fitting, cover and hardware, that provides a localized low pressure area for the transfer of water from a water recreation facility. Types of suction outlets include main drains, equalizer line outlets, and submerged outlet drains.

(74) "Swimming pool" means any structure, basin, chamber, or tank containing an artificial body of water for swimming, diving, relaxation, or recreational bathing and having a depth of two feet or more at any point and including all associated facilities.

(75) "Swim spa" means a type of spa pool used primarily for stationary swimming.

(76) "Trunk line" means suction piping between a junction fitting and a pump or a balancing tank.

(77) "TU" means turbidity unit as measured by the nephelometric method.

(78) "Turnover time" means the minimum time necessary to circulate the entire volume of the pool facility through the treatment system.

(79) "UBC" means Uniform Building Code.

(80) "UL" means Underwriters' Laboratories.

(81) "Wading pool" means any artificial pool of water equal to or less than two feet deep and intended for wading purposes.

(82) "Walking surface" means any surface used as a direct access surface for a pool area and the walking surface's change room facilities where the user is barefoot.

(83) "Water treatment operator" means the appointed person operating the physical and mechanical equipment and performing related water quality monitoring and associated record keeping for proper operation of the physical facility.

(84) "Water recreation facility" means any artificial basin or other structure containing water used or intended to be used for recreation, bathing, relaxation or swimming, where body contact with the water occurs or is intended to occur and includes auxiliary buildings and appurtenances. The term includes, but is not limited to:

(a) Conventional swimming pools, wading pools, and spray pools;

(b) Recreational water contact facilities as defined under RCW 70.90.110 and regulated under chapter 246-262 WAC;

(c) Spa pools and tubs using hot water, cold water, mineral water, air induction, or hydrojets; and

(d) Any area designated for swimming in natural waters with artificial boundaries within the waters.

(85) "WRF" means water recreation facility.

(86) "WRPA" means Washington Recreation and Parks Association.

(87) "WSDA" means Washington state department of agriculture.

(88) "YMCA" means Young Men's Christian Association.

AMENDATORY SECTION (Amending WSR 12-24-070, filed 12/4/12, effective 1/1/14)

WAC 246-291-010 Definitions, abbreviations, and acronyms. The definitions, abbreviations, and acronyms in this section apply throughout this chapter unless the context clearly indicates otherwise.

(1) **"Acute"** means posing an immediate risk to human health.

(2) **"ADD (average day demand)"** means the total volume of water produced from all sources of supply over a calendar year divided by three hundred sixty-five.

(3) **"APWA"** means American Public Works Association.

(4) **"ASTM"** means American Society for Testing and Materials.

(5) **"AWWA"** means American Water Works Association.

(6) **"Board"** means the Washington state board of health.

(7) **"Certified lab"** means an analytical laboratory meeting requirements under chapters 246-390 and 173-50 WAC for one or more drinking water analytical parameters.

(8) **"Coliform bacteria"** means a group of rod-shaped bacteria found in the gastrointestinal tract of vertebrate animals. The presence of coliform bacteria in water is an indicator of possible fecal contamination.

(9) **"Contaminant"** means a substance present in drinking water which may adversely affect the health of the consumer or the aesthetic qualities of the water.

(10) **"Critical water supply service area"** means a geographical area characterized by a proliferation of small, inadequate water systems, or by water supply problems that threaten the present or future water quality or reliability of service in a manner that efficient and orderly development may best be achieved through coordinated planning by the water utilities in the area.

(11) **"Cross-connection"** means any actual or potential physical connection between a public water system or a consumer's water system and any source of nonpotable liquid, solid, or gas that could contaminate the potable water supply by backflow.

(12) **"Cross-connection control plan"** means a document that identifies the procedures the purveyor uses to protect the Group B system from contamination from cross-connections.

(13) **"Department"** means the Washington state department of health.

(14) **"Disinfection"** means the use of chlorine or other agent or process the department approves for killing or inactivating microbiological organisms, including pathogenic and indicator organisms.

(15) **"Distribution system"** means all piping components of a Group B system that serve to convey water from transmission mains linked to source, storage, and treatment facilities to the consumer excluding individual services.

(16) **"Drilled well"** means a well where the well hole is excavated by mechanical means such as rotary, cable tool, or auger drilling equipment.

(17) **"Dwelling unit"** means a structure, or unit within a structure, with independent living facilities for one or more persons that includes permanent provisions for living, sleeping, eating, cooking, and sanitation. A dwelling unit includes, but is not limited to:

(a) A single-family residence; or

(b) Each unit of an apartment building or multifamily building.

(18) **"Ecology"** means the Washington state department of ecology.

(19) **"Equalizing storage"** means the volume of storage needed to supplement supply to consumers when the peak hourly demand exceeds the total source pumping capacity.

(20) **"Expanding Group B system"** means a Group B system installing additions, extensions, changes, or alterations to its existing source, transmission, storage, or distribution facilities that will enable the system to increase the size of its existing service area or the number of approved service connections.

(21) **"Fire flow"** means the maximum rate and duration of water flow needed to suppress a fire under WAC 246-293-640 or as required under local fire protection authority standards.

(22) **"Fire suppression storage"** means the volume of stored water available during fire suppression activities maintaining a pressure of at least 20 psi (140 kPa) at all points throughout the distribution system, and under the condition where the designed volume of fire suppression and equalizing storage has been depleted.

(23) **"Generator disconnect switch"** means an electrical device that physically prevents electrical current from flowing back into the main service line.

(24) **"gpm"** means gallons per minute.

(25) **"Group A public water system"** is defined and referenced under WAC 246-290-020.

(26) **"Group B public water system"** or **"Group B system"** means a public water system that is not a Group A public water system, and is defined and referenced under WAC 246-291-005.

(27) **"Guideline"** means a department document assisting a purveyor in meeting a rule or statutory requirement.

(28) **"GWI (groundwater under the direct influence of surface water)"** means any water beneath the surface of the ground, that the department determines has the following characteristics:

(a) Presence of insects or other macroorganisms, algae, or larger-diameter pathogens such as *Giardia lamblia* or *Cryptosporidium*; or

(b) Significant and relatively rapid shifts in water conditions such as turbidity, temperature, conductivity, or pH closely correlating to weather or surface water conditions, where natural conditions cannot prevent the introduction of surface water pathogens into the source at the systems' point of withdrawal.

(29) **"Health officer"** means the health officer of the local health jurisdiction, or an authorized representative.

(30) **"Human consumption"** means the use of water for drinking, bathing, showering, handwashing, cooking, food preparation, dishwashing, ice-making, or oral hygiene.

(31) **"Hydraulic analysis"** means the study of the Group B system's distribution main and storage network to determine the system's present or future adequacy for providing service to consumers within the established design parameters for the system under peak flow conditions, including fire flow. The analysis establishes the adequacy of design for distribution system components such as piping, elevated storage, booster stations or similar facilities used to pump and convey water to consumers.

(32) **"Infiltration gallery"** means a water collection system built of perforated pipe or conduit and placed in permeable earth, for collecting shallow groundwater. An infiltration gallery is usually located close to springs, wetlands, streams, or ponds.

(33) **"Intertie"** means an interconnection between public water systems permitting the exchange or delivery of water between those systems.

(34) **"JPR (joint plan of responsibility)"** means a written agreement between the department and local health jurisdiction that:

(a) Lists the roles and responsibilities of the department and health officer for reviewing and approving Group B system designs;

(b) Provides for a level of supervision necessary to effectively achieve the responsibilities in the JPR;

(c) Is signed by an authorized representative from the department and local health jurisdiction; and

(d) Is reviewed at least once every five years and updated as needed.

(35) **"kPa"** means kilo pascal (Standard International units of pressure).

(36) **"Local board of health"** means the governing body of a county health department under chapter 70.05 RCW, or a health district under chapter 70.46 RCW.

(37) **"Local health jurisdiction"** means a county health department under chapter 70.05 RCW, city-county health department under chapter 70.08 RCW, or health district under chapter 70.46 RCW.

(38) **"Local permitting authority"** means the local building official, health officer, or authorized representative that makes determinations regarding building permits and development proposals.

(39) **"MCL (maximum contaminant level)"** means the maximum permissible level of a contaminant in water the purveyor delivers to any Group B system consumer, measured at the source before entry to the distribution system.

(40) **"MDD (maximum day demand)"** means the highest actual or estimated quantity of water that is, or is expected to be, used over a twenty-four hour period, excluding unusual events or emergencies.

(41) **"mg/L"** means milligrams per liter (1mg/L = 1 part per million).

(42) **"ml"** means milliliter.

(43) **"mm"** means millimeter.

(44) **"Nonresidential service connection"** means a connection to a public water system that provides potable water including, but not limited to a:

(a) Commercial property;

(b) Industrial property;

(c) Civic property;

(d) Municipal property;

(e) Institutional property;

(f) School;

(g) Recreational use as defined in this section; or

(h) Any other authorized use that provides potable water to a nonresidential population.

(45) **"PAS"** means pitless adaptor standard.

(46) **"PHD (peak hourly demand)"** means the maximum rate of water use, excluding fire flow that can occur within a defined service area over a continuous sixty minute time period. PHD is typically expressed in gallons per minute (gpm).

(47) **"Potable"** means water safe for human consumption.

(48) **"Potential GWI"** means a source identified by the department or local health jurisdiction as possibly under the direct influence of surface water including, but not limited to a:

(a) Well that has a screened interval fifty feet or less from the ground surface at the wellhead and is located within two hundred feet of a freshwater surface water body;

(b) Ranney well;

(c) Infiltration gallery; or

(d) Spring.

(49) **"Primary MCL"** means a standard based on chronic, nonacute, or acute human health effects.

(50) **"psi"** means pounds per square inch.

(51) **"Public water system"** means any system providing water for human consumption through pipes or other constructed conveyances, excluding a system serving only one single-family residence and a system with four or fewer service connections all of which serve residences on the same farm. The term includes:

(a) Collection, treatment, storage, or distribution facilities under the control of a purveyor and used primarily in connection with the system; and

(b) Collection, or pretreatment storage facilities not under the control of a purveyor, and primarily used in connection with the system.

(52) **"Purveyor"** means an agency, subdivision of the state, municipal corporation, firm, company, mutual or cooperative association, institution, partnership, or person or other entity owning or operating a public water system, or applying to create a public water system. Purveyor also means the authorized agents of these entities.

(53) **"Ranney well"** means a water well or collection system including a central chamber with horizontal perforated pipes extending out into an aquifer. The perforated pipes may extend out under a surface water body such as a lake or river.

(54) **"Recreational service connection"** means a connection to a public water system that provides potable water to each:

(a) Campsite; or

(b) Recreational vehicle site.

(55) **"Residential service connection"** means a connection to a public water system that provides potable water to a dwelling unit.

(56) **"Same farm"** means a parcel of land or series of parcels connected by covenants and devoted to the production of livestock or agricultural commodities for commercial purposes.

(57) **"Sanitary survey"** means a review, inspection, and assessment of a public water system by the department or local health jurisdiction.

(58) **"SCA (sanitary control area)"** is defined under WAC 246-291-125(5).

(59) **"SMA (satellite system management agency)"** means a person or entity approved by the department in accordance with chapter 246-295 WAC to own or operate public water systems on a regional or county-wide basis without the necessity for a physical connection between the systems.

(60) **"Secondary MCL"** means a standard based on factors other than health effects.

(61) **"Service connection"** means a residential, nonresidential, or recreational service connection as defined in this section.

(62) **"Single family residence"** means a structure in which one or more persons maintain a common household. A structure is not a single family residence if it is used for an activity requiring a permit or license under one or more of the following rules:

(a) Food service, chapter 246-215 WAC;

(b) Food inspection, chapter 16-165 WAC;

(c) Residential treatment facility, chapter 246-337 WAC;

(d) Transient accommodations, chapter 246-360 WAC;

(e) ((~~Boarding homes~~)) Assisted living facility licensing rules, chapter 388-78A WAC;

(f) Minimum licensing requirements for child care centers, chapter 170-295 WAC;

(g) School-age child care center minimum licensing requirements, chapter 170-151 WAC; or

(h) Adult family home minimum licensing requirements, chapter 388-76 WAC.

(63) **"Spring"** means a source of water where the aquifer comes in contact with the land surface.

(64) **"Surface water"** means a body of water open to the atmosphere and subject to surface runoff, including captured rainfall.

(65) **"WSDOT"** means Washington state department of transportation.

(66) **"Water right"** means a permit, claim, or other authorization, on record with or accepted by the department of ecology, authorizing the beneficial use of water in accordance with all applicable state laws.

(67) **"Well site inspection"** means a physical inspection of the area near an existing or proposed well location, and completion of a department or health officer-approved form that identifies the suitability of the site for a public water supply well.

AMENDATORY SECTION (Amending WSR 96-24-052, filed 11/27/96, effective 12/28/96)

WAC 246-310-020 Applicability of chapter 246-310 WAC. (1) The following undertakings shall be subject to the provisions of chapter 246-310 WAC, with the exceptions provided for in this section.

(a) The construction, development, or other establishment of a new health care facility:

(i) No new health care facility may be initiated as a health service of an existing health care facility without certificate of need approval as a new health care facility;

(ii) The provision of services by a home health agency or hospice to a county, on a regular and ongoing basis, that was not previously included in the home health agency or hospice service area shall be considered the development of a new home health agency or hospice.

(b) The sale, purchase, or lease of part or all of any existing hospital licensed under chapter 70.41 RCW or a psychiatric hospital licensed under chapter 71.12 RCW;

(c) A change in bed capacity of a health care facility increasing the total number of licensed beds or redistributing beds among acute care, nursing home care, and ((~~boarding home~~)) assisted living facility care, as defined under RCW 18.20.020, if the bed redistribution is effective for a period in excess of six months;

(d) Any new tertiary health services offered in or through a health care facility, and not offered on a regular basis by, in, or through such health care facility within the twelve-month period prior to the time the facility will offer such services:

(i) Tertiary services include the following:

(A) Specialty burn services. This is a service designed, staffed, and equipped to care for any burn patient regardless of the severity or extent of the burn. All staff and equipment necessary for any level of burn care are available;

(B) Intermediate care nursery and/or obstetric services level II. Intermediate care nursery is defined in chapter 246-318 WAC. A level II obstetric service is in an area designed, organized, equipped, and staffed to provide a full range of maternal and neonatal services for uncomplicated patients and for the majority of complicated obstetrical problems;

(C) Neonatal intensive care nursery and/or obstetric services level III. Neonatal intensive care nursery is defined in chapter 246-318 WAC. A level III obstetric service is in an area designed, organized, equipped, and staffed to provide services to the few women and infants requiring full intensive care services for the most serious type of maternal-fetal and neonatal illnesses and abnormalities. Such a service provides the coordination of care, communications, transfer, and transportation for a given region. Level III services provide leadership in preparatory and continuing education in prenatal and perinatal care and may be involved in clinical and basic research;

(D) Transplantation of specific solid organs, including, but not limited to, heart, liver, pancreas, lung, small bowel and kidney and including bone marrow. A transplantation service for each solid organ is considered a separate tertiary service;

(E) Open heart surgery and/or elective therapeutic cardiac catheterization including elective percutaneous transluminal coronary angioplasty (PTCA). Open heart surgery includes the care of patients who have surgery requiring the use of a heart lung bypass machine. Therapeutic cardiac catheterization means passage of a tube or other device into the coronary arteries or the heart chambers to improve blood flow. PTCA means the treatment of a narrowing of a coronary artery by means of inflating a balloon catheter at the site of the narrowing to dilate the artery;

(F) Inpatient physical rehabilitation services level I. Level I rehabilitation services are services for persons with usually nonreversible, multiple function impairments of a moderate-to-severe complexity resulting in major changes in the patient's lifestyle and requiring intervention by several rehabilitation disciplines. Services are multidisciplinary, including such specialists as a rehabilitation nurse; and physical, occupational, and speech therapists; and vocational counseling; and a physiatrist. The service is provided in a dedicated unit with a separate nurses station staffed by nurses with specialized training and/or experience in rehabilitation nursing. While the service may specialize (i.e., spinal cord injury, severe head trauma, etc.), the service is able to treat all persons within the designated diagnostic specialization regardless of the level of severity or complexity of the impairments and include the requirements as identified in chapter 246-976 WAC relating to level I trauma rehabilitation services;

(G) Specialized inpatient pediatric services. The service is designed, staffed, and equipped to treat complex pediatric cases for more than twenty-four hours. The service has a staff of pediatric specialists and subspecialists.

(ii) The department shall review, periodically revise, and update the list of tertiary services. The department shall change the tertiary services list following the procedures identified in WAC 246-310-035;

(iii) The offering of an inpatient tertiary health service by a health maintenance organization or combination of health maintenance organizations is subject to the provisions under chapter 246-310 WAC unless the offering is exempt under the provisions of RCW 70.38.111.

(e) Any increase in the number of dialysis stations in a kidney disease center;

(f) Any capital expenditure in excess of the expenditure minimum for the construction, renovation, or alteration of a

nursing home. However, a capital expenditure, solely for any one or more of the following, which does not substantially affect patient charges, is not subject to certificate of need review:

(i) Communications and parking facilities;

(ii) Mechanical, electrical, ventilation, heating, and air conditioning systems;

(iii) Energy conservation systems;

(iv) Repairs to, or the correction of, deficiencies in existing physical plant facilities necessary to maintain state licensure, however, other additional repairs, remodeling, or replacement projects that are not related to one or more deficiency citations and are not necessary to maintain state licensure are not exempt from certificate of need review except as otherwise permitted by (f)(vi) of this subsection or RCW 70.38.115(13);

(v) Acquisition of equipment, including data processing equipment, not for use in the direct provision of health services;

(vi) Construction or renovation at an existing nursing home involving physical plant facilities, including administrative, dining, kitchen, laundry, and therapy areas, or support facilities, by an existing licensee who has operated the beds for at least one year;

(vii) Acquisition of land;

(viii) Refinancing of existing debt; and

(ix) Nursing home project granted a replacement authorization under WAC 246-310-044.

(g) Any expenditure for the construction, renovation, or alteration of a nursing home or change in nursing home services in excess of the expenditure minimum made in preparation for any undertaking subject to the provisions under chapter 246-310 WAC and any arrangement or commitment made for financing such undertaking;

(h) No person may divide a project in order to avoid review requirements under any of the thresholds specified under this section; and

(i) The department may issue certificates of need authorizing only predevelopment expenditures, without authorizing any subsequent undertaking for which the predevelopment expenditures are made.

(2) No person shall engage in any undertaking subject to certificate of need review unless:

(a) A certificate of need authorizing such undertaking is issued and remains valid; or

(b) An exemption is granted in accordance with the provisions of this chapter.

(3) If a nursing home or portion of a nursing home constructed or established under the authority of a certificate of need granted from the pool of nursing home beds for ethnic minorities according to the provisions of WAC 246-310-135 is sold or leased within ten years to a party not eligible for an award of such beds under the provisions of WAC 246-310-136(2):

(a) The purchaser or lessee may not operate those beds as nursing home beds without first obtaining a certificate of need for new beds; and

(b) The beds that were awarded from the special pool shall be returned to that pool.

AMENDATORY SECTION (Amending WSR 98-10-053, filed 4/29/98, effective 5/30/98)

WAC 246-310-120 Concurrent review process. (1) Projects for which the department may establish concurrent review schedules are identified in RCW 70.38.115(7). An annual concurrent review has been scheduled for competing projects proposing:

(a) New nursing homes, not using bed allocations banked under the provisions of RCW 70.38.115(13);

(b) Nursing home bed additions, not using bed allocations banked under the provisions of RCW 70.38.115(13);

(c) The redistribution of beds from the following facility and service categories to nursing home beds:

(i) Acute care((~~,~~));

(ii) ((~~Boarding home,~~)) Assisted living facility; or

(iii) Intermediate care for the mentally retarded.

(2) Procedures for the concurrent review process shall be as follows:

(a) Submittal of initial applications.

(i) Each applicant shall submit one original and one copy of the application to the department.

(ii) Each applicant if requested in writing shall provide a copy of his or her application to the applicant of each other competing application.

(b) Screening of the initial applications.

(i) The department shall screen each initial application during the screening period of the applicable concurrent review cycle schedule.

(ii) The screening period shall begin on the first working day following the last day of the initial application submittal period for the applicable concurrent review cycle schedule.

(iii) The department by, the end of the screening period of the applicable concurrent review cycle schedule, shall send a written request for supplemental information to each applicant.

(iv) Each applicant, by the end of the final application submittal period, shall respond to the department's written request for supplemental information in one of the following ways:

(A) Submitting the requested written supplemental information((~~,~~)); or

(B) Submitting a written request that the incomplete application be reviewed without supplemental information.

(c) Reviewing of final applications.

(i) The department shall commence the review of competing applications on the date prescribed for the applicable concurrent review cycle schedule.

(ii) The total number of days in the public comment and final review periods shall not exceed one hundred and thirty-five, unless extended in accordance with subsection (2)(d) of this section.

(iii) The public comment period shall be a maximum of ninety days from the beginning of the review period, unless the public comment period is extended in accordance with subsection (2)(d) of this section. The first sixty days of the public comment period is reserved for receiving public comment and conducting a public hearing, if requested. The remaining thirty days shall be reserved for the applicant or applicants to provide rebuttal statements to written or oral statements submitted during the first sixty-day period. Any

affected person shall also be provided the opportunity to provide rebuttal statements to written or oral statements submitted during the first sixty-day period.

(iv) The department shall conclude its final review and the secretary's designee shall take action on a certificate of need application within forty-five days after the end of the public comment period, unless extended in accordance with subsection (2)(d) of this section.

(d) Extending review of final applications.

(i) The public comment period shall be extended in accordance with the provisions of WAC 246-310-100.

(ii) The final review period may be extended by the department under the following provisions:

(A) The department informs each applicant of the competing applications of the existence of an unresolved pivotal issue.

(B) The department may make a written request for additional information from one or more of the applicants of the competing applications.

(C) The department shall specify in the written request a deadline for receipt of written responses.

(D) Each applicant receiving such written request may provide a written response within the specified deadline.

(E) The department may extend the final review period for all competing applications up to thirty days after the receipt of the last response to the department's request for additional information or after the specified deadline, whichever occurs first.

AMENDATORY SECTION (Amending WSR 96-24-052, filed 11/27/96, effective 12/28/96)

WAC 246-310-130 Nursing home concurrent review cycles. (1) The department shall review concurrently during review cycles established under subsection (5) of this section the following:

(a) New nursing homes beds not using bed allocations banked under the provisions of RCW 70.38.115(13);

(b) Redistribution of beds from the following facility or service categories to skilled nursing care beds:

(i) Acute care((~~,~~));

(ii) ((~~Boarding home~~)) Assisted living facility care.

(2) Undertakings by continuing care retirement communities (CCRCs), as defined in this section which do not propose or are not operating within a transition period as defined in this section during development, and which meet the following conditions, shall be reviewed under the regular review process per WAC 246-310-160:

(a) The number of nursing home beds requested in a single undertaking shall not exceed sixty; and

(b) After project completion, the number of nursing home beds, including those with which the CCRC contracts, shall not exceed one bed for each four independent living units within the CCRC. In computing this ratio, only independent living units of the CCRC already existing, and/or scheduled for completion at the same time as the proposed nursing home beds under the same financial feasibility plan, shall be counted.

(3) The annual nursing home concurrent review consists of the following cycles:

(a) One of the annual cycles is reserved for the review of competing applications submitted by or on behalf of:

(i) CCRCs applying for nursing home beds available from the statewide CCRC allotment as described in WAC 246-310-380(5); and

(ii) CCRCs which propose or are operating within a transition period during development and are not applying for nursing home beds available from any nursing home planning area.

(b) Two other cycles are established for review of competing applications for nursing home beds needed. The nursing home planning areas are divided into two separate groups.

(4) The department shall use the following nursing home concurrent review application filing procedures:

(a) Each applicant shall:

(i) File the required number of copies of each application as specified in the application information requirements((~~,~~)); and

(ii) Mail or deliver the application so that the department receives it no later than the last day for initial application receipt as prescribed in the schedule for that concurrent review cycle.

(b) The department shall:

(i) Only review applications for which a letter of intent, as described in WAC 246-310-080, was mailed or delivered to the department before the last day for receipt of letters of intent as indicated below;

(ii) Begin screening all applications received during the initial application period on the first working day following the close of that period; and

(iii) Return to the applicant any application received after the last day of the initial application receipt period.

(5) The schedules for the annual nursing home bed concurrent review cycles shall be as follows:

(a) For those applications described in subsection (3)(a) of this section, the concurrent review cycle schedule shall be as follows:

(i) Period for receipt of letters of intent shall begin on the first working day of June and end on the first working day of July((~~,~~));

(ii) Period for receipt of initial applications shall begin on the first working day of July and end on the first working day of August((~~,~~));

(iii) End of initial application completeness screening period is the first working day of September((~~,~~));

(iv) End of final application receipt period is the first working day of October((~~,~~)); and

(v) Beginning of concurrent review period is October 16 or first working day after that date.

(b) For competing applications submitted for nursing home beds available for the Chelan/Douglas, Clallam, Clark/Skamania, Cowlitz, Grant, Grays Harbor, Island, Jefferson, King, Kittitas, Klickitat, Okanogan, Pacific, San Juan, Skagit, Spokane, and Yakima nursing home planning areas, the concurrent review cycle schedule shall be as follows:

(i) Period for receipt of letters of intent shall begin on the first working day of July and end on the first working day of August((~~,~~));

(ii) Period for receipt of initial applications shall begin on the first working day of August and end on the first working day of September((,)); ((and))

(iii) End of initial application completeness screening period is the first working day of October((,)); ((and))

(iv) End of final application receipt period is the first working day of November((,)); and

(v) Beginning of concurrent review period is November 16 or first working day after that date.

(c) For competing applications submitted for nursing home beds available for the Adams, Asotin, Benton, Columbia, Ferry, Franklin, Garfield, Kitsap, Lewis, Lincoln, Mason, Pend Oreille, Pierce, Snohomish, Stevens, Thurston, Wahkiakum, Walla Walla, Whatcom, and Whitman nursing home planning areas, the concurrent review cycle schedule shall be as follows:

(i) Period for receipt of letters of intent shall begin on the first working day of August and end on the first working day of September((,)); ((and))

(ii) Period for receipt of initial applications shall begin on the first working day of September and end on the first working day of October((,)); ((and))

(iii) End of initial application completeness screening period is the first working day of November((,)); ((and))

(iv) End of final application receipt period is the first working day of December((,)); and

(v) Beginning of concurrent review period is December 16 or first working day after that date.

AMENDATORY SECTION (Amending WSR 96-24-052, filed 11/27/96, effective 12/28/96)

WAC 246-310-210 Determination of need. The determination of need for any project shall be based on the following criteria, except these criteria will not justify exceeding the limitation on increases of nursing home beds provided in WAC 246-310-810.

(1) The population served or to be served has need for the project and other services and facilities of the type proposed are not or will not be sufficiently available or accessible to meet that need. The assessment of the conformance of a project with this criterion shall include, but need not be limited to, consideration of the following:

(a) In the case of a reduction, relocation, or elimination of a service, the need the population presently served has for the service, the extent to which the need will be met adequately by the proposed relocation or by alternative arrangements, and the effect of the reduction, elimination, or relocation of the service on the ability of low-income persons, racial and ethnic minorities, women, handicapped persons, and other underserved groups and the elderly to obtain needed health care;

(b) In the case of health services or facilities proposed to be provided, the efficiency and appropriateness of the use of existing services and facilities similar to those proposed;

(c) In the case of an application by an osteopathic or allopathic facility the need for and the availability in the community of services and facilities for osteopathic and allopathic physicians and their patients, and the impact on existing and proposed institutional training programs for doctors of osteopathy and medicine at the student, internship, and residency training levels; and

(d) In the case of a project not involving health services, the contribution of the project toward overall management and support of such services.

(2) All residents of the service area, including low-income persons, racial and ethnic minorities, women, handicapped persons, and other underserved groups and the elderly are likely to have adequate access to the proposed health service or services. The assessment of the conformance of a project with this criterion shall include, but not be limited to, consideration as to whether the proposed services makes a contribution toward meeting the health-related needs of members of medically underserved groups which have traditionally experienced difficulties in obtaining equal access to health services, particularly those needs identified in the applicable regional health plan, annual implementation plan, and state health plan as deserving of priority. Such consideration shall include an assessment of the following:

(a) The extent to which medically underserved populations currently use the applicant's services in comparison to the percentage of the population in the applicant's service area which is medically underserved, and the extent to which medically underserved populations are expected to use the proposed services if approved;

(b) The past performance of the applicant in meeting obligations, if any, under any applicable federal regulations requiring provision of uncompensated care, community service, or access by minorities and handicapped persons to programs receiving federal financial assistance (including the existence of any unresolved civil rights access complaints against the applicant);

(c) The extent to which medicare, medicaid, and medically indigent patients are served by the applicant; and

(d) The extent to which the applicant offers a range of means by which a person will have access to its services (e.g., outpatient services, admission by house staff, admission by personal physician).

(3) The applicant has substantiated any of the following special needs and circumstances the proposed project is to serve.

(a) The special needs and circumstances of entities such as medical and other health professions schools, multidisciplinary clinics and specialty centers providing a substantial portion of their services or resources, or both, to individuals not residing in the health service areas in which the entities are located or in adjacent health service areas.

(b) The special needs and circumstances of biomedical and behavioral research projects designed to meet a national need and for which local conditions offer special advantages.

(c) The special needs and circumstances of osteopathic hospitals and nonallopathic services.

(4) The project will not have an adverse effect on health professional schools and training programs. The assessment of the conformance of a project with this criterion shall include consideration of:

(a) The effect of the means proposed for the delivery of health services on the clinical needs of health professional training programs in the area in which the services are to be provided; and

(b) If proposed health services are to be available in a limited number of facilities, the extent to which the health professions schools serving the area will have access to the services for training purposes.

(5) The project is needed to meet the special needs and circumstances of enrolled members or reasonably anticipated new members of a health maintenance organization or proposed health maintenance organization and the services proposed are not available from nonhealth maintenance organization providers or other health maintenance organizations in a reasonable and cost-effective manner consistent with the basic method of operation of the health maintenance organization or proposed health maintenance organization. In assessing the availability of health services from these providers, the department shall consider only whether the services from these providers:

(a) Would be available under a contract of at least five years' duration;

(b) Would be available and conveniently accessible through physicians and other health professionals associated with the health maintenance organization or proposed health maintenance organization (for example - whether physicians associated with the health maintenance organization have or will have full staff privileges at a nonhealth maintenance organization hospital);

(c) Would cost no more than if the services were provided by the health maintenance organization or proposed health maintenance organization; and

(d) Would be available in a manner administratively feasible to the health maintenance organization or proposed health maintenance organization.

(6) For nursing home projects including distinct part long-term care units located in a hospital and licensed under chapter 70.41 RCW, the following criterion shall apply in addition to those found in WAC 246-310-380.

(a) In the case of an application for new nursing home beds, the department shall find no need if the state is at or above the statewide estimated bed need, except as referenced in WAC 246-310-380(5). However, the department may put under review and subsequently approve or deny applications that propose to redistribute nursing home beds to a planning area under the established ratio. The department may also consider applications that propose to add beds in planning areas under the established ratio using beds banked and for which the need for the beds is not deemed met, under the provisions of RCW 70.38.115(13). For the above projects, the need for such projects, shall, in part, be determined using individual planning area estimated bed need numbers.

(b) If the state is below the statewide estimated bed need or for those projects referenced above, the department shall determine the need for nursing home beds, including distinct part long-term care units located in a hospital licensed under chapter 70.41 RCW, based on:

(i) The availability of other nursing home beds in the planning area to be served; and

(ii) The availability of other services in the planning area to be served. Other services to be considered include, but are not limited to: Assisted living facilities (as defined in chapter ((~~74.39A~~)) 18.20 RCW); ((~~boarding home (as defined in chapter 18.20 RCW);~~)) enhanced adult residential care (as defined in chapter 74.39A RCW); adult residential care (as defined in chapter 74.39A RCW); adult family homes (as defined in chapter 70.128 RCW); hospice, home health and home care (as defined in chapter 70.127 RCW); personal care services (as defined in chapter 74.09 RCW); and home and community services provided under the community options program entry system waiver (as referenced in chapter 74.39A RCW). The availability of other services shall be based on data which demonstrates that the other services are capable of adequately meeting the needs of the population proposed to be served by the applicant. The following variables should be evaluated in this analysis when available:

(A) The current capacity of nursing homes and other long-term care services;

(B) The occupancy rates of nursing homes and other long-term care services over the previous two-year period;

(C) Proposed residential care projects scheduled to be completed within the same period of time indicated on the nursing home certificate of need application; and

(D) The ability of the other long-term care services to serve all people regardless of payor source.

AMENDATORY SECTION (Amending WSR 96-24-052, filed 11/27/96, effective 12/28/96)

WAC 246-310-380 Nursing home bed need standards. (1) The department shall use the following rules in conjunction with the certificate of need review criteria contained in WAC 246-310-210(1) for applications proposing the following:

(a) Construction, development, or other establishment of a new nursing home;

(b) Increase in the licensed bed capacity of a nursing home or a hospital long-term care unit;

(c) Change in license category of beds from the following to nursing home or hospital long-term care unit beds:

(i) Acute care((~~,~~)); or

(ii) ((~~Boarding home~~)) Assisted living facility care;

(2) The department shall comply with the following time schedule for developing bed need projections:

(a) By the last working day in January of each year, the department shall recalculate the estimated bed projection for each ((~~planning area~~)) planning area.

(b) By the last working day in January of each year, the department shall provide the aging and adult services administration of the department of social and health services with the estimated bed need for each ((~~planning area~~)) planning area, pending the department's decisions on applications submitted during the previous year's nursing home concurrent review cycles.

(c) By the last working day in January of each year, the department shall rank order ((~~planning areas~~)) planning areas from lowest to highest by the projected current supply ratio.

(d) By the first working day of June of each year, the department shall calculate the net estimated bed need for each ((~~planning area~~)) planning area.

(3) The estimated bed projections for the projection period, listed by planning area will be updated annually and distributed to interested parties. When a ((~~planning area's~~)) planning area's estimated bed projection is less than the

((~~planning area's~~)) planning area's bed supply as defined by WAC 246-310-350(4), no beds can be added until the statewide established ratio is reached, except as allowed in this section.

(4) The department shall limit to three hundred the total number of nursing home beds approved for all CCRCs which propose or are operating within a transition period.

(a) These three hundred beds available for CCRCs during transition periods shall be in addition to the net nursing home beds needed in all of the ((~~planning areas~~)) planning areas.

(b) All nursing home beds approved for CCRCs which propose or are operating within a transition period shall be counted as beds within this three hundred bed limitation unless and until the CCRC fully complies with all provisions of the CCRCs performance standards.

(5) The department shall not issue certificates of need approving more than the net estimated bed need indicated for a given ((~~planning area~~)) planning area, unless:

(a) The department finds such additional beds are needed to be located reasonably close to the people they serve; and

(b) The department explains such approval in writing.

AMENDATORY SECTION (Amending WSR 10-22-109, filed 11/2/10, effective 12/3/10)

WAC 246-314-010 Definitions. The definitions in this section apply throughout this chapter unless the context clearly indicates otherwise:

(1) "Certified" means facilities that must be certified to participate in medicare or medicaid programs and meet physical environment minimum standards as required in the Code of Federal Regulations.

(2) "Change of approved use only" means a change in the function of a room that does not alter the physical elements.

(3) "Finishes" includes, but is not limited to, products such as carpet, vinyl wall covering, wall paper, exterior siding, landscaping, or paneling applied to an existing surface as the exposed surface.

(4) "Licensed" means facilities licensed from the state department of health (DOH) or state department of social and health services (DSHS) that must obtain approval from construction review services before licensure activity.

(5) "Permit" means a recommendation to the licensing or certifying authority from construction review services indicating that a facility meets the physical environment rules and the plan review process is complete.

(6) "Program" means the Washington state department of health, construction review services.

(7) "Project" means a change to a facility including new construction, replacement, alterations, additions, expansions, conversions, change of approved use, improvements, remodeling, renovating, and upgrading of the following types of facilities:

(a) "Ambulatory surgery center" defined as a facility that is required to be certified for participation in medicare or medicaid or ambulatory surgical facilities licensed under chapters 70.230 RCW and 246-330 WAC;

(b) "Birthing centers" (formerly maternity homes) and "childbirth centers" licensed under chapters 18.46 RCW and 246-329 WAC;

(c) "((~~Boarding homes~~)) Assisted living facilities" licensed under chapters 18.20 RCW and 388-78A WAC;

(d) "Correctional facilities" as defined under RCW 43.70.130(8);

(e) "Hospice care center" licensed under chapters 70.127 RCW and 246-335 WAC;

(f) "Hospitals" licensed under chapters 70.41 RCW and 246-320 WAC;

(g) "Nursing homes" licensed under chapters 18.51 RCW and 388-97 WAC;

(h) "Private alcohol and chemical dependency hospitals" licensed under chapters 71.12 RCW and 246-324 WAC;

(i) "Private psychiatric and alcoholism hospitals" licensed under chapters 71.12 RCW and 246-322 WAC;

(j) "Residential treatment facilities" licensed under chapters 71.12 RCW and 246-337 WAC; and

(k) "Temporary worker housing" licensed under chapters 70.114A RCW and 246-358 WAC.

(8) "Project cost" means all costs directly associated with the project, initially estimated and corrected by certification to the date of completion of the project and including all fixed and installed clinical equipment in the project and contractor supervision, inspection, and overhead. This cost does not include:

(a) Taxes;

(b) Architectural or engineering fees; and

(c) Land acquisition fees.

(9) "Project sponsor" means the person, persons or organization, planning and contracting for the design and construction of facilities, generally the owner or the owner's representative.

(10) "Technical assistance" means assistance provided by the program to facilities either at the program offices or at the project location including:

(a) Information on the laws, rules and compliance methods and technologies applicable to the regulations;

(b) Information on methods to avoid compliance problems;

(c) Assistance in applying for permits, licensure or certification;

(d) Information on the mission, goals, and objectives of the program; and

(e) Assistance to parties constructing projects not required to be licensed or certified and voluntarily wish to comply with rules or guidelines in the interest of safety or best practices.

(11) "Value of existing construction" means the value of an existing building or portion thereof at the time of project submission, based on the current market value of the structure as documented by the project sponsor, or, as determined by assigning a cost per square foot value.

AMENDATORY SECTION (Amending WSR 12-16-057, filed 7/30/12, effective 10/1/12)

WAC 246-320-010 Definitions. For the purposes of this chapter and chapter 70.41 RCW, the following words

and phrases will have the following meanings unless the context clearly indicates otherwise:

(1) "Abuse" means injury or sexual abuse of a patient indicating the health, welfare, and safety of the patient is harmed:

(a) "Physical abuse" means acts or incidents which may result in bodily injury or death.

(b) "Emotional abuse" means verbal behavior, harassment, or other actions which may result in emotional or behavioral stress or injury.

(2) "Agent," when referring to a medical order or procedure, means any power, principle, or substance, whether physical, chemical, or biological, capable of producing an effect upon the human body.

(3) "Alcoholism" means a disease, characterized by a dependency on alcoholic beverages, loss of control over the amount and circumstances of use, symptoms of tolerance, physiological or psychological withdrawal, or both, if use is reduced or discontinued, and impairment of health or disruption of social or economic functioning.

(4) "Alteration" means any change, addition, or modification to an existing hospital or a portion of an existing hospital.

"Minor alteration" means renovation that does not require an increase in capacity to structural, mechanical or electrical systems, which does not affect fire and life safety, and which does not add beds or facilities in addition to that for which the hospital is currently licensed.

(5) "Assessment" means the:

(a) Systematic collection and review of patient-specific data;

(b) A process for obtaining appropriate and necessary information about individuals seeking entry into a health care setting or service; and

(c) Information used to match an individual with an appropriate setting or intervention. The assessment is based on the patient's diagnosis, care setting, desire for care, response to any previous treatment, consent to treatment, and education needs.

(6) "Authentication" means the process used to verify an entry is complete, accurate, and final.

(7) "Bed, bed space or bassinet" means the physical environment and equipment (both movable and stationary) designed and used for twenty-four hour or more care of a patient including level 2 and 3 bassinets. This does not include stretchers, exam tables, operating tables, well baby bassinets, labor bed, and labor-delivery-recovery beds.

(8) "Child" means an individual under the age of eighteen years.

(9) "Clinical evidence" means the same as original clinical evidence used in diagnosing a patient's condition or assessing a clinical course and includes, but is not limited to:

(a) X-ray films;

(b) Digital records;

(c) Laboratory slides;

(d) Tissue specimens; and

(e) Medical photographs.

(10) "Critical care unit or service" means the specialized medical and nursing care provided to patients facing an immediate life-threatening illness or injury. Care is provided by multidisciplinary teams of highly skilled physicians, nurses, pharmacists or other health professionals who interpret complex therapeutic and diagnostic information and have access to sophisticated equipment.

(11) "Department" means the Washington state department of health.

(12) "Dietitian" means an individual meeting the eligibility requirements for active membership in the American Dietetic Association described in *Directory of Dietetic Programs Accredited and Approved*, *American Dietetic Association*, edition 100, 1980.

(13) "Double-checking" means verifying patient identity, agent to be administered, route, quantity, rate, time, and interval of administration by two persons.

(14) "Drugs" as defined in RCW 18.64.011(3) means:

(a) Articles recognized in the official *U.S. Pharmacopoeia* or the official *Homeopathic Pharmacopoeia of the United States*;

(b) Substances intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease in man or other animals;

(c) Substances (other than food) intended to affect the structure or any function of the body of man or other animals; or

(d) Substances intended for use as a component of any substances specified in (a), (b), or (c) of this subsection but not including devices or component parts or accessories.

(15) "Electrical receptacle outlet" means an outlet where one or more electrical receptacles are installed.

(16) "Emergency care to victims of sexual assault" means medical examinations, procedures, and services provided by a hospital emergency room to a victim of sexual assault following an alleged sexual assault.

(17) "Emergency contraception" means any health care treatment approved by the Food and Drug Administration that prevents pregnancy, including, but not limited to, administering two increased doses of certain oral contraceptive pills within seventy-two hours of sexual contact.

(18) "Emergency department" means the area of a hospital where unscheduled medical or surgical care is provided to patients who need care.

(19) "Emergency room" means a space where emergency services are delivered and set apart by floor-to-ceiling partitions on all sides with proper access to an exit access and with all openings provided with doors or windows.

(20) "Emergency medical condition" means a condition manifesting itself by acute symptoms of severity (including severe pain, symptoms of mental disorder, or symptoms of substance abuse) that absent immediate medical attention could result in:

(a) Placing the health of an individual in serious jeopardy;

(b) Serious impairment to bodily functions;

(c) Serious dysfunction of a bodily organ or part; or

(d) With respect to a pregnant woman who is having contractions:

(i) That there is inadequate time to effect a safe transfer to another hospital before delivery; or

(ii) That the transfer may pose a threat to the health or safety of the woman or the unborn child.

(21) "Emergency services" means health care services medically necessary to evaluate and treat a medical condition that manifests itself by the acute onset of a symptom or symptoms, including severe pain, that would lead a prudent layperson acting reasonably to believe that a health condition exists that requires immediate medical attention, and that the absence of immediate medical attention could reasonably be expected to result in serious impairment to bodily functions or serious dysfunction of an organ or part of the body, or would place the person's health, or in the case of a pregnant woman, the health of the woman or her unborn child, in serious jeopardy.

(22) "Emergency triage" means the immediate patient assessment by a registered nurse, physician, or physician assistant to determine the nature and urgency of the person's medical need for treatment.

(23) "Family" means individuals designated by a patient who need not be relatives.

(24) "General hospital" means a hospital that provides general acute care services, including emergency services.

(25) "Governing authority/body" means the person or persons responsible for establishing the purposes and policies of the hospital.

(26) "High-risk infant" means an infant, regardless of age, whose existence is compromised, prenatal, natal, or postnatal factors needing special medical or nursing care.

(27) "Hospital" means any institution, place, building, or agency providing accommodations, facilities, and services over a continuous period of twenty-four hours or more, for observation, diagnosis, or care of two or more individuals not related to the operator who are suffering from illness, injury, deformity, or abnormality, or from any other condition for which obstetrical, medical, or surgical services would be appropriate for care or diagnosis. "Hospital" as used in this chapter does not include:

(a) Hospice care centers which come within the scope of chapter 70.127 RCW;

(b) Hotels, or similar places, furnishing only food and lodging, or simply domiciliary care;

(c) Clinics or physicians' offices, where patients are not regularly kept as bed patients for twenty-four hours or more;

(d) Nursing homes, as defined in and which come within the scope of chapter 18.51 RCW;

(e) Birthing centers, which come within the scope of chapter 18.46 RCW;

(f) Psychiatric or alcoholism hospitals, which come within the scope of chapter 71.12 RCW; nor

(g) Any other hospital or institution specifically intended for use in the diagnosis and care of those suffering from mental illness, mental retardation, convulsive disorders, or other abnormal mental conditions((~~; (h)~~)).

Furthermore, nothing in this chapter will be construed as authorizing the supervision, regulation, or control of the remedial care or treatment of residents or patients in any hospital conducted for those who rely primarily upon treatment by prayer or spiritual means in accordance with the creed or tenets of any well-recognized church or religious denominations.

(28) "Individualized treatment plan" means a written and/or electronically recorded statement of care planned for a patient based upon assessment of the patient's developmental, biological, psychological, and social strengths and problems, and including:

(a) Treatment goals, with stipulated time frames;

(b) Specific services to be utilized;

(c) Designation of individuals responsible for specific service to be provided;

(d) Discharge criteria with estimated time frames; and

(e) Participation of the patient and the patient's designee as appropriate.

(29) "Infant" means an individual not more than twelve months old.

(30) "Invasive procedure" means a procedure involving puncture or incision of the skin or insertion of an instrument or foreign material into the body including, but not limited to, percutaneous aspirations, biopsies, cardiac and vascular catheterizations, endoscopies, angioplasties, and implantations. Excluded are venipuncture and intravenous therapy.

(31) "Licensed practical nurse" means an individual licensed under provisions of chapter 18.79 RCW.

(32) "Maintenance" means the work of keeping something in safe, workable or suitable condition.

(33) "Medical equipment" means equipment used in a patient care environment to support patient treatment and diagnosis.

(34) "Medical staff" means physicians and other practitioners appointed by the governing authority.

(35) "Medication" means any substance, other than food or devices, intended for use in diagnosing, curing, mitigating, treating, or preventing disease.

(36) "Multidisciplinary treatment team" means a group of individuals from various disciplines and clinical services who assess, plan, implement, and evaluate treatment for patients.

(37) "Neglect" means mistreatment or maltreatment; a disregard of consequences or magnitude constituting a clear and present danger to an individual patient's health, welfare, and safety.

(a) "Physical neglect" means physical or material deprivation, such as lack of medical care, lack of supervision, inadequate food, clothing, or cleanliness.

(b) "Emotional neglect" means acts such as rejection, lack of stimulation, or other acts which may result in emotional or behavioral problems, physical manifestations, and disorders.

(38) "Neonate" means a newly born infant under twenty-eight days of age.

(39) "Neonatologist" means a pediatrician who is board certified in neonatal-perinatal medicine or board eligible in neonatal-perinatal medicine, provided the period of eligibility does not exceed three years, as defined and described in *Directory of Residency Training Programs* by the Accreditation Council for Graduate Medical Education, American Medical Association, 1998 or the *American Osteopathic Association Yearbook and Directory*, 1998.

(40) "New construction" means any of the following:

(a) New facilities to be licensed as a hospital;

(b) Renovation; or

(c) Alteration.

(41) "Nonambulatory" means an individual physically or mentally unable to walk or traverse a normal path to safety without the physical assistance of another.

(42) "Nursing personnel" means registered nurses, licensed practical nurses, and unlicensed assistive nursing personnel providing direct patient care.

(43) "Operating room (OR)" means a room intended for invasive and noninvasive surgical procedures.

(44) "Patient" means an individual receiving (or having received) preventive, diagnostic, therapeutic, rehabilitative, maintenance, or palliative health services.

(a) "Inpatient" means services that require admission to a hospital for twenty-four hours or more.

(b) "Outpatient" means services that do not require admission to a hospital for twenty-four hours or more.

(45) "Patient care areas" means all areas of the hospital where direct patient care is delivered and where patient diagnostic or treatment procedures are performed.

(46) "Patient care unit or area" means a physical space of the hospital including rooms or areas containing beds or bed spaces, with available support ancillary, administrative, and services for patient.

(47) "Person" means any individual, firm, partnership, corporation, company, association, or joint stock association, and the legal successor thereof.

(48) "Pharmacist" means an individual licensed by the state board of pharmacy chapter 18.64 RCW.

(49) "Pharmacy" means every place properly licensed by the board of pharmacy where the practice of pharmacy is conducted.

(50) "Physician" means an individual licensed under chapter 18.71 RCW, Physicians, chapter 18.22 RCW, Podiatric medicine and surgery, or chapter 18.57 RCW, Osteopathy—Osteopathic medicine and surgery.

(51) "Prescription" means an order for drugs or devices issued by a practitioner authorized by law or rule in the state of Washington for a legitimate medical purpose.

(52) "Procedure" means a particular course of action to relieve pain, diagnose, cure, improve, or treat a patient's condition.

(53) "Protocols" and "standing order" mean written or electronically recorded descriptions of actions and interventions for implementation by designated hospital staff under defined circumstances under hospital policy and procedure.

(54) "Psychiatric service" means the treatment of patients pertinent to a psychiatric diagnosis.

(55) "Recovery unit" means a physical area for the segregation, concentration, and close or continuous nursing observation of patients for less than twenty-four hours immediately following anesthesia, obstetrical delivery, surgery, or other diagnostic or treatment procedures.

(56) "Registered nurse" means an individual licensed under chapter 18.79 RCW.

(57) "Restraint" means any method used to prevent or limit free body movement including, but not limited to, involuntary confinement, a physical or mechanical device, or a drug given not required to treat a patient's symptoms.

(58) "Room" means a space set apart by floor-to-ceiling partitions on all sides with proper access to a corridor and with all openings provided with doors or windows.

(59) "Seclusion" means the involuntary confinement of a patient in a room or area where the patient is physically prevented from leaving.

(60) "Seclusion room" means a secure room designed and organized for temporary placement, care, and observation of one patient with minimal sensory stimuli, maximum security and protection, and visual and auditory observation by authorized personnel and staff. Doors of seclusion rooms have staff-controlled locks.

(61) "Sexual assault" means one or more of the following:

(a) Rape or rape of a child;

(b) Assault with intent to commit rape or rape of a child;

(c) Incest or indecent liberties;

(d) Child molestation;

(e) Sexual misconduct with a minor;

(f) Custodial sexual misconduct;

(g) Crimes with a sexual motivation; or

(h) An attempt to commit any of the items in (a) through (g) of this subsection.

(62) "Severe pain" means a level of pain reported by a patient of 8 or higher based on a 10 point scale with 1 being the least and 10 being the most pain.

(63) "Specialty hospital" means a subclass of hospital that is primarily or exclusively engaged in the care and treatment of one of the following categories:

(a) Patients with a cardiac condition;

(b) Patients with an orthopedic condition;

(c) Patients receiving a surgical procedure; and

(d) Any other specialized category of services that the secretary of health and human services designates as a specialty hospital.

(64) "Staff" means paid employees, leased or contracted persons, students, and volunteers.

(65) "Surgical procedure" means any manual or operative procedure performed upon the body of a living human being for the purpose of preserving health, diagnosing or curing disease, repairing injury, correcting deformity or defect, prolonging life or relieving suffering, and involving any of the following:

(a) Incision, excision, or curettage of tissue;

(b) Suture or repair of tissue including a closed as well as an open reduction of a fracture;

(c) Extraction of tissue including the premature extraction of the products of conception from the uterus; or

(d) An endoscopic examination.

(66) "Surrogate decision-maker" means an individual appointed to act on behalf of another when an individual is without capacity as defined in RCW 7.70.065 or has given permission.

(67) "Transfer agreement" means a written agreement providing an effective process for the transfer of a patient requiring emergency services to a general hospital providing emergency services and for continuity of care for that patient.

(68) "Treatment" means the care and management of a patient to combat, improve, or prevent a disease, disorder, or injury, and may be:

(a) Pharmacologic, surgical, or supportive;

(b) Specific for a disorder; or

(c) Symptomatic to relieve symptoms without effecting a cure.

(69) "Unlicensed assistive personnel (UAP)" means individuals trained to function in an assistive role to nurses in the provision of patient care, as delegated by and under the supervision of the registered nurse. Typical activities performed by unlicensed assistive personnel include, but are not limited to: Taking vital signs; bathing, feeding, or dressing patients; assisting patient with transfer, ambulation, or toileting. Definition includes: Nursing assistants; orderlies; patient care technicians/assistants; and graduate nurses (not yet licensed) who have completed unit orientation. Definition excludes: Unit secretaries or clerks; monitor technicians; therapy assistants; student nurses fulfilling educational requirements; and sitters who are not providing typical UAP activities.

(70) "Victim of sexual assault" means a person is alleged to have been sexually assaulted and who presents as a patient.

(71) "Vulnerable adult" means, as defined in chapter 74.34 RCW, a person sixty years of age or older who lacks the functional, physical, or mental ability to care for him or herself; an adult with a developmental disability under RCW 71A.10.020; an adult with a legal guardian under chapter 11.88 RCW; an adult living in a long-term care facility (an adult family home, ((~~boarding home~~)) assisted living facility or nursing home); an adult living in their own or a family's home receiving services from an agency or contracted individual provider; or an adult self-directing their care under RCW 74.39.050. For the purposes of requesting background checks pursuant to RCW 43.43.832, it shall also include adults of any age who lack the functional, mental, or physical ability to care for themselves. For the purposes of this chapter, it shall also include hospitalized adults.

(72) "Well-being" means free from actual or potential harm, abuse, neglect, unintended injury, death, serious disability or illness.

WSR 14-08-067
PERMANENT RULES
SUPERINTENDENT OF PUBLIC INSTRUCTION

[Filed March 31, 2014, 10:54 a.m., effective May 1, 2014]

Effective Date of Rule: Thirty-one days after filing.

Purpose: Substantial changes to chapter 28A.165 RCW, the learning assistance program (LAP), were made during the 2013 second special legislative session under ESSB 5946. Hearings were held by the house and the senate education committees on the proposed legislative changes to LAP and on the proposed new additions to LAP. The changes include the following: The removal of the requirement for districts to submit a LAP application to OSPI for approval, the removal of the requirement for districts to have an accelerated student learning plan for all LAP students, the additional requirement to serve students in grades kindergarten through four who are at basic or below basic on state or local assessments, the requirement that districts must select best practices and strategies selected by a state panel of experts for reading (ELA), mathematics, and programs to reduce disruptive student behaviors in the classroom.

Citation of Existing Rules Affected by this Order: Amending chapter 392-162 WAC.

Statutory Authority for Adoption: RCW 28A.165.075.

Adopted under notice filed as WSR 13-19-058 on September 16, 2013.

Changes Other than Editing from Proposed to Adopted Version: Eleven sections have been amended. Amending WAC 392-162-005 Authority, 392-162-010 Purpose, 392-162-020 Definition—Learning assistance program, 392-162-025 Definition—Student statewide assessments, 392-162-032 Definition—Participating student, 392-162-033 Definition—Underachieving students, 392-162-054 Definition—District eligibility and distribution of funds, 392-162-080 Program requirement—Selection of students, 392-162-110 Program requirement—Annual Report, and 392-162-115 Monitoring of districts.

Three sections have been added. New sections WAC 392-162-041 Best practices, 392-162-051 District selection of best practices and strategies for use in the learning assistance program, and 392-162-056 Exception to state-approved selection of best practices and strategies.

Six sections have been repealed. Repealing WAC 392-162-034 Accelerated learning plans, 392-162-045 Definition—Approved program, 392-162-060 District application, 392-162-062 Program plan revision, 392-162-068 Program plan, and 392-162-072 Program plan—Approved activities.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 3, Amended 11, Repealed 6; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

Date Adopted: November 19, 2014.

Randy Dorn
State Superintendent
of Public Instruction

AMENDATORY SECTION (Amending WSR 08-21-053, filed 10/9/08, effective 11/9/08)

WAC 392-162-005 Authority. The authority for this chapter is RCW 28A.165.075 which authorizes the superintendent of public instruction to adopt rules and regulations for the administration of a program designed to provide learning assistance to public school students in grades kindergarten through twelve who ((~~are deficient in basic skills achievement~~)) score below standard in reading, writing, and mathematics for his or her grade level.

AMENDATORY SECTION (Amending WSR 09-24-075, filed 11/30/09, effective 12/31/09)

WAC 392-162-010 Purpose. The purpose of this chapter is to set forth policies and procedures for the administration of and to ensure district compliance with state requirements for a program designed to ((~~provide extended learning opportunities to public school~~)) assist underachieving students in grades kindergarten through twelve who score below standard in reading, writing, and mathematics for his or her grade level ((~~on the statewide assessments and assessments in the basic skills administered by local school districts~~)).

The learning assistance program requirements in this chapter are designed to:

(1) ((~~Provide the means by which a school district becomes eligible for learning assistance program funds and the distribution of those funds;~~

~~(2) Promote the use of assessment data when developing programs to assist underachieving students;~~)) Direct districts as they implement a learning assistance program that learning assistance program funds must first be used to address the needs of students in grades kindergarten through four who are deficient in reading or reading readiness skills to improve reading literacy;

(2) Promote the use of data when developing programs to assist underachieving students and reduce disruptive behaviors in the classroom;

(3) Guide school districts in providing the most effective and efficient practices when implementing supplemental instruction and services to assist underachieving students and reduce disruptive behaviors in the classroom; and

(4) Guide school districts in providing extended learning opportunities to assist underachieving students and students in grades eleven and twelve who are at risk of not meeting state and local graduation requirements.

AMENDATORY SECTION (Amending WSR 09-24-075, filed 11/30/09, effective 12/31/09)

WAC 392-162-020 Definition—Learning assistance program (LAP). As used in this chapter, the term "learning assistance program" means a statewide program designed to enhance educational opportunities for public school students in grades kindergarten through twelve who do not meet state reading, writing, and mathematics standards by providing supplemental instruction and services to those students. School districts implementing a learning assistance program must first focus on addressing the needs of students in grades kindergarten through four who are deficient in reading or reading readiness skills. The learning assistance program may then be used to support underachieving students in grades kindergarten through twelve by providing supplemental reading, writing, or mathematics instruction, by addressing the needs of eleventh and twelfth grade students to assist them in meeting state and district graduation requirements, and to reduce disruptive behaviors in the classroom.

AMENDATORY SECTION (Amending WSR 08-21-053, filed 10/9/08, effective 11/9/08)

WAC 392-162-025 Definition—Statewide student assessments. As used in this chapter, the term "statewide student assessments" means one or more of the ((~~several basic skills assessments administered as part of the state's student assessment system, and~~)) assessments ((~~in the basic skills areas~~)) administered by ((~~local~~)) school districts as required under RCW 28A.655.070.

AMENDATORY SECTION (Amending WSR 08-21-053, filed 10/9/08, effective 11/9/08)

WAC 392-162-032 Definition—Participating student. As used in this chapter, the term "participating student" means a student in kindergarten through grade twelve who scores below standard for his or her grade level ((~~on the statewide assessments and who is identified in the approved plan to receive services and students in grades eleven and twelve who are at risk of not meeting state or local graduation requirements~~)) using multiple measures of performance, including on the statewide student assessments or other assessments and performance or other assessments and performance measurement tools administered by the school or district and who is identified by the district to receive services.

AMENDATORY SECTION (Amending WSR 08-21-053, filed 10/9/08, effective 11/9/08)

WAC 392-162-033 Definition—Underachieving students. As used in this chapter, the term "underachieving students" means students with the greatest academic deficits in basic skills as identified by ((~~the~~)) statewide, school, or district assessments ((~~and assessments in the basic skills areas administered by the local school district~~)) or other performance tools.

NEW SECTION

WAC 392-162-041 Best practices. Best practices as identified by the office of superintendent of public instruction are to be used to provide learning assistance program educational instructional materials and strategies to identified learning assistance students. The practices implemented must be research-based and have demonstrated that the practice has increased student academic success. During the 2013-14 and 2014-15 school years, districts may select from the following:

(1) Extended learning opportunities occurring:

(a) Before or after the regular school day;

(b) On Saturday; and

(c) Beyond the regular school year.

(2) Services under RCW 28A.320.190.

(3) Professional development for certificated and classified staff that focuses on:

(a) The needs of a diverse student population;

(b) Specific literacy and mathematics content and instructional strategies; and

(c) The use of student work to guide effective instruction and appropriate assistance.

(4) Consultant teachers to assist in implementing effective instructional practices by teachers serving participating students.

(5) Tutoring support for participating students.

(6) Outreach activities and support for parents of participating students, including employing parent and family engagement coordinators.

(7) Up to five percent of district's learning assistance program allocation may be used for development of partnerships with community-based organizations, educational service districts, and other local agencies to deliver academic and nonacademic supports to participating students who are significantly at-risk of not being successful in school to reduce barriers to learning, increase student engagement, and enhance students' readiness to learn. The office of the superintendent of public instruction must approve any community-based organization or local agency before learning assistance program funds may be expended.

NEW SECTION

WAC 392-162-051 District selection of best practices and strategies for use in the learning assistance program. Beginning in the 2016-17 school year districts must select a practice or strategy that is on the state-approved menu for the learning assistance program. School districts may enter into cooperative agreements with state agencies, local governments, or school districts for administrative or operational costs needed to provide services in accordance with the state menus developed beginning in 2016-17.

AMENDATORY SECTION (Amending WSR 09-24-075, filed 11/30/09, effective 12/31/09)

WAC 392-162-054 Definition—District eligibility and distribution of funds. ((~~Each school district with an approved program is eligible for state funds provided for the learning assistance program.~~)) The funds for the learning assistance program shall be appropriated ((~~for the learning assistance program~~)) in accordance with the Omnibus Appropriations Act and RCW 28A.150.260. The distribution formula is for school district allocation purposes only, but funds appropriated for the learning assistance program must be expended for the purposes of RCW 28A.165.005 through 28A.165.065((~~. The distribution formula shall be based on one or more family income factors measuring economic need~~)) and for chapter 28A.655 RCW. A school district's funded students for the learning assistance program shall be the sum of the district's full-time equivalent enrollment in grades K-12 for the prior school year multiplied by the district's percentage of October headcount enrollment in grades K-12 eligible for free or reduced price lunch in the prior school year.

NEW SECTION

WAC 392-162-056 Exception to state-approved selection of best practices and strategies for use in the learning assistance program. Beginning in the 2016-17 school year, school districts may use a practice or strategy that is not on the state menu for two years. At the end of the two years, the district must be able to demonstrate improved outcomes for participating learning assistance program students. If the district is able to demonstrate improved outcomes commensurate with the state approved menu for such students, the office of the superintendent of public instruction will approve the use of the alternative practice for one additional year. For each subsequent year, the district must provide data that demonstrates that participating students are meeting or exceeding academic achievement compared to those students who are being served by a state approved best practices and strategy.

AMENDATORY SECTION (Amending WSR 08-21-053, filed 10/9/08, effective 11/9/08)

WAC 392-162-080 Program requirement—Selection of students. Students selected to participate in the learning assistance program shall be limited to those who:

(1) Are enrolled in grades kindergarten through twelve;

(2) ((~~Are performing below the state standard for his or her grade level;~~

~~(3) Have been identified in the approved district plan to receive services;~~

~~(4) Have been determined to have the greatest risk of not meeting the state's challenging content and performance standards; and~~

~~(5)~~)) Who score below standard for his or her grade level using multiple measures of performance, including on the statewide student assessments or other assessments and performance measurement tools administered by the school or district and who is identified by the district to receive services; and

(3) Are in grades eleven or twelve and are at risk of not meeting state or local graduation requirements as defined in RCW 28A.320.190.

AMENDATORY SECTION (Amending WSR 07-02-015, filed 12/21/06, effective 1/21/07)

WAC 392-162-110 Program requirement—((~~End of year~~)) Annual report. Districts shall submit to the superintendent of public instruction ((~~at the close of the state fiscal year~~)) by August 1, 2014, and each August 1st thereafter, an ((~~end of the year~~)) annual report on electronic forms provided by the superintendent of public instruction. The report must include the following:

(1) The amount of academic growth gained by students participating in the learning assistance program;

(2) The number of students who gain at least one year of academic growth; and

(3) The specific practices, activities, and programs used by each school building that received learning assistance program funds.

AMENDATORY SECTION (Amending WSR 07-02-015, filed 12/21/06, effective 1/21/07)

WAC 392-162-115 Monitoring of districts. In order to insure that school districts are meeting the requirements of

this chapter, the superintendent of public instruction shall monitor ((~~district~~)) learning assistance programs no less than once every four years by using the state program review process. The primary purpose of the monitoring is to evaluate the effectiveness of a district's allocation and expenditure of resources and to monitor school district fidelity in their implementation of best practices. Individual student records shall be ((~~maintained at the school district~~)) recorded beginning with the 2014-15 school year, in the statewide individual student data system annual entrance and exit performance data for each student participating in the learning assistance program according to specifications established by the office of the superintendent of public instruction.

REPEALER

The following sections of the Washington Administrative Code are repealed:

WAC 392-162-034	Accelerated learning plans.
WAC 392-162-045	Definition—Approved program.
WAC 392-162-060	District application.
WAC 392-162-062	Program plan revision.
WAC 392-162-068	Program plan.
WAC 392-162-072	Program plan—Approved activities.
WAC 392-162-075	Program approval.
WAC 392-162-105	Program requirement—Program evaluation.

WSR 14-08-072
PERMANENT RULES
SUPERINTENDENT OF PUBLIC INSTRUCTION

[Filed March 31, 2014, 1:52 p.m., effective May 1, 2014]

Effective Date of Rule: Thirty-one days after filing.

Purpose: WAC 392-343-035(3) Space allocations, in accordance with the proviso language in ESSB 5035, the small high school space allocation calculation changed from 0-100 student headcount to 0-200 student headcount.

Citation of Existing Rules Affected by this Order: Amending WAC 392-343-035(3).

Statutory Authority for Adoption: RCW 28A.552.020.

Adopted under notice filed as WSR 14-04-004 on January 22, 2014.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 1, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

Date Adopted: March 18, 2014.

Randy Dorn
Superintendent of
Public Instruction

AMENDATORY SECTION (Amending WSR 10-09-008, filed 4/8/10, effective 5/9/10)

WAC 392-343-035 Space allocations. (1) State funding assistance in the construction of school facilities for grades kindergarten through twelve and classrooms planned for the exclusive use of students with developmental disabilities shall be based on a space allocation per enrolled student and for state funding assistance purposes shall be computed in accordance with the following table:

	Through June 30, 2006	Beginning July 1, 2006
Grade or Area	Maximum Space Allocation Per Student	Maximum Space Allocation Per Student
Grades kindergarten through six	80 square feet	90 square feet
Grades seven and eight	110 square feet	117 square feet
Grades nine through twelve	120 square feet	130 square feet
Classrooms for students with developmental disabilities	140 square feet	144 square feet

For purposes of this subsection, students with developmental disabilities shall be counted as one student for each such student assigned to a specially designated self-contained classroom for students with developmental disabilities for at least one hundred minutes per school day, calculated on actual headcount enrollment submitted to the superintendent of public instruction.

(2) State funding assistance for construction of vocational skill centers shall be based on one-half of students enrolled on October 1 and computed as follows:

Type of Facility	Maximum Space Allocation Per One-Half Enrolled Student
Skill Centers	140 square feet

(3) Space allocation for state funding assistance purposes for districts with senior or four-year high schools with fewer than four hundred students shall be computed in accordance with the following formula:

Number of Headcount Student-Grades 9-12	Maximum Space Allocation Per Facility
((~~0-100~~	~~37,000 square feet~~))
((~~101~~)) 01-200	42,000 square feet
201-300	48,000 square feet
301-or more	52,000 square feet

WSR 14-08-073
PERMANENT RULES
SUPERINTENDENT OF PUBLIC INSTRUCTION

[Filed March 31, 2014, 1:59 p.m., effective May 1, 2014]

Effective Date of Rule: Thirty-one days after filing.

Purpose: WAC 392-340-210 Adjustment of assets and liabilities—Time considerations, changes to WAC 392-340-210 are necessary to be consistent with county deadline for establishing taxing rates in the event of a school district boundary change. The deadline for establishing taxing rates for the following year is August 1.

Citation of Existing Rules Affected by this Order: Amending WAC 392-340-210.

Statutory Authority for Adoption: RCW 28A.525.020.

Adopted under notice filed as WSR 14-04-005 on January 22, 2014.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 1, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

Date Adopted: March 18, 2014.

Randy Dorn
Superintendent of
Public Instruction

AMENDATORY SECTION (Amending WSR 09-03-053, filed 1/13/09, effective 2/13/09)

WAC 392-340-210 Adjustment of assets and liabilities~~—~~Time considerations. A regional committee is authorized to phase in the adjustment of assets and liabilities over a period not less than two years nor more than eight years. This authorization is subject to the annual ((~~March~~)) August 1 deadline for taxing districts to establish the taxing boundaries and rates for the ensuing tax collection year.

WSR 14-08-084
PERMANENT RULES
DEPARTMENT OF HEALTH

[Filed April 1, 2014, 11:17 a.m., effective July 1, 2014]

Effective Date of Rule: July 1, 2014.

Purpose: WAC 246-835-990 License fees, the rule decreases fees for genetic counselors in response to a petition for a review of fees. This decrease aligns revenue with the program's expenses while maintaining reserves for unanticipated events, such as increased disciplinary costs.

Citation of Existing Rules Affected by this Order: Amending WAC 246-825-990.

Statutory Authority for Adoption: RCW 43.70.110, 43.70.250.

Adopted under notice filed as WSR 14-01-075 on December 16, 2013.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 1, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 1, Repealed 0.

Date Adopted: March 30, 2014.

John Wiesman, DrPh, MPH
Secretary

AMENDATORY SECTION (Amending WSR 10-22-090, filed 11/1/10, effective 11/1/10)

WAC 246-825-990 License fees. (1) Licenses must be renewed every year on the practitioner's birthday as provided under chapter 246-12 WAC, Part 2.

(2) The following nonrefundable fees will be charged:

Title	Fee
Application	((~~300.00~~)) 200.00
Renewal	((~~300.00~~)) 200.00
Late renewal penalty	((~~150.00~~)) 100.00
Expired license reissuance	((~~150.00~~)) 100.00
Duplicate license	30.00
Certification of licensure	30.00

(3) The following nonrefundable fees will be charged for provisional license:

Title	Fee
Application	30.00
Renewal	30.00
Late renewal penalty	30.00
Duplicate provisional license	30.00

WSR 14-08-095
PERMANENT RULES
DEPARTMENT OF AGRICULTURE
[Filed April 2, 2014, 10:25 a.m., effective May 3, 2014]

Effective Date of Rule: Thirty-one days after filing.

Purpose: To exempt liquid formulations of ready-to-use phenoxy hormone-type herbicides from being declared state restricted use pesticides. Currently, salt formulations of phenoxy hormone-type herbicides distributed in quantities of one gallon or less and dry formulations intended only for home and garden use or turf use are exempt from being designated as state restricted use. The amendments add ready-to-use liquid formulations to the list of exempted products. The proposed amendments are a result of a petition for rule making submitted by The Scotts Company, LLC.

Citation of Existing Rules Affected by this Order: Amending WAC 16-228-1231 and 16-230-610.

Statutory Authority for Adoption: RCW 15.58.040 and 17.21.030.

Other Authority: Chapter 34.05 RCW.

Adopted under notice filed as WSR 14-04-100 on February 4, 2014.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 2, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 0, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

Date Adopted: April 2, 2014.

Bud Hover
Director

AMENDATORY SECTION (Amending WSR 07-11-041A, filed 5/9/07, effective 6/9/07)

WAC 16-228-1231 What are state restricted use pesticides for distribution by licensed pesticide dealers and for use by certified applicators only? (1) Pesticides defined by the following categories or active ingredients are hereby declared state restricted use pesticides and shall be distributed only by licensed pesticide dealers to certified applicators or to their duly authorized agents. The certified applicator must have a valid certification, license or permit to use or purchase the kind and quantity of such pesticide sold or delivered. These pesticides shall be used or applied only by certified applicators or persons under the direct supervision of a certified applicator, and only for those uses covered by the certified applicator's license category.

(a) Any EPA restricted use pesticide.

(b) All formulations of phenoxy hormone-type herbicides (e.g., 2,4-D, 2,4-DB, 2,4-DP (dichlorprop), MCPA, MCPB, MCPP (mecoprop)) and dicamba when distributed in counties located east of the crest of the Cascade Mountains except as listed below:

(i) Salt formulations, including amine and sodium, distributed in quantities of one gallon or less;

(ii) Dry formulations of phenoxy hormone-type herbicides (e.g., 2,4-D, 2,4-DB, 2,4-DP (dichlorprop), MCPA, MCPB, MCPP (mecoprop)) and dicamba labeled and intended only for home and garden use or for turf;

(iii) Ready to use liquid formulations of phenoxy hormone-type herbicides (e.g., 2,4-D, 2,4-DB, 2,4-DP (dichlorprop), MCPA, MCPB, MCPP (mecoprop)) and dicamba distributed in quantities of five gallons or less. For purposes of this subsection, ready to use means a pesticide that is applied directly from its original container consistent with label directions.

(c) Strychnine and its salts.

(d) Aquatic pesticides. All pesticides formulations labeled for application onto or into water to control pests on or in water except as provided in subsection (2) of this section.

(2) Pesticides which are not classified as EPA restricted use pesticides and which are labeled and intended only for the following aquatic uses shall be exempt from the requirements of this section:

(a) Swimming pools;

(b) Wholly impounded ornamental pools or fountains;

(c) Aquariums;

(d) Closed plumbing and sewage systems;

(e) Enclosed food processing systems;

(f) Air conditioners, humidifiers, and cooling towers;

(g) Industrial heat exchange, air washing and similar industrial systems;

(h) Disinfectants;

(i) Aquatic environments in states other than Washington;

(j) Animal pets;

(k) Use within wholly enclosed structures (with floors) or fumigation chambers. Greenhouses are not considered as wholly enclosed structures for the purposes of this section; and

(l) Home and garden control of mosquito larvae.

(3) Pesticides containing the following active ingredients and their isomers are declared state restricted use pesticides for the protection of groundwater except when labeled and intended only for home and garden use((-)):

Atrazine;
Bromacil;
((~~dcpa~~)) DCPA;
Disulfoton;
Diuron;
Hexazinone;
Metolachlor;
Metribuzin;
Picloram;
Prometon;
Simazine; and
Tebuthiuron.

(4) Distribution of pesticides bearing combined labeling of uses onto or into water plus nonaquatic general uses, may be made by licensed pesticide dealers to noncertified applicators if the dealer indicates on the sales slip or invoice that the purchaser of the pesticide agrees that it will not be applied into or onto water. If requested by the department, dealers shall furnish records on the sales of pesticides labeled for application onto or into water, whether sold for that use or not. Records shall include the name and address of the purchaser, the complete product name and EPA registration number of the pesticide and the amount purchased. Records shall be kept for seven years from the date of distribution.

(5) Certified applicators may designate authorized agent(s) for the purpose of purchasing or receiving restricted use pesticides by making previous arrangements with the pesticide dealer, or the authorized agent may provide written authorization by the certified applicator to the dealer at the time of purchase. At the time of purchase by an authorized agent the pesticide dealer shall require the certified applicator's name and license number and positive identification of the authorized agent.

(6) Pesticide dealers must positively identify unknown purchasers of restricted use pesticides. Positive identification may be annually at the time of verification of the certified applicator's license number or for each individual purchase if the applicator is unknown to the dealer. Dealers must verify the identification of unknown purchasers of restricted use pesticides for telephone or electronic purchases either by fax (photo identification) or at the time of delivery.

AMENDATORY SECTION (Amending WSR 07-11-041A, filed 5/9/07, effective 6/9/07)

WAC 16-230-610 What are use restricted herbicides in Eastern Washington? All formulations of phenoxy hormone-type herbicides (e.g., 2,4-D, 2,4-DB, 2,4-DP (dichlorprop), MCPA, MCPB, MCPP (mecoprop)) and dicamba except as listed below are use restricted herbicides.

(1) Salt formulations, including amine and sodium, distributed in quantities of one gallon or less;

(2) Dry formulations of phenoxy hormone-type herbicides (e.g., 2,4-D, 2,4-DB, 2,4-DP (dichlorprop), MCPA, MCPB, MCPP (mecoprop)) and dicamba labeled and intended only for home and garden use or for turf.

(3) Ready-to-use liquid formulations of phenoxy hormone-type herbicides (e.g., 2,4-D, 2,4-DB, 2,4-DP (dichlorprop), MCPA, MCPB, MCPP (mecoprop)) and dicamba distributed in quantities of five gallons or less. For purposes of this subsection, "ready-to-use" means a pesticide that is applied directly from its original container consistent with label directions.