

AMENDATORY SECTION (Amending WSR 01-11-038, filed 5/9/01, effective 9/1/01)

WAC 296-24-23503 General requirements. (1) Application. This section applies to overhead and gantry cranes, including semigantry, cantilever gantry, wall cranes, storage bridge cranes, and others having the same fundamental characteristics. These cranes are grouped because they all have trolleys and similar travel characteristics.

(2) New and existing equipment. All new overhead and gantry cranes constructed and installed on or after the effective date of these standards, shall meet the design specifications of the American National Standards Institute, Safety Code for Overhead and Gantry Cranes, ANSI B30.2.0-1967. Overhead and gantry cranes constructed before the effective date of these standards, should be modified to conform to those design specifications, unless it can be shown that the crane cannot feasibly or economically be altered and that the crane substantially complies with the requirements of this section. (See (~~WAC 296-350-700 variance from WISHA rules~~)) chapter 296-900 WAC, Administrative rules, for information on applying for a variance.)

(3) Modifications. Cranes may be modified and rerated provided such modifications and the supporting structure are checked thoroughly for the new rated load by a qualified engineer or the equipment manufacturer. The crane shall be tested in accordance with WAC 296-24-23521(2). New rated load shall be displayed in accordance with (5) of this section.

(4) Wind indicators and rail clamps.

(a) Outdoor storage bridges shall be provided with automatic rail clamps. A wind-indicating device shall be provided which will give a visible or audible alarm to the bridge operator at a predetermined wind velocity. If the clamps act on the rail heads, any beads or weld flash on the rail heads shall be ground off.

(b) Calculations for wind pressure on outside overhead traveling cranes shall be based on not less than 30 pounds per square foot of exposed surface.

(5) Rated load marking. The rated load of the crane shall be plainly marked on each side of the crane, and if the crane has more than one hoisting unit, each hoist shall have its rated load marked on it or its load block and this marking shall be clearly legible from the ground or floor.

(6) Clearance from obstruction.

(a) Minimum clearance of 3 inches overhead and 2 inches laterally shall be provided and maintained between crane and obstructions in conformity with Specification No. 61 Crane Manufacturers Association of America, Inc., 8720 Red Oak Blvd., Suite 201, Charlotte, NC 28217.

(b) Where passageways or walkways are provided obstructions

shall not be placed so that safety of personnel will be jeopardized by movements of the crane.

(7) Clearance between parallel cranes. If the runways of two cranes are parallel, and there are no intervening walls or structure, there shall be adequate clearance provided and maintained between the two bridges.

(8) Designated personnel. Only designated personnel shall be permitted to operate a crane covered by this section.

AMENDATORY SECTION (Amending WSR 02-01-064, filed 12/14/01, effective 1/1/02)

WAC 296-27-00103 Partial exemption for employers with ten or fewer employees. (1) Basic requirement.

(a) If your company had ten or fewer employees at all times during the last calendar year, you do not need to keep injury and illness records unless WISHA, OSHA, or the BLS informs you in writing that you must keep records under this section. However, as required by WAC (~~(296-27-03101)~~) 296-27-031, all employers covered by the WISH Act must report any workplace incident that results in a fatality or the hospitalization of two or more employees.

(b) If your company had more than ten employees at any time during the last calendar year, you must keep injury and illness records unless your establishment is classified as a partially exempt industry under WAC 296-27-00105.

(2) Implementation.

(a) **Is the partial exemption for size based on the size of my entire company or on the size of an individual business establishment?** The partial exemption for size is based on the number of employees in the entire company.

(b) **How do I determine the size of my company to find out if I qualify for the partial exemption for size?** To determine if you are exempt because of size, you need to determine your company's peak employment during the last calendar year. If you had no more than ten employees at any time in the last calendar year, your company qualifies for the partial exemption for size.

AMENDATORY SECTION (Amending WSR 02-01-064, filed 12/14/01, effective 1/1/02)

WAC 296-27-01107 General recording criteria. (1) Basic requirement. You must consider an injury or illness to meet the general recording criteria, and therefore to be recordable, if it results in any of the following: Death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, or loss of consciousness. You must also consider a case to meet the general recording criteria if it involves a significant injury or illness diagnosed by a physician or other licensed health care professional, even if it does not result in death, days away from work, restricted work or job transfer, medical treatment beyond first aid, or loss of consciousness.

(2) Implementation.

(a) How do I decide if a case meets one or more of the general recording criteria? A work-related injury or illness must be recorded if it results in one or more of the following:

(i) Death. See (b) of this subsection.

(ii) Days away from work. See (c) of this subsection.

(iii) Restricted work or transfer to another job. See (d) of this subsection.

(iv) Medical treatment beyond first aid. See (e) of this subsection.

(v) Loss of consciousness. See (f) of this subsection.

(vi) A significant injury or illness diagnosed by a physician or other licensed health care professional. See (g) of this subsection.

(b) How do I record a work-related injury or illness that results in the employee's death? You must record an injury or illness that results in death by entering a check mark on the OSHA 300 Log in the space for cases resulting in death. You must also report any work-related fatality to WISHA within eight hours, as required by WAC ((~~296-27-03101~~)) 296-800-32005.

(c) How do I record a work-related injury or illness that results in days away from work? When an injury or illness involves one or more days away from work, you must record the injury or illness on the OSHA 300 Log with a check mark in the space for cases involving days away and an entry of the number of calendar days away from work in the number of days column. If the employee is out for an extended period of time, you must enter an estimate of the days that the employee will be away, and update the day count when the actual number of days is known.

(i) **Do I count the day on which the injury occurred or the illness began?** No, you begin counting days away on the day after the injury occurred or the illness began.

(ii) **How do I record an injury or illness when a physician or other licensed health care professional recommends that the worker stay at home but the employee comes to work anyway?** You must record these injuries and illnesses on the OSHA 300 Log using the check box for cases with days away from work and enter the number of calendar days away recommended by the physician or other licensed health care professional. If a physician or other licensed health care professional recommends days away, you should encourage your employee to follow that recommendation. However, the days away must be recorded whether the injured or ill employee follows the physician or licensed health care professional's recommendation or not. If you receive recommendations from two or more physicians or other licensed health care professionals, you may make a decision as to which recommendation is the most authoritative, and record the case based upon that recommendation.

(iii) **How do I handle a case when a physician or other licensed health care professional recommends that the worker return to work but the employee stays at home anyway?** In this situation, you must end the count of days away from work on the date the physician or other licensed health care professional recommends that the employee return to work.

(iv) **How do I count weekends, holidays, or other days the employee would not have worked anyway?** You must count the number of calendar days the employee was unable to work as a result of the injury or illness, regardless of whether or not the employee was scheduled to work on those day(s). Weekend days, holidays, vacation days or other days off are included in the total number of days recorded if the employee would not have been able to work on those days because of a work-related injury or illness.

(v) **How do I record a case in which a worker is injured or becomes ill on a Friday and reports to work on a Monday, and was not scheduled to work on the weekend?** You need to record this case only if you receive information from a physician or other licensed health care professional indicating that the employee should not have worked, or should have performed only restricted work, during the weekend. If so, you must record the injury or illness as a case with days away from work or restricted work, and enter the day counts, as appropriate.

(vi) **How do I record a case in which a worker is injured or becomes ill on the day before scheduled time off such as a holiday, a planned vacation, or a temporary plant closing?** You need to record a case of this type only if you receive information from a physician or other licensed health care professional indicating that the employee should not have worked, or should have performed only restricted work, during the scheduled time off. If so, you must record the injury or illness as a case with days away from work or restricted work, and enter the day counts, as appropriate.

(vii) **Is there a limit to the number of days away from work I must count?** Yes, you may "cap" the total days away at one hundred eighty calendar days. You are not required to keep track of the number of calendar days away from work if the injury or illness resulted in more than one hundred eighty calendar days away from work and/or days of job transfer or restriction. In such a case, entering one hundred eighty in the total days away column will be considered adequate.

(viii) **May I stop counting days if an employee who is away from work because of an injury or illness retires or leaves my company?** Yes, if the employee leaves your company for some reason unrelated to the injury or illness, such as retirement, a plant closing, or to take another job, you may stop counting days away from work or days of restriction/job transfer. If the employee leaves your company because of the injury or illness, you must estimate the total number of days away or days of restriction/job transfer and enter the day count on the 300 Log.

(ix) **If a case occurs in one year but results in days away during the next calendar year, do I record the case in both years?** No, you only record the injury or illness once. You must enter the number of calendar days away for the injury or illness on the OSHA 300 Log for the year in which the injury or illness occurred. If the employee is still away from work because of the injury or illness when you prepare the annual summary, estimate the total number of calendar days you expect the employee to be away from work, use this number to calculate the total for the annual

summary, and then update the initial log entry later when the day count is known or reaches the one hundred eighty day cap.

(d) How do I record a work-related injury or illness that results in restricted work or job transfer? When an injury or illness involves restricted work or job transfer but does not involve death or days away from work, you must record the injury or illness on the OSHA 300 Log by placing a check mark in the space for job transfer or restriction and an entry of the number of restricted or transferred days in the restricted workdays column.

(i) How do I decide if the injury or illness resulted in restricted work? Restricted work occurs when, as the result of a work-related injury or illness:

! You keep the employee from performing one or more of the routine functions of his or her job, or from working the full workday that he or she would otherwise have been scheduled to work; or

! A physician or other licensed health care professional recommends that the employee not perform one or more of the routine functions of his or her job, or not work the full workday that he or she would otherwise have been scheduled to work.

(ii) What is meant by "routine functions"? For recordkeeping purposes, an employee's routine functions are those work activities the employee regularly performs at least once per week.

(iii) Do I have to record restricted work or job transfer if it applies only to the day on which the injury occurred or the illness began? No, you do not have to record restricted work or job transfers if you, or the physician or other licensed health care professional, impose the restriction or transfer only for the day on which the injury occurred or the illness began.

(iv) If you or a physician or other licensed health care professional recommends a work restriction, is the injury or illness automatically recordable as a "restricted work" case? No, a recommended work restriction is recordable only if it affects one or more of the employee's routine job functions. To determine whether this is the case, you must evaluate the restriction in light of the routine functions of the injured or ill employee's job. If the restriction from you or the physician or other licensed health care professional keeps the employee from performing one or more of his or her routine job functions, or from working the full workday the injured or ill employee would otherwise have worked, the employee's work has been restricted and you must record the case.

(v) How do I record a case where the worker works only for a partial work shift because of a work-related injury or illness? A partial day of work is recorded as a day of job transfer or restriction for recordkeeping purposes, except for the day on which the injury occurred or the illness began.

(vi) If the injured or ill worker produces fewer goods or services than he or she would have produced prior to the injury or illness but otherwise performs all of the routine functions of his or her work, is the case considered a restricted work case? No,

the case is considered restricted work only if the worker does not perform all of the routine functions of his or her job or does not work the full shift that he or she would otherwise have worked.

(vii) **How do I handle vague restrictions from a physician or other licensed health care professional, such as that the employee engage only in "light duty" or "take it easy for a week"?** If you are not clear about the physician or other licensed health care professional's recommendation, you may ask that person whether the employee can do all of his or her routine job functions and work all of his or her normally assigned work shift. If the answer to both of these questions is "Yes," then the case does not involve a work restriction and does not have to be recorded as such. If the answer to one or both of these questions is "No," the case involves restricted work and must be recorded as a restricted work case. If you are unable to obtain this additional information from the physician or other licensed health care professional who recommended the restriction, record the injury or illness as a case involving restricted work.

(viii) **What do I do if a physician or other licensed health care professional recommends a job restriction meeting the definition, but the employee does all of his or her routine job functions anyway?** You must record the injury or illness on the OSHA 300 Log as a restricted work case. If a physician or other licensed health care professional recommends a job restriction, you should ensure that the employee complies with that restriction. If you receive recommendations from two or more physicians or other licensed health care professionals, you may make a decision as to which recommendation is the most authoritative, and record the case based upon that recommendation.

(ix) **How do I decide if an injury or illness involved a transfer to another job?** If you assign an injured or ill employee to a job other than his or her regular job for part of the day, the case involves transfer to another job.

Note: This does not include the day on which the injury or illness occurred.

(x) **Are transfers to another job recorded in the same way as restricted work cases?** Yes, both job transfer and restricted work cases are recorded in the same box on the OSHA 300 Log. For example, if you assign, or a physician or other licensed health care professional recommends that you assign, an injured or ill worker to his or her routine job duties for part of the day and to another job for the rest of the day, the injury or illness involves a job transfer. You must record an injury or illness that involves a job transfer by placing a check in the box for job transfer.

(xi) **How do I count days of job transfer or restriction?** You count days of job transfer or restriction in the same way you count days away from work, using (c)(i) through (viii) of this subsection. The only difference is that, if you permanently assign the injured or ill employee to a job that has been modified or permanently changed in a manner that eliminates the routine functions the employee was restricted from performing, you may stop the day count when the modification or change is made permanent. You must count at least one day of restricted work or job transfer

for such cases.

(e) **How do I record an injury or illness that involves medical treatment beyond first aid?** If a work-related injury or illness results in medical treatment beyond first aid, you must record it on the OSHA 300 Log. If the injury or illness did not involve death, one or more days away from work, one or more days of restricted work, or one or more days of job transfer, you enter a check mark in the box for cases where the employee received medical treatment but remained at work and was not transferred or restricted.

(i) **What is the definition of medical treatment?** "Medical treatment" means the management and care of a patient to combat disease or disorder. For the purposes of this section, medical treatment does not include:

! Visits to a physician or other licensed health care professional solely for observation or counseling;

! The conduct of diagnostic procedures, such as X rays and blood tests, including the administration of prescription medications used solely for diagnostic purposes (e.g., eye drops to dilate pupils); or

! "First aid" as defined in (e) of this subsection.

(ii) **What is "first aid"?** For the purposes of this section, "first aid" means the following:

! Using a nonprescription medication at nonprescription strength (for medications available in both prescription and nonprescription form, a recommendation by a physician or other licensed health care professional to use a nonprescription medication at prescription strength is considered medical treatment for recordkeeping purposes);

! 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™, gauze pads, etc.; or using butterfly bandages or Steri-Strips™ (other wound closing devices such as sutures, staples, etc., are considered medical treatment);

! Using hot or cold therapy;

! Using any nonrigid means of support, such as elastic bandages, wraps, nonrigid back belts, etc. (devices with rigid stays or other systems designed to immobilize parts of the body are considered medical treatment for recordkeeping purposes);

! Using temporary immobilization devices while transporting an accident victim (e.g., splints, slings, neck collars, back boards, etc.);

! Drilling of a fingernail or toenail to relieve pressure, or 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 (physical therapy or chiropractic treatment are considered medical treatment for recordkeeping purposes); or

! Drinking fluids for relief of heat stress.

(iii) **Are any other procedures included in first aid?** No, this is a complete list of all treatments considered first aid for the purpose of this section.

(iv) **Does the professional status of the person providing the treatment have any effect on what is considered first aid or medical treatment?** No, the treatments listed in (e)(ii) of this subsection are considered to be first aid regardless of the professional status of the person providing the treatment. Even when these treatments are provided by a physician or other licensed health care professional, they are considered first aid for the purposes of this section. Similarly, treatment beyond first aid is considered to be medical treatment even when it is provided by someone other than a physician or other licensed health care professional.

(v) **What if a physician or other licensed health care professional recommends medical treatment but the employee does not follow the recommendation?** If a physician or other licensed health care professional recommends medical treatment, you should encourage the injured or ill employee to follow that recommendation. However, you must record the case even if the injured or ill employee does not follow the physician or other licensed health care professional's recommendation.

(f) **Is every work-related injury or illness case involving a loss of consciousness recordable?** Yes, you must record a work-related injury or illness if the worker becomes unconscious, regardless of the length of time the employee remains unconscious.

(g) **What is a "significant" diagnosed injury or illness that is recordable under the general criteria even if it does not result in death, days away from work, restricted work or job transfer, medical treatment beyond first aid, or loss of consciousness?** Work-related cases involving cancer, chronic irreversible disease, a fractured or cracked bone, or a punctured eardrum must always be recorded under the general criteria at the time of diagnosis by a physician or other licensed health care professional.

Note: OSHA believes that most significant injuries and illnesses will result in one of the criteria listed in WAC 296-27-01107(1): Death, days away from work, restricted work or job transfer, medical treatment beyond first aid, or loss of consciousness. However, there are some significant injuries, such as a punctured eardrum or a fractured toe or rib, for which neither medical treatment nor work restrictions may be recommended. In addition, there are some significant progressive diseases, such as byssinosis, silicosis, and some types of cancer, for which medical treatment or work restrictions may not be recommended at the time of diagnosis but are likely to be recommended as the disease progresses. Cancer, chronic irreversible diseases, fractured or cracked bones, and punctured eardrums are generally considered significant injuries and illnesses, and must be recorded at the initial diagnosis, even if medical treatment or work restrictions are not recommended, or are postponed, in a particular case.

WAC 296-27-01113 Recording criteria for cases involving occupational hearing loss. (1) Basic requirement. You must record a hearing loss case on the OSHA Log if an employee's hearing test (audiogram) reveals that a recordable threshold shift (RTS) in one or both ears has occurred.

(2) Implementation.

(a) **How do I evaluate the current audiogram to determine whether a recordable threshold shift has occurred?**

(i) If the employee has never previously experienced a recorded hearing loss, you must compare the employee's current audiogram with that employee's baseline audiogram. If the employee has previously experienced a recorded hearing loss, you must compare the employee's current audiogram with the employee's revised baseline audiogram (the audiogram reflecting the employee's previously recorded hearing loss case.)

(ii) The employee has a recordable threshold shift when:

! There is a change in the hearing threshold, relative to the baseline audiogram for that employee, of an average of 10 decibels (dB) or greater at 2000, 3000, and 4000 hertz (Hz) in one or both ears.

AND

! The employee's overall hearing loss (threshold) is 25 dB or greater (averaged at 2000, 3000, and 4000 Hz) in the same ear as the change.

Note: Audiometric test results reflect the employee's overall hearing ability in comparison to audiometric zero.

(b) **May I adjust the current audiogram to reflect the effects of aging on hearing?** Yes. When you are determining whether an RTS has occurred, you may age adjust the employee's current audiogram results by using Tables A-1 or A-2, as appropriate, in Appendix A of this chapter. You may not use an age adjustment when determining whether the employee's total hearing level is 25 dB or more above audiometric zero.

(c) **Do I have to record the hearing loss if I am going to retest the employee's hearing?** No, if you retest the employee's hearing within thirty days of the first test, and the retest does not confirm the RTS, you are not required to record the hearing loss case on the OSHA 300 Log. If the retest confirms the RTS, you must record the hearing loss illness within seven calendar days of the retest. If subsequent audiometric testing indicates that an RTS is not persistent, you may erase or line-out the recorded entry.

(d) **Are there any special rules for determining whether a hearing loss case is work-related?** No. You must use the rules in WAC 296-27-01103 to determine if the hearing loss is work-related. If an event or exposure in the work environment either caused or contributed to the hearing loss, or significantly aggravated a preexisting hearing loss, you must consider the case to be work-related.

(e) **If a physician or other licensed health care professional determines the hearing loss is not work-related, do I still need to record the case?** No. If a physician or other licensed health care professional determines that the hearing loss is not work-related or has not been significantly aggravated by occupational noise exposure, you are not required to consider the case work-related or to record the case on the OSHA 300 Log.

(f) **How do I complete the OSHA 300 Log for hearing loss?** When you enter a recordable hearing loss case on the OSHA 300 Log, you must check the 300 Log column for hearing loss.

AMENDATORY SECTION (Amending WSR 03-24-085, filed 12/2/03, effective 1/1/04)

WAC 296-27-01119 Forms. (1) Basic requirement. You must use OSHA 300, 300-A, and 301 forms, or equivalent forms, for recordable injuries and illnesses. The OSHA 300 form is called the Log of Work-Related Injuries and Illnesses, the 300-A is the Summary of Work-Related Injuries and Illnesses, and the OSHA 301 form is called the Injury and Illness Incident Report.

(2) Implementation.

(a) **What do I need to do to complete the OSHA 300 Log?** You must enter information about your business at the top of the OSHA 300 Log, enter a one or two line description for each recordable injury or illness, and summarize this information on the OSHA 300-A at the end of the year.

(b) **What do I need to do to complete the OSHA 301 Incident Report?** You must complete an OSHA 301 Incident Report form, or an equivalent form, for each recordable injury or illness entered on the OSHA 300 Log.

(c) **How quickly must each injury or illness be recorded?** You must enter each recordable injury or illness on the OSHA 300 Log and 301 Incident Report within seven calendar days of receiving information that a recordable injury or illness has occurred.

(d) **What is an equivalent form?** An equivalent form is one that has the same information, is as readable and understandable, and is completed using the same instructions as the OSHA form it replaces. Many employers use an insurance form instead of the OSHA 301 Incident Report, or supplement an insurance form by adding any additional information listed on the OSHA form.

(e) **May I keep my records on a computer?** Yes, if the computer can produce equivalent forms when they are needed, as described under WAC 296-27-02111 and 296-27-03103, you may keep your records using the computer system.

(f) **Are there situations where I do not put the employee's name on the forms for privacy reasons?** Yes, if you have a "privacy concern case," you may not enter the employee's name on the OSHA 300 Log. Instead, enter "privacy case" in the space normally used

for the employee's name. This will protect the privacy of the injured or ill employee when another employee, a former employee, or an authorized employee representative is provided access to the OSHA 300 Log under WAC 296-27-02111. You must keep a separate, confidential list of the case numbers and employee names for your privacy concern cases so you can update the cases and provide the information to the government if asked to do so.

(g) **How do I determine if an injury or illness is a privacy concern case?** You must consider the following injuries or illnesses to be privacy concern cases:

! An injury or illness to an intimate body part or the reproductive system;

! An injury or illness resulting from a sexual assault;

! Mental illnesses;

! HIV infection, hepatitis, or tuberculosis;

! Needlestick injuries and cuts from sharp objects that are contaminated with another person's blood or other potentially infectious material (WAC 296-27-01109 for definitions); **and**

! Other illnesses if the employee independently and voluntarily requests that his or her name not be entered on the log.

(h) **May I classify any other types of injuries and illnesses as privacy concern cases?** No, this is a complete list of all injuries and illnesses considered privacy concern cases for the purposes of this section.

(i) **If I have removed the employee's name, but still believe that the employee may be identified from the information on the forms, is there anything else that I can do to further protect the employee's privacy?** Yes, if you have a reasonable basis to believe that information describing the privacy concern case may be personally identifiable even though the employee's name has been omitted, you may use discretion in describing the injury or illness on both the OSHA 300 and 301 forms. You must enter enough information to identify the cause of the incident and the general severity of the injury or illness, but you do not need to include details of an intimate or private nature. For example, a sexual assault case could be described as "injury from assault," or an injury to a reproductive organ could be described as "lower abdominal injury."

(j) **What must I do to protect employee privacy if I wish to provide access to the OSHA Forms 300 and 301 to persons other than government representatives, employees, former employees or authorized representatives?** If you decide to voluntarily disclose the forms to persons other than government representatives, employees, former employees or authorized representatives (as required by WAC 296-27-02111 and 296-27-03103), you must remove or hide the employees' names and other personally identifying information, except for the following cases. You may disclose the forms with personally identifying information only:

(i) To an auditor or consultant hired by the employer to evaluate the safety and health program;

(ii) To the extent necessary for processing a claim for

workers' compensation or other insurance benefits; or

(iii) To a public health authority or law enforcement agency for uses and disclosures for which consent, an authorization, or opportunity to agree or object is not required under Department of Health and Human Services Standards for Privacy of Individually Identifiable Health Information, 45 CFR 164.512.

(3) **Falsification, failure to keep records or reports.**

(a) RCW 49.17.190(2) of the act provides that "whoever knowingly makes any false statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained pursuant to this chapter shall, upon conviction be guilty of a gross misdemeanor and be punished by a fine of not more than ten thousand dollars, or by imprisonment for not more than six months or by both."

(b) Failure to maintain records or file reports required by this chapter, or in the detail required by the forms and instructions issued under this chapter, may result in the issuance of citations and assessment of penalties as provided for in (~~WAC 296-800-35002 through 296-800-35052~~) chapter 296-900 WAC, Administrative rules.

AMENDATORY SECTION (Amending WSR 01-11-038, filed 5/9/01, effective 9/1/01)

WAC 296-32-200 Scope and application. (1) This chapter sets forth safety and health standards that apply to the work conditions, practices, means, methods, operations, installations and processes performed at telecommunications centers and at telecommunications field installations, which are located outdoors or in building spaces used for such field installations. "Center" work includes the installation, operation, maintenance, rearrangement, and removal of communications equipment and other associated equipment in telecommunications switching centers. "Field" work includes the installation, operation, maintenance, rearrangement, and removal of conductors and other equipment used for signal or communication service, and of their supporting or containing structures, overhead or underground, on public or private rights of way, including buildings or other structures.

(2) These standards do not apply:

(a) To construction work, as defined in chapter 296-155 WAC, nor

(b) To installations under the exclusive control of electric utilities used for the purpose of communications or metering, or for generation, control, transformation, transmission, and distribution of electric energy, which are located in buildings used exclusively by the electric utilities for such purposes, or located outdoors on property owned or leased by the electric utilities or on public highways, streets, roads, etc., or outdoors by established rights on private property.

(3) Operations or conditions not specifically covered by this chapter are subject to all the applicable standards contained in chapter 296-24 WAC, general safety and health standards, and chapter 296-800 WAC, the safety and health core rules. Operations which involve construction work, as defined in chapter 296-155 WAC are subject to all the applicable standards contained in chapter 296-155 WAC, safety standards for construction work.

(4) This standard shall augment the Washington state general safety and health standards, general occupational health standards, electrical workers safety rules, and any other standards which are applicable to all industries governed by chapter 80, Laws of 1973, Washington Industrial Safety and Health Act. In the event of any conflict between any portion of this chapter and any portion of any of the general application standards, the provisions of this chapter 296-32 WAC, shall apply.

(5) In exceptional cases where compliance with specific provisions of this chapter can only be accomplished to the serious detriment and disadvantage of an operation, variance from the requirement may be permitted by the director of the department of labor and industries after receipt of application for variance

which meets the requirements of WAC ((~~296-350-700~~)) 296-900-11005.

AMENDATORY SECTION (Amending WSR 01-11-038, filed 5/9/01, effective 9/1/01)

WAC 296-32-220 General. (1) Buildings containing telecommunications centers.

(a) Illumination. Lighting in telecommunication centers shall be provided in an amount such that continuing work operations, routine observations, and the passage of employees can be carried out in a safe and healthful manner.

(b) Specific tasks in centers, such as splicing cable and the maintenance and repair of equipment frame lineups, the employer shall install permanent lighting or portable supplemental lighting to attain a higher level of illumination.

(c) Refer to WAC 296-800-210 which shall apply as minimum standards of illumination for industrial interiors.

(d) Illumination of field work. Whenever natural light is insufficient to illuminate the worksite, artificial illumination shall be provided to enable the employee to perform the work safely.

(2) Working surfaces.

(a) Working surfaces shall be in conformance with the latest edition of the general safety and health standard WAC 296-24-735 through 296-24-76523, and chapter 296-800 WAC, the safety and health core rule book.

(b) Guard rails and toe boards may be omitted on distribution frame mezzanine platforms to permit access to equipment. This exemption applies only on the side or sides of the platform facing the frames and only on those portions of the platform adjacent to equipped frames.

(3) Working spaces.

(a) Space shall be provided for access to all medium high and high voltage equipment.

(b) Every structure, new or old, designed for human occupancy shall be provided with exits to permit the prompt escape of occupants in case of fire or other emergency. The means of egress shall be a continuous and unobstructed way of exit travel from any point in a building or structure to a public way and consist of three separate and distinct parts; the way of exit access, the exit and the way of exit discharge. A means of egress comprises the vertical and horizontal ways of travel and shall include intervening room spaces, doorways, hallways, corridors, passageways, balconies, ramps, stairs, enclosures, lobbies, escalators, horizontal exits, courts and yards.

(c) "Maintenance aisles," or "wiring aisles," between equipment frame lineups are working spaces and are not a means of egress for purposes of WAC ((~~296-24-550 and~~)) 296-800-310.

(4) Special doors.

(a) When blastproof or power actuated doors are installed in specially designed hardsite security buildings and spaces, they shall be designed and installed so that they can be used as a means of egress in emergencies.

(b) When high voltage apparatus is isolated in a supplementary enclosure, interlocks shall be provided on all access doors. Warning signs shall be provided, which are visible both when the guard or cover is in place or removed.

(5) Equipment, machinery and machine guarding.

(a) When power plant machinery in telecommunications centers is operated with commutators and couplings uncovered, the adjacent housing shall be clearly marked to alert personnel to the rotating machinery.

(b) All power switches on power panels shall be in an open position when they are not controlling an operating circuit. Before opening any power circuit, the load shall be reduced. "Men working" signs, or similar wording shall be placed on switches associated with motors or generators under repair.

(c) When working on the brushes of a machine in operation, employees shall use care not to break a circuit. When it is necessary to remove a brush from the holder, the machine shall be shut down.

(d) Only fuse pullers specifically designed for that purpose shall be used when replacing cartridge type fuses.

(6) Battery handling.

(a) Eye protection devices which provide side as well as frontal eye protection for employees shall be provided when measuring storage battery specific gravity or handling electrolyte, and the employer shall ensure that such devices are used by the employees.

(b) The employer shall also ensure that acid resistant gloves and aprons shall be worn for protection against spattering.

(c) Facilities for quick drenching or flushing of the eyes and body shall be provided unless the storage batteries are of the enclosed type and equipped with explosion proof vents, in which case sealed water rinse or neutralizing packs may be substituted for the quick drenching or flushing facilities.

(d) Employees assigned to work with storage batteries shall be instructed in emergency procedures such as dealing with accidental acid spills.

(e) Electrolyte (acid or base, and distilled water) for battery cells shall be mixed in a well ventilated room. Acid or base shall be poured gradually, while stirring, into the water. Water shall never be poured into concentrated (greater than 75 percent) acid solutions. Electrolyte shall never be placed in metal containers nor stirred with metal objects.

(f) When taking specific gravity readings, the open end of the hydrometer shall be covered with an acid resistant material while moving it from cell to cell to avoid splashing or throwing the electrolyte.

(g) Ventilation, shall be provided to ensure diffusion of the gasses from the battery to prevent the accumulation of an explosive type mixture.

(h) Racks and trays shall be substantial and treated to be resistant to the electrolyte.

(i) Floors shall be of acid resistant construction or be protected from acid accumulation.

(7) Hazardous materials.

(a) Highway mobile vehicles and trailers stored in garages in accordance with WAC 296-24-47513 (4)(b) may be equipped to carry more than one LP-gas container, but the total capacity of LP-gas containers per work vehicle stored in garages shall not exceed 100 pounds of LP-gas.

(b) All container valves shall be closed when not in use.

(8) Compressed gas.

(a) When using or transporting nitrogen cylinders, special compartments, racks, or blocking shall be provided to prevent cylinder movement.

(b) Regulators shall be removed or guarded before a cylinder is transported.

(9) Support structures.

(a) No employee, or any material or equipment, shall be supported or permitted to be supported on any portion of a pole structure, platform, ladder, walkway or other elevated structure or aerial device unless the employer ensures that the support structure is first inspected by a competent person and it is determined to be strong, in good working condition and properly secured in place.

(b) Workers shall not throw anything from pole to ground, from pole to pole or from ground to pole.

(10) Power exposures.

(a) The employer shall ensure that no employee approaches or takes any conductive object closer to any electrically energized overhead power lines and parts than prescribed in Table 1 unless:

(i) The employee is insulated or guarded from the energized parts (insulating gloves rated for the voltage involved shall be considered adequate insulation), or

(ii) The energized parts are insulated or guarded from the employee and any other conductive object at a different potential, or

(iii) The power conductors and equipment are deenergized and grounded.

(b) While handling communication wires, metal sheaths, or communication equipment, contact shall be avoided with street lamp brackets, trolley span wires, power guys, transformer cases and any other power equipment that may be energized. The safest possible working position shall be assumed before starting work.

(c) Communication employees shall never work in the pole space on jointly used poles between normal primary and secondary attachments.

(d) Where a hazard of a power contact exists, due to use of long handled tools, proper rubber equipment shall be used.

TABLE 1

APPROACH DISTANCES TO EXPOSED ENERGIZED
OVERHEAD POWER LINES AND PARTS

Voltage Range (phase to phase, RMS)	Approach Distance (inches)
300 V and less _____	(1)
Over 300 V, not over 750 V _____	12
Over 750 V not over 2 kV _____	18
Over 2 kV, not over 15 kV _____	24
Over 15 kV, not over 37 kV _____	36
Over 37 kV, not over 87.5 kV _____	42
Over 87.5 kV, not over 121 kV _____	48
Over 121 kV, not over 140 kV _____	54

⁽¹⁾Avoid contact.

AMENDATORY SECTION (Amending WSR 04-10-026, filed 4/27/04, effective 8/1/04)

WAC 296-37-575 Recordkeeping requirements. (1) Recording and reporting.

(a) The employer shall comply with the requirements of chapters 296-27, (~~(296-350, and)~~) 296-800, and 296-900 WAC.

(b) The employer shall record the occurrence of any diving-related injury or illness which requires any dive team member to be hospitalized for 24 hours or more, specifying the circumstances of the incident and the extent of any injuries or illnesses.

(2) Availability of records.

(a) Upon the request of the director of the department of labor and industries or his duly authorized designees, the employer shall make available for inspection and copying any record or document required by this standard.

(b) Records and documents required by this standard shall be provided upon request to employees, designated representatives, and the assistant director in accordance with chapter 296-802 WAC. Safe practices manuals (WAC 296-37-530), depth-time profiles (WAC 296-37-540), recording of dives (WAC 296-37-545), decompression procedure assessment evaluations (WAC 296-37-545), and records of hospitalizations (WAC 296-37-575) shall be provided in the same manner as employee exposure records or analyses using exposure or medical records. Equipment inspections and testing records which pertain to employees (WAC 296-37-570) shall also be provided upon request to employees and their designated representatives.

(c) Records and documents required by this standard shall be retained by the employer for the following period:

(i) Dive team member medical records (physician's reports) (WAC 296-37-525) - five years;

(ii) Safe practices manual (WAC 296-37-530) - current document only;

(iii) Depth-time profile (WAC 296-37-540) - until completion of the recording of dive, or until completion of decompression procedure assessment where there has been an incident of decompression sickness;

(iv) Recording dive (WAC 296-37-545) one year, except five years where there has been an incident of decompression sickness;

(v) Decompression procedure assessment evaluations (WAC 296-37-545) - five years;

(vi) Equipment inspections and testing records (WAC 296-37-570) - current entry or tag, or until equipment is withdrawn from service;

(vii) Records of hospitalizations (WAC 296-37-575) - five years.

(d) After the expiration of the retention period of any record required to be kept for five years, the employer shall forward such

records to the National Institute for Occupational Safety and Health, Department of Health and Human Services. The employer shall also comply with any additional requirements set forth in chapter 296-802 WAC.

(e) In the event the employer ceases to do business:

(i) The successor employer shall receive and retain all dive and employee medical records required by this standard; or

(ii) If there is no successor employer, dive and employee medical records shall be forwarded to the National Institute for Occupational Safety and Health, Department of Health and Human Services.

AMENDATORY SECTION (Amending WSR 98-07-009, filed 3/6/98, effective 5/6/98)

WAC 296-45-025 Variances. Under certain circumstances, an employer may obtain a variance from the director of the department of labor and industries or an authorized representative. Until such time as a variance is granted, the employer and employees must comply with the mandatory provisions of this chapter. The procedure and requirements for variances are found in chapter ((296-350)) 296-900 WAC, Administrative rules.

AMENDATORY SECTION (Amending WSR 99-17-117, filed 8/18/99, effective 12/1/99)

WAC 296-54-535 Hand and portable powered tools. (1) Each hand and portable powered tool, including any tool provided by an employee, must be maintained in serviceable condition.

(2) Each tool, including any tool provided by an employee, must be inspected before initial use during each workshift. The inspection must include at least the following:

(a) Handles and guards, to ensure that they are sound and tight-fitting, (properly shaped, free of splinters and sharp edges, and in place);

(b) Controls, to ensure proper function;

(c) Chain saw chains, to ensure proper adjustment;

(d) Chain saw mufflers, to ensure that they are operational and in place;

(e) Chain brakes and/or nose shielding devices, to ensure that they are in place and function properly;

(f) Heads of shock, impact-driven and driving tools, to ensure that there is no mushrooming.

(3) Each tool must be used and maintained according to the following requirements:

(a) Each tool is used only for purposes for which it was designed.

(b) Any shock, impact-driven or driving tool is repaired or removed from service when the head begins to chip.

(c) The cutting edge of each tool is sharpened according to manufacturer's specifications whenever it becomes dull during the workshift.

(d) Each tool is stored in the provided location when not being used at a worksite.

Note: See ((~~WAC 296-24-650~~)) chapter 296-807 WAC, Portable power tools, for rules on the use and maintenance of tools and other equipment not covered by this chapter.

AMENDATORY SECTION (Amending WSR 99-17-117, filed 8/18/99, effective 12/1/99)

WAC 296-54-707 Labor camps. Temporary labor camps for logging operations must meet the requirements of ((~~WAC 296-24-125~~)) chapter 296-833 WAC, Temporary housing for workers.

AMENDATORY SECTION (Amending WSR 01-11-038, filed 5/9/01, effective 9/1/01)

WAC 296-56-60003 Variance and procedure. Conditions may exist under which certain state standards will not have practical application. In these cases, the director of the department of labor and industries has made provisions for the issuance of variances. The director or his/her authorized representative may, pursuant to this section, RCW 49.17.080 and 49.17.090, and ((~~WAC 296-350-700~~)) chapter 296-900 WAC, upon receipt of application and after investigation by the department, permit a variation from the requirements of this chapter. Any variance is limited to the particular case and application. It shall remain posted during the time which it is in effect. Variance application forms may be obtained from the department.

AMENDATORY SECTION (Amending WSR 01-11-038, filed 5/9/01, effective 9/1/01)

WAC 296-56-60009 Accident prevention program. (1) An accident prevention program, which provides equitable management-employee participation, shall be established in all establishments, industrial plants, or operations.

(2) It shall be the responsibility of the employer to initiate and maintain the accident prevention program necessary to comply with this section. The division of WISHA services may be contacted for assistance in initiating and maintaining an effective accident prevention program.

(3) All accident prevention programs shall be tailored to the needs of the particular operation.

(4) Employer and employee representatives, as elected, delegated or appointed, shall attend and actively take part in frequent and regular safety committee meetings.

(5) Accident prevention programs shall provide for employer-employee safety meetings and frequent and regular safety inspections of job sites, materials, equipment, and operating procedures.

(6) A record of safety activities, such as inspections and meetings, shall be maintained by the employer for a period covering the previous twelve months and shall be made available, upon request, to noncompliance personnel of the department of labor and industries.

(7) Employees shall individually comply with all safety rules

and cooperate with management in carrying out the accident prevention program.

(8) To make effective the preceding statement and promote on-the-job accident prevention, committees shall be established in each port. These committees shall consist of an equal number of port or stevedore company and longshoremen representatives at the job level with the industry or company safety supervisor serving as secretary and coordinator. Some functions of the committee are to maintain the interest of the workers in accident prevention by providing for their actual participation in the program, to direct their attention to the real causes of accidents, and to provide a means for making practical use of their intimate knowledge of working conditions and practices.

(9) It is intended that this program will produce mutually practical and effective recommendations regarding correction of accident-producing circumstances and conditions.

Note: For first-aid requirements, see WAC 296-800-150.

((Note: For emergency plan and fire prevention requirements, see chapter 296-24 WAC Part G-1.))

NEW SECTION

WAC 296-56-60010 Emergency action plans. (1) **Scope and application.** This section requires all employers to develop and implement an emergency action plan. The emergency action plan shall be in writing (except as provided in subsection (5)(d) of this section) and shall cover those designated actions employers and employees must take to ensure employee safety from fire and other emergencies.

Note: When an employer directs his or her employees to respond to an emergency that is beyond the scope of the emergency action plan developed in accordance with this section, then chapter 296-824 WAC shall apply.

(2) **Elements.** The following elements, at a minimum, shall be included in the plan:

(a) Emergency escape procedures and emergency escape route assignments;

(b) Procedures to be followed by employees who remain to operate critical plant operations before they evacuate;

(c) Procedures to account for all employees after emergency evacuation has been completed;

(d) Rescue and medical duties for those employees who are to perform them;

(e) The preferred means of reporting fires and other emergencies; and

(f) Names or regular job titles of persons or departments that can be contacted for further information or explanation of duties under the plan.

(3) **Alarm system.** The employer shall establish an employee alarm system that provides warning for necessary emergency action

and for reaction time for safe escape of employees from the workplace or the immediate work area.

(4) **Evacuation.** The employer shall establish the types of evacuation to be used in emergency circumstances.

(5) **Training.**

(a) Before implementing the emergency action plan, the employer shall designate and train a sufficient number of persons to assist in the safe and orderly emergency evacuation of employees.

(b) The employer shall review the plan with each employee covered by the plan at the following times:

(i) Initially when the plan is developed;

(ii) Whenever the employee's responsibilities or designated actions under the plan change; and

(iii) Whenever the plan is changed.

(c) The employer shall review with each employee upon initial assignment those parts of the plan that the employee must know to protect the employee in the event of an emergency. The written plan shall be kept at the workplace and be made available for employee review.

(d) Employers with ten or fewer employees may communicate the plan orally to employees and need not maintain a written plan.

AMENDATORY SECTION (Amending Order 88-11, filed 7/6/88)

WAC 296-56-60081 Multipiece and single-piece rim wheels. Servicing of multipiece and single-piece rim wheels in marine terminal and other maritime work locations on large vehicles is regulated by requirements of (~~WAC 296-24-21701~~) chapter 296-864 WAC, Split (multipiece) rim and single-piece rim wheels.

AMENDATORY SECTION (Amending WSR 01-11-038, filed 5/9/01, effective 9/1/01)

WAC 296-59-001 Foreword. (1) This vertical standard is promulgated in accordance with applicable provisions of the Washington State Administrative Procedure Act, chapter 34.04 RCW, and the Washington Industrial Safety and Health Act, chapter 49.17 RCW.

(2) The requirements of this chapter shall be applied through the department of labor and industries, division of industrial safety and health, in accordance with administrative procedures provided for in chapter 49.17 RCW, and chapters 296-27, (~~296-350~~) 296-360, (~~and~~) 296-800, and 296-900 WAC.

AMENDATORY SECTION (Amending Order 88-11, filed 7/6/88)

WAC 296-59-003 Scope and application. (1) The rules of this chapter are applicable to all persons, firms, corporations, or others engaged in the operation of organized ski areas and facilities within the jurisdiction of the department of labor and industries. These rules shall augment the WAC general horizontal standards, specifically referenced WAC vertical standards, and specifically referenced national standards or manuals.

(2) In the event that specific provisions of this chapter may conflict with any other WAC chapter, national standard, or manual, the provisions of this chapter shall prevail.

(3) The rules of this chapter shall not be applied to rescue crews during the time that rescue procedures are in process provided that reasonably prudent methods, equipment, and processes are employed. Personnel directly engaged in rescue operations shall not be subjected to the immediate restraint provisions of RCW 49.17.130.

(4) Nothing herein contained shall prevent the use of existing ski lift and tow equipment during its lifetime unless specific requirements of this chapter require retrofitting or modifications, provided that it shall be in conformance with applicable national or state code requirements at the time of manufacture and be maintained in good condition to conform with safety factors for the materials and method of manufacture used.

(5) Severability. If any provision of this chapter, or its application to any person, firm, corporation, or circumstance is held invalid under state (RCW) or national (Public Law) laws, the remainder of this chapter, or the application of the provision to

other persons or circumstances is not affected.

(6) Variance and procedure. Recognizing that conditions may exist which do not exactly meet the literal requirements of this or other applicable Title 296 WAC standards, pursuant to RCW 49.17.080 and 49.17.090, the director of the department of labor and industries or his/her authorized representative may permit a variance when other means of providing an equivalent measure of protection are afforded. The specific requirements and procedures for variance application are contained in chapter(~~s 296-350 and 296-360~~) 296-900 WAC, Administrative rules. Application forms may be obtained from the assistant director for safety and health or from regional departmental offices.

AMENDATORY SECTION (Amending Order 94-07, filed 7/20/94, effective 9/20/94)

WAC 296-62-020 Definitions applicable to all sections of this chapter. Unless the context indicates otherwise, words used in this chapter shall have the meaning given in this section.

(1) "Adequate" or "effective" means compliance with terms and intent of these standards.

(2) "Appendix" means references or recommendations to be used as guides in applying the provisions of this chapter.

(3) "Approved" means approved by the director of the department of labor and industries or his 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 296-24-006 shall apply)~~), 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).

(4) "Authorized person" means a person approved or assigned by the employer to perform a specific type of duty or duties or to be at a specific location or locations at the job site.

(5) "Coal tar pitch volatiles" as used in WAC 296-62-07515, Table I, include the fused polycyclic hydrocarbons which volatilize from the distillation residues of coal, petroleum, (excluding asphalt), wood, and other organic matter. Asphalt (CAS 8052-42-4, and CAS 64742-93-4) is not covered under the "coal tar pitch volatiles" standard.

(6) "Competent person" means one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective action to eliminate them.

(7) "Department" means the department of labor and industries.

(8) "Director" means the director of the department of labor and industries, or his designated representative.

(9) "Employer" means 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 shall be considered both an employer and an employee.

(10) "Hazard" means that condition, potential or inherent, which can cause injury, death, or occupational disease.

(11) "Occupational disease" means such disease or infection as arises naturally and proximately out of employment.

(12) "Qualified" means one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated ability to solve or resolve problems relating to the subject matter, the work, or the project.

(13) "Shall" or "must" means mandatory.

(14) "Should" or "may" means recommended.

(15) "Suitable" means that which fits, or has the qualities or qualifications to meet a given purpose, occasion, condition, function, or circumstance.

(16) "Worker," "personnel," "person," "employee," and other terms of like meaning, unless the context of the provision containing such term indicates otherwise, mean an employee of an employer who is employed in the business of their 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 their personal labor for an employer whether by manual labor or otherwise.

(17) "Work place" 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(~~(f, j and)~~). This includes, but is not limited to, all work places covered by industrial insurance under Title 51 RCW, as now or hereafter amended.

(18) Abbreviations used in this chapter:

(a) "ANSI" means American National Standards Institute.

(b) "ASHRE" means American Society of Heating and Refrigeration Engineers.

(c) "BTU" means British thermal unit.

(d) "BTUH" means British thermal unit per hour.

(e) "CFM" means cubic feet per minute.

(f) "CFR" means Code of Federal Register.

(g) "CGA" means Compressed Gas Association.

(h) "ID" means inside diameter.

(i) "MCA" means Manufacturing Chemist Association or Chemical Manufacturer Association (CMA).

(j) "NEMA" means National Electrical Manufacturing Association.

(k) "NFPA" means National Fire Protection Association.

(l) "OD" means outside diameter.

(m) "WAC" means Washington Administrative Code.

(n) "WISHA" means Washington Industrial Safety and Health Act (chapter 80, Laws of 1973).

AMENDATORY SECTION (Amending WSR 01-11-038, filed 5/9/01, effective 9/1/01)

WAC 296-62-050 Application for waiver or variances. See WAC ((~~296-350-700 Variance from WISHA rules~~)) 296-900-11005, Applying for a variance.

AMENDATORY SECTION (Amending WSR 01-11-038, filed 5/9/01, effective 9/1/01)

WAC 296-62-07373 Communication of EtO hazards to employees.
(1) Signs and labels.

(a) 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
CANCER HAZARD AND REPRODUCTIVE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING MAY BE REQUIRED
TO BE WORN IN THIS AREA

(b) 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 ((~~WISHA's chemical hazard communication standard, and~~)) the safety and health core rules. Labels shall include the following legend:

(i)

DANGER
CONTAINS ETHYLENE OXIDE
CANCER HAZARD AND REPRODUCTIVE HAZARD; and

(ii) 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 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 of the hazard communication standard.

(3) 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 01-11-038, filed 5/9/01, effective 9/1/01)

WAC 296-62-07425 Communication of cadmium hazards to employees. (1) General. In communications concerning cadmium hazards, employers shall comply with the requirements of WISHA's Chemical Hazard Communication Standard, WAC 296-800-170, including but not limited to the requirements concerning warning signs and labels, material safety data sheets (MSDS), and employee information and training. In addition, employers shall comply with the following requirements:

(2) 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:

DANGER CADMIUM CANCER HAZARD CAN CAUSE LUNG
AND KIDNEY DISEASE AUTHORIZED PERSONNEL ONLY
RESPIRATORS REQUIRED IN THIS AREA

(c) The employer shall assure that signs required by this subsection are illuminated, cleaned, and maintained as necessary so that the legend is readily visible.

(3) 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) of this subsection.

(b) The warning labels shall include at least the following information:

DANGER CONTAINS CADMIUM CANCER HAZARD AVOID
CREATING DUST CAN CAUSE LUNG AND KIDNEY DISEASE

(c) Where feasible, installed cadmium products shall have a visible label or other indication that cadmium is present.

(4) Employee information and training.

(a) 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.

(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 ((~~296-62-05213~~ and)) 296-800-170 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 05-03-093, filed 1/18/05, effective 3/1/05)

WAC 296-62-07460 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 $\text{CH}_2=\text{CH}-\text{CH}=\text{CH}_2$ 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.

"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 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) 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.

(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.

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 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.

Table 1. - Minimum Requirements for Respiratory Protection for Airborne BD

Concentration of Airborne BD (ppm) or condition of use	Minimum required respirator
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. The employer shall communicate the hazards associated with BD exposure in accordance with the

requirements of the chemical hazard communication standard, WAC 296-800-170.

(b) Employee information and training.

(i) The employer shall provide all employees exposed to BD with information and training in accordance with the requirements of the chemical hazard communication standard, WAC 296-800-170.

(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.

(i) Whenever the employer ceases to do business, the employer shall transfer records required by this section to the successor employer. The successor employer shall receive and maintain these records. If there is no successor employer, the employer shall notify the director, at least three months prior to disposal, and transmit them to the director if requested by the director within that period.

(ii) The employer shall transfer medical and exposure records as set forth in chapter 296-802 WAC.

(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 (CH₂=CH-CH=CH₂).

(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 re-entering 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 preferred. 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 CFR 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 CFR 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 (30) 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;

bivinyll; 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 CFR 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 CFR 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.
+*	—	—	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/m³).

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/m³) (based on 3 L air volume).

Reliable quantitation limit: 155 ppb (343 ug/m³) (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/m³). 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/m³). 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

$$\text{ug/uL} = 54.09/MV$$

$$\text{ug/standard} = (\text{ug/uL})(\text{uL}) \text{ BD used to prepare the standard}$$

(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:

$$\text{mg/m}^3 = (A)(B)/(C)(D)$$

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/m³ to ppm:

$$\text{ppm} = (\text{mg/m}^3)(24.46)/54.09$$

Where:

mg/m³ = 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-Ml 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

- 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

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 explain: _____

12. Do you understand all the questions? yes no

Signature

AMENDATORY SECTION (Amending WSR 01-11-038, filed 5/9/01, effective 9/1/01)

WAC 296-62-07621 Communication of hazards to employees. (1)
Signs and labels.

(a) 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 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 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:

(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 safety data sheets (MSDS).

(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) Information and training.

(a) The employer shall provide employees with information and training on MDA, in accordance with WAC 296-800-170, at the time of initial assignment and at least annually thereafter.

(b) In addition to the information required under WAC 296-800-170, 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) 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 Order 73-3, filed 5/7/73)

WAC 296-62-11005 Adequate system. Adequate ventilation systems shall be installed as needed to control concentrations of airborne contaminants below (~~applicable threshold limit values~~) permissible exposure limits.

AMENDATORY SECTION (Amending WSR 96-05-056, filed 2/16/96, effective 4/1/96)

WAC 296-65-005 Asbestos worker training course content. An approved asbestos worker training course shall consist of four days of training with a minimum of thirty-two hours. This initial training course shall provide, at a minimum, information on the following topics:

(1) The physical characteristics of asbestos including types, fiber size, aerodynamic characteristics and physical appearance.

(2) Examples of different types of asbestos and asbestos-containing materials. Real asbestos shall be used only for observation by trainees and shall be enclosed in sealed unbreakable containers.

(3) The health hazards of asbestos including the nature of asbestos related diseases, routes of exposure, dose-response relationships, synergism between cigarette smoking and asbestos exposure, latency period of diseases, hazards to immediate family, and the health basis for asbestos standards.

(4) Employee personal protective equipment including the classes and characteristics of respirator types, limitations of respirators, proper selection, inspection, donning, use, maintenance and storage procedure, methods for field checking of the facepiece-to-face seal (positive and negative-pressure checks), qualitative and quantitative fit testing procedures, variability between field and laboratory protection factors, factors that alter respirator fit (e.g., eye glasses and facial hair), the components of a proper respiratory protection program, respirator program administrator, requirements on oil lubricated reciprocating piston compressors for breathing air, and selection and use of personal protective clothing. Qualitative or quantitative fit testing shall be performed on at least one student for demonstration purposes and in accordance with WAC 296-62-07715 and 296-62-07739.

(5) Use, storage and handling of launderable clothing, nonslip footwear, gloves, eye protection and hard hats.

(6) Medical monitoring procedures and requirements, including the provisions of (~~WAC 296-62-071 through 296-62-07121 and 296-62-07725~~) chapter 296-842 WAC, any additional recommended procedures and tests, benefits of medical monitoring and employee access to records.

(7) Air monitoring procedures and requirements specified in WAC 296-62-07709, including a description of equipment, sampling methods and strategies, reasons for air monitoring, types of samples, including area, personal and clearance samples, current standards with proposed changes if any, employee observation and notification, recordkeeping and employee access to records, interpretation of air monitoring results, and analytical methods for bulk and air samples.

(8) State-of-the-art work practices for asbestos removal and encapsulation activities including purpose, proper construction and maintenance of barriers and decontamination enclosure systems, posting of warning signs, electrical and ventilation system lock-out, proper working techniques and tools with vacuum attachments for minimizing fiber release, use of wet methods and surfactants, use of negative-pressure ventilation equipment for minimizing employee exposure to asbestos fibers and contamination prevention, scoring and breaking techniques for rigid asbestos products, glove bag techniques, recommended and prohibited work practices, potential exposure situations, emergency procedures for sudden releases, use of HEPA vacuums and proper clean-up and disposal procedures. Work practice requirements for removal, encapsulation, enclosure, repair, and waste transportation shall be discussed individually. Appropriate work practices for both indoor and outdoor asbestos projects shall be included.

(9) Personal hygiene including entry and exit procedures for the work area, use of showers and prohibition of eating, drinking, smoking and chewing (gum or tobacco) in the work area. Potential exposures, such as family exposure shall also be included.

(10) Additional safety hazards that may be encountered during asbestos removal and encapsulation activities and hazard abatement, including electrical hazards, scaffold and ladder hazards, slips, trips and falls, confined spaces, noise, and heat stress.

(11) The requirements, procedures and standards established by:

(a) The Environmental Protection Agency, 40 CFR Part 61, Subparts A and M, and 40 CFR Part 763.

(b) Washington state department of ecology.

(c) Local air pollution control agencies.

(d) Washington state department of labor and industries, division of industrial safety and health, chapter 49.17 RCW (Washington Industrial Safety and Health Act), chapter 49.26 RCW (Health and safety--Asbestos), and ensuing regulations.

(12) Actual worksite considerations.

(13) The instruction required by this section shall include, at a minimum fourteen hours of hands-on training for the following:

(a) Glove bag techniques;

(b) The opportunity to don respirators including half facepiece and full facepiece air purifying respirators, powered air purifying respirators (PAPR), and Type-C supplied-air respirators;

(c) Removal of sprayed-on or troweled-on material, and pipe lagging;

(d) Basic construction of a decontamination unit, and proper entry and exit;

(e) Suit-up in protective clothing consisting of coveralls, foot coverings and head coverings.

(14) Course review, a review of the key aspects of the training course.

(15) Asbestos-containing materials shall not be used for hands-on training.

(16) In recognition that asbestos abatement is an evolving industry, the department reserves the right to require additional

subjects to be taught and to specify the amount of time which shall be allotted to adequately cover required subjects. To assure adequate coverage of required material, each sponsor shall be provided and required to incorporate into the training course, a detailed outline of subject matter developed by the department.

AMENDATORY SECTION (Amending WSR 96-05-056, filed 2/16/96, effective 4/1/96)

WAC 296-65-007 Asbestos supervisor training course content.

An approved asbestos supervisor training course shall consist of at least five days of training. This initial training course shall include lectures, demonstrations, at least fourteen hours of hands-on training, course review and a written examination. Audio-visual materials, where appropriate, are recommended to complement lectures. The training course shall provide, at a minimum, information on the following topics:

(1) The physical characteristics of asbestos and asbestos-containing materials including identification of asbestos, aerodynamic characteristics, typical uses, physical appearance, hazard assessment considerations, and a summary of abatement control options.

(2) Health effects related to asbestos exposure including the nature of asbestos related diseases, routes of exposure, dose-response relationships and the lack of a safe level of exposure, synergism between asbestos exposure and cigarette smoking, latency period, hazards to the immediate family and the health basis for the standard.

(3) Employee personal protective equipment including the classes and characteristics of respirator types, limitations of respirators, proper selection, inspection, donning, use, maintenance, and storage procedures, methods for field checking of the facepiece-to-face seal (positive and negative pressure checks), variability between field and laboratory protection factors, quantitative and qualitative fit test requirements, factors that alter respirator fit (facial hair, scars, etc.), the components of a proper respirator program, requirements for oil lubricated reciprocating compressors, maintenance of Type-C systems, standards for breathing air, selection and use of personal protective clothing, use, storage, and handling of nondisposable clothing, and regulations covering personal protective equipment.

(4) State-of-the-art work practices for asbestos removal and encapsulation activities including purpose, proper construction and maintenance of barriers and decontamination enclosure systems, posting of warning signs, electrical and ventilation system lock-out, proper working techniques and tools with vacuum attachments for minimizing fiber release, use of wet methods and surfactants, use of negative-pressure ventilation equipment for minimizing employee exposure to asbestos fibers and contamination prevention,

scoring and breaking techniques for rigid asbestos products, glove bag techniques, recommended and prohibited work practices, potential exposure situations, emergency procedures for sudden releases, use of HEPA vacuums and proper clean-up and disposal procedures. Work practice requirements for removal, encapsulation, and repair shall be discussed separately. Appropriate work practices for both indoor and outdoor asbestos projects shall be included.

(5) Personal hygiene including entry and exit procedures for the work area, use of showers and prohibition of eating, drinking, smoking, and chewing (gum and tobacco) in the work area. Potential exposures, such as family exposure shall also be included.

(6) Additional safety hazards that may be encountered during asbestos abatement activities and how to deal with them, including electrical hazards, heat stress, air contaminants other than asbestos, fire and explosion hazards, scaffold and ladder hazards, slips, trips, and falls, confined space entry requirements, and noise hazards.

(7) Medical monitoring procedures and requirements, including the provisions of (~~WAC 296-62-071 through 296-62-07121 and 296-62-07725~~) chapter 296-842 WAC, any additional recommended procedures and tests, benefits of medical monitoring and recordkeeping requirements.

(8) Air monitoring procedures and requirements specified in WAC 296-62-07709, including a description of equipment, sampling methods and strategies, reasons for air monitoring, types of samples, including area, personal and clearance samples, a description of aggressive sampling, current standards with proposed changes if any, employee observation and notification, recordkeeping, interpretation of air monitoring results, specifically from analyses performed by polarized light, phase contrast, and electron microscopy.

(9) The requirements, procedures, and standards established by:

(a) The Environmental Protection Agency, 40 CFR Part 61, Subparts A and M, and 40 CFR Part 763.

(b) The Washington state department of ecology.

(c) Local air pollution control agencies.

(d) Washington state department of labor and industries, division of industrial safety and health, chapter 49.17 RCW (Washington Industrial Safety and Health Act), chapter 49.26 RCW (Health and safety--Asbestos), and ensuing regulations.

(10) Actual worksite considerations.

(11) Insurance and liability issues including contractor issues, industrial insurance coverage and exclusions, third party liabilities and defenses, private insurance coverage and exclusions, recordkeeping recommended for legal and insurance purposes.

(12) Supervisory techniques for asbestos abatement projects including supervisory practices to enforce and reinforce the required work practices and discourage unsafe work practices.

(13) Contract specifications including a discussion of the key elements to be included in contract specifications.

(14) A minimum of fourteen hours of hands-on training for the following:

(a) Calibration of air-sampling equipment;

(b) Routine maintenance of air-purifying and air-supplied respirators;

(c) Setup of a decontamination unit including calculating the number of negative air machines needed as well as proper placement of the machines within the enclosure; and

(d) Quantitative and qualitative fit-testing protocols.

(15) Course review, a review of the key aspects of the training course.

(16) In recognition that asbestos abatement is an evolving industry, the department reserves the right to require additional subjects to be taught and to specify the amount of time which shall be allotted to adequately cover required subjects. To assure adequate coverage of required material, each sponsor shall be provided and required to incorporate into their training course, a detailed outline of subject matter developed by the department.

AMENDATORY SECTION (Amending WSR 99-17-026, filed 8/10/99, effective 11/10/99)

WAC 296-65-010 Asbestos worker certification. (1) For the purposes of this section "individual" means any natural person.

(2) To qualify for an asbestos worker certificate, an individual must do the following:

(a) Successfully complete an approved asbestos worker training course;

(b) Achieve a score of at least seventy percent on a one hundred question multiple choice closed book examination approved by the department but administered by the training course sponsor. If an individual does not pass the examination, then another examination (meeting the above criteria) may be given after a sufficient period of study. The new examination must not duplicate more than fifty percent of the questions used on prior examinations;

(c) Submit to the department a timely application validated by an approved training course sponsor. To be considered timely, an application must be received by the department no later than sixty days after the completion of the course. In the event that an application is not timely, the individual will be required to pass, with a score of at least seventy percent, an examination administered by the department. A nonrefundable fifty-dollar fee will be assessed when the application is submitted to the department; and

(d) Pay the fee prescribed in WAC 296-65-025.

(3) Individuals must not perform any asbestos project work prior to issuance of the certificate.

(4) Certificates will be issued and mailed to the individual

applicants and will be valid for one year from the date of issuance.

(5) Certified asbestos workers shall attend an eight-hour worker refresher course prior to certificate renewal.

(a) The course shall, at a minimum, adequately review the subjects required by WAC 296-65-005, update information on state-of-the-art procedures and equipment, and review regulatory changes and interpretations. The department may require specific subjects.

(b) An application for renewal of the certificate must be validated by the refresher training course instructor.

(c) The refresher course must be taken prior to expiration of the certificate.

(d) The department must receive the certificate renewal application no later than the expiration date of the current certificate. Applicants missing this renewal deadline will be required to pass, with a score of seventy percent, an examination administered by the department. A nonrefundable fifty-dollar fee will be charged to take this examination.

(e) Individuals whose certificates have been expired for more than six months will be required to retake the entire basic worker course.

(6) The initial TSCA Title II worker accreditation certificate and the current worker certificate must be available for inspection at all times at the location of the asbestos project.

(7) The department may suspend or revoke a certificate as provided in WAC 296-65-050 and chapter ((296-350)) 296-900 WAC.

AMENDATORY SECTION (Amending WSR 99-17-026, filed 8/10/99, effective 11/10/99)

WAC 296-65-012 Asbestos supervisor certification. (1) For the purposes of this section, "individual" means any natural person.

(2) To qualify for an asbestos supervisor certificate, an individual must meet the following criteria:

(a) Have at least 1600 hours of experience in one or more of the following disciplines:

(i) Asbestos abatement;

(ii) Asbestos project design;

(iii) Consultation on asbestos abatement projects;

(iv) Operations and maintenance program supervision;

(v) Construction project supervision;

(b) Successfully complete an approved asbestos supervisor training course;

(c) Achieve a score of at least seventy percent on a one hundred question multiple choice closed book examination approved by the department but administered by the training course sponsor. If an individual does not pass the examination, then another examination (meeting the above criteria) may be given after a

sufficient period of study. The new examination must not duplicate more than fifty percent of the questions used on prior examinations;

(d) Submit to the department a timely application validated by an approved training course sponsor. To be considered timely, an application must be received by the department no later than sixty days after the completion of the course. In the event that an application is not timely, the individual will be required to pass, with a score of at least seventy percent, an examination administered by the department. A nonrefundable fifty-dollar fee will be assessed when the application is submitted to the department; and

(e) Pay the fee prescribed in WAC 296-65-025.

(3) An individual must not supervise any asbestos project prior to issuance of the certificate.

(4) Certificates will be issued and mailed to the individual applicants and will be valid for one year from the date of issuance.

(5) A certified asbestos supervisor must attend an eight-hour supervisor refresher course prior to certificate renewal. It is not necessary to also take a worker refresher course.

(a) The course must, at a minimum, adequately review the subjects required by WAC 296-65-007, update information on state-of-the-art procedures and equipment, and review regulatory changes and interpretations. The department may require specific subjects.

(b) An application for renewal of the certificate must be validated by the refresher training course instructor.

(c) The refresher course must be taken prior to expiration of the certificate.

(d) The department must receive the certificate renewal application no later than the expiration date of the current certificate. Applicants missing this renewal deadline will be required to pass, with a score of seventy percent, an examination administered by the department. A nonrefundable fifty-dollar fee will be charged to take this examination.

(e) Individuals whose certificates have been expired for more than six months will be required to retake the entire basic supervisor course.

(6) The initial TSCA Title II supervisor accreditation certificate and the current supervisor certificate must be available for inspection at all times at the location of the asbestos project.

(7) The department may suspend or revoke a certificate as provided in WAC 296-65-050 and chapter ((296-350)) 296-900 WAC.

AMENDATORY SECTION (Amending Order 89-10, filed 10/10/89, effective 11/24/89)

WAC 296-65-017 Contractor certification. (1) In order to obtain certification, an asbestos contractor must submit an application to the department. The application shall provide the following information:

(a) A list of asbestos projects conducted by the contractor during the previous twelve months. Such list shall include for each project:

- (i) Project name;
- (ii) Location;
- (iii) Brief description;
- (iv) Identity of any citations or enforcement actions issued for violations of asbestos regulations by any local, state, or federal jurisdiction relative to each individual project; and
- (v) Name of the on-site project manager or supervisor.

(b) A list of asbestos supervisors (include certification number) working for the company.

(c) A statement certifying that the contractor has read and understands all applicable Washington state rules and regulations regarding asbestos abatement and will comply with them.

(d) A statement certifying that the applicant contractor's asbestos license or accreditation issued by any other state or jurisdiction has not been revoked, suspended, or denied by that state or jurisdiction.

(2) Upon approval, the department will issue the contractor a certificate. Denial of approval shall be in writing.

(3) Certificates shall be valid for a period of twelve months. Certificates may be extended during department review of a renewal application.

Note: In circumstances where it is necessary to coordinate an expiration date with the date of expiration of a contractor registration issued under chapter 18.27 RCW, certificates may be valid for less than one year. In such circumstances, the certificate fee prescribed in WAC 296-65-025 shall be prorated accordingly for the initial application only.

(4) The application for certificate renewal shall contain the information specified in subsection (1) of this section.

(5) Applications for renewal must be received by the department not less than sixty days before the certificate expires.

(6) The department may suspend or revoke the certificate as provided in WAC 296-65-050 and chapter ((~~296-350~~) 296-900) WAC.

AMENDATORY SECTION (Amending Order 92-06, filed 8/10/92, effective 9/10/92)

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 flammable liquid or gas (as defined in WAC ((~~296-62-05405~~ [WAC ~~296-800-170~~])) 296-800-170) 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 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 296-78-500 Foreword. (1) General requirements. The chapter 296-78 WAC shall apply to and include safety requirements for all installations where the primary manufacturing of wood building products takes place. The installations may be a permanent fixed establishment or a portable operation. These operations shall include but are not limited to log and lumber handling, sawing, trimming and planing, plywood or veneer manufacturing, canting operations, waste or residual handling, operation of dry kilns, finishing, shipping, storage, yard and yard equipment, and for power tools and affiliated equipment used in connection with such operation. WAC 296-78-450 shall apply to shake and shingle manufacturing. The provisions of WAC 296-78-500 through 296-78-84011 are also applicable in shake and shingle manufacturing except in instances of conflict with the requirements of WAC 296-78-705. (Rev. 1-28-76.)

(2) This standard shall augment the Washington state general safety and health standards, general occupational health standards, electrical workers safety rules, and any other standards which are applicable to all industries governed by chapter 80, Laws of 1973, Washington Industrial Safety and Health Act. In the event of any conflict between any portion of this chapter and any portion of any of the general application standards, the provisions of this chapter 296-78 WAC, shall apply.

(3) In exceptional cases where compliance with specific provisions of this chapter can only be accomplished to the serious detriment and disadvantage of an operation, variance from the requirement may be permitted by the director of the department of labor and industries after receipt of application for variance which meets the requirements of chapter ((~~296-350~~)) 296-900 WAC.

(4) No safety program will run itself. To be successful, the wholehearted interest of the employees' group (labor unions) and management must not only be behind the program, but the fact must also be readily apparent to all.

AMENDATORY SECTION (Amending WSR 05-03-093, filed 1/18/05, effective 3/1/05)

WAC 296-78-71019 Exhaust systems. (1) Air requirements in buildings, where persons are habitually employed, shall meet the requirements of the general occupational health standard, WAC 296-

62-100 through 296-62-11013.

(2) Where the natural ventilation is not sufficient to remove dust, fumes or vapors that create or constitute a hazard, additional means of removal shall be provided.

(3) All mills containing one or more machines whose operations create dust, shavings, chips or slivers during a period of time equal to or greater than one-fourth of the working day or shift, shall be equipped with a collecting system either continuous or automatic in action and of sufficient strength and capacity to thoroughly remove such refuse from the points of operation of the machines and the work areas.

(4) Each woodworking machine that creates dust, shavings, chips, or slivers shall be equipped with an exhaust or conveyor system located and adjusted to remove the maximum amount of refuse from the point of operation and immediate vicinity.

(5) Blower, collecting and exhaust systems shall be designed, constructed and maintained in accordance with American National Standards Z33.1 - 1961 (for the installation of blower and exhaust systems for dust, stock and vapor removal or conveying) and (~~Z12.2~~) Z12.20 - 1962 (R1969) (code for the prevention of dust explosions in woodworking and wood flour manufacturing plants).

(6) Fans used for ventilating shall be of ample capacity, as evidenced by the performance schedules of the manufacturers, and shall be guarded when exposed to contact. Hoods, dust conveyors, dust collectors and other accessory equipment shall be large enough to insure free intake and discharge.

(7) The outlet or discharge of all ventilating equipment shall be so arranged that at no time will the dust, vapors, gases or other air borne impurities discharged, create or constitute a hazard.

(8) Where a hood is used to form a part or all of the guard required on a given machine, it shall be constructed of not less than ten U.S. gauge sheet metal, or if of cast iron it shall be not less than three-sixteenths inches in thickness.

(9) All exhaust pipes shall be of such construction and internal dimensions as to minimize the possibility of clogging. They shall be readily accessible for cleaning.

(10) All exhaust pipes shall empty into settling or dust chambers which shall effectively prevent the dust or refuse from entering any work area. Such settling or dust chambers shall be so designed and operated as to reduce to a minimum the danger of fire or dust explosions.

(11) In lieu of a general ventilating system, exhaust or blower units may be installed on the dust or fume producing machine, provided the required protection is secured thereby.

(12) When proper ventilation is not provided, and temporary hazardous conditions are therefore encountered, the employer shall furnish approved respiratory and visual equipment: Provided, however, That the exposure to such hazard shall not be for more than two hours duration. Protective measures and equipment shall meet the requirements of (~~the general occupational health standard,~~) chapter 296-842 WAC, Respirators.

(13) Provisions for the daily removal of refuse shall be made

in all operations not required to have an exhaust system, or having refuse too heavy, or bulky, or otherwise unsuitable to be handled by an exhaust system.

AMENDATORY SECTION (Amending WSR 01-11-038, filed 5/9/01, effective 9/1/01)

WAC 296-78-730 Electrical service and equipment. (1) Electrical service and equipment shall be constructed, maintained, inspected and operated according to chapter 296-24 WAC, General safety and health standards, Part L, and WAC 296-800-280 of the safety and health core rules.

(2) Repairs. Electrical repairs shall be made only by authorized and qualified personnel.

(3) Identification. Marks of identification on electrical equipment shall be clearly visible.

(4) Protective equipment. Rubber protective equipment shall be provided as required by WAC ((~~296-24-092(1)~~) 296-800-160 of the ((~~general~~)) safety and health ((~~standard~~)) core rules.

(5) Open switches. Before working on electrical equipment, switches shall be open and shall be locked out.

(6) Concealed conductors. Where electrical conductors are known to be concealed, no work shall be performed until such conductors are located.

(7) Overload relays. Overload relays shall be reset by authorized qualified personnel only.

(8) Passageways to panels. Passageways to switch centers or panels shall at all times be kept free from obstruction. Not less than three feet of clear space shall be maintained in front of switch centers or panels at all times.

(9) Bridging fuses. Fuses shall not be doubled or bridged.

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

WAC 296-78-835 Vehicles. (1) Vehicles.

(a) Scope. Vehicles shall include all mobile equipment normally used in sawmill, planing mill, storage, shipping, and yard operations, including log sorting yards.

(b) Lift trucks. Lift truck shall be designed, constructed, maintained and operated in accordance with the requirements of WAC 296-24-230 through 296-24-23035 of the general safety and health standards.

(c) Carriers. Drive chains on lumber carriers shall be

adequately guarded to prevent contact at the pinch points.

(d)(i) Lumber carriers shall be so designed and constructed that the operator's field of vision shall not be unnecessarily restricted.

(ii) Carriers shall be provided with ladders or equivalent means of access to the operator's platform or cab.

(e) Lumber hauling trucks.

(i) On trucks where the normal operating position is ahead of the load in the direction of travel, the cab shall be protected by a barrier at least as high as the cab. The barrier shall be capable of stopping the weight of the load capacity of the vehicle if the vehicle were to be stopped suddenly while traveling at its normal operating speed. The barrier shall be constructed in such a manner that individual pieces of a normal load will not go through openings in the barrier.

(ii) Stakes, stake pockets, racks, tighteners, and binders shall provide a positive means to secure the load against any movement during transit.

(iii) Where rollers are used, at least two shall be equipped with locks which shall be locked when supporting loads during transit.

(2) Warning signals and spark arrestors. All vehicles shall be equipped with audible warning signals and where practicable shall have spark arrestors.

(3) Flywheels, gears, sprockets and chains and other exposed parts that constitute a hazard to workers shall be enclosed in standard guards.

(4) All vehicles operated after dark or in any area of reduced visibility shall be equipped with head lights and backup lights which adequately illuminate the direction of travel for the normal operating speed of the vehicle. The vehicle shall also be equipped with tail lights which are visible enough to give sufficient warning to surrounding traffic at the normal traffic operating speed.

(5) All vehicles operated in areas where overhead hazards exist shall be equipped with an overhead guard for the protection of the operator.

(6) Where vehicles are so constructed and operated that there is a possibility of the operator being injured by backing into objects, a platform guard shall be provided and so arranged as not to hinder the exit of the driver.

(7) Trucks, lift trucks and carriers shall not be operated at excessive rates of speed. When operating on tramways or docks more than six feet above the ground or lower level they shall be limited to a speed of not more than twelve miles per hour. When approaching blind corners they shall be limited to four miles per hour.

(8) Vehicles shall not be routed across principal thoroughfares while employees are going to or from work unless pedestrian lanes are provided.

(a) Railroad tracks and other hazardous crossings shall be plainly posted.

(b) Restricted overhead clearance. All areas of restricted

side or overhead clearance shall be plainly marked.

(c) Pickup and unloading points. Pickup and unloading points and paths for lumber packages on conveyors and transfers and other areas where accurate spotting is required, shall be plainly marked and wheel stops provided where necessary.

(d) Aisles, passageways, and roadways. Aisles, passageways, and roadways shall be sufficiently wide to provide safe side clearance. One-way aisles may be used for two-way traffic if suitable turnouts are provided.

(9) Where an operator's vision is impaired by the vehicle or load it is carrying, he shall move only on signal from someone so stationed as to have a clear view in the direction the vehicle is to travel.

(10) (~~Lift trucks shall be equipped, maintained and operated in compliance with the requirements of the general safety and health standard, WAC 296-24-230 through 296-24-23035.~~) Reserved.

(11) Load limits. No vehicle shall be operated with loads exceeding its safe load capacity.

(12) Vehicles with internal combustion engines shall not be operated in enclosed buildings or buildings with ceilings less than sixteen feet high unless the buildings have ventilation adequate to maintain air quality as required by the general occupational health standard, chapter 296-62 WAC.

(13) Vehicles shall not be refueled while motor is running. Smoking or open flames shall not be allowed in the refueling area.

(14) No employee other than trained operators or mechanics shall start the motor of, or operate any log or lumber handling vehicle.

(15) All vehicles shall be equipped with brakes capable of holding and controlling the vehicle and capacity load upon any grade or incline over which they may operate.

(16) Unloading equipment and facilities.

(a) Machines used for hoisting, unloading, or lowering logs shall be equipped with brakes capable of controlling or holding the maximum load in midair.

(b) The lifting cylinders of all hydraulically operated log handling machines, or where the load is lifted by wire rope, shall be equipped with a positive device for preventing the uncontrolled lowering of the load or forks in case of a failure in the hydraulic system.

(c) A limit switch shall be installed on powered log handling machines to prevent the lift arms from traveling too far in the event the control switch is not released in time.

(d) When forklift-type machines are used to load trailers, a means of securing the loading attachment to the fork shall be installed and used.

(e) A-frames and similar log unloading devices shall have adequate height to provide safe clearance for swinging loads and to provide for adequate crotch lines and spreader bar devices.

(f) Log handling machines used to stack logs or lift loads above operator's head shall be equipped with overhead protection.

(g) Unloading devices shall be equipped with a horn or other plainly audible signaling device.

(h) Movement of unloading equipment shall be coordinated by audible or hand signals when operator's vision is impaired or operating in the vicinity of other employees.

Lift trucks regularly used for transporting peeler blocks or cores shall have tusks or a similar type hold down device to prevent the blocks or cores from rolling off the forks.

(17) Where spinners are used on steering wheels, they shall be of the automatic retracting type or shall be built into the wheel in such a manner as not to extend above the plane surface of the wheel. Vehicles equipped with positive antikickback steering are exempted from this requirement.

(18) Mechanical stackers and unstackers shall have all gears, sprockets and chains exposed to the contact of workers, fully enclosed by guards as required by WAC 296-78-710 of this chapter.

(19) Manually operated control switches shall be properly identified and so located as to be readily accessible to the operator. Main control switches shall be so designed that they can be locked in the open position.

(20) Employees shall not stand or walk under loads being lifted or moved. Means shall be provided to positively block the hoisting platform when employees must go beneath the stacker or unstacker hoist.

(21) No person shall ride any lift truck or lumber carrier unless a suitable seat is provided, except for training purposes.

(22) Unstacking machines shall be provided with a stopping device which shall at all times be accessible to at least one employee working on the machine.

(23) Floor of unstacker shall be kept free of broken stickers and other debris. A bin or frame shall be provided to allow for an orderly storage of stickers.

(24) Drags or other approved devices shall be provided to prevent lumber from running down on graders.

(25) Liquified petroleum gas storage and handling. Storage and handling of liquified petroleum gas shall be in accordance with the requirements of WAC 296-24-475 through 296-24-47517 of the general safety and health standards.

(26) Flammable liquids. Flammable liquids shall be stored and handled in accordance with WAC 296-24-330 through 296-24-33019 of the general safety and health standards.

(27) Guarding side openings. The hoistway side openings at the top level of the stacker and unstacker shall be protected by enclosures of standard railings.

(28) Guarding hoistway openings. When the hoist platform or top of the load is below the working platform, the hoistway openings shall be guarded.

(29) Guarding lower landing area. The lower landing area of stackers and unstackers shall be guarded by enclosures that prevent entrance to the area or pit below the hoist platform. Entrances should be protected by electrically interlocked gates which, when open, will disconnect the power and set the hoist brakes. When the interlock is not installed, other positive means of protecting the entrance shall be provided.

(30) Lumber lifting devices. Lumber lifting devices on all

stackers shall be designed and arranged so as to minimize the possibility of lumber falling from such devices.

(31) Inspection. At the start of each work shift, equipment operators shall inspect the equipment they will use for evidence of failure or incipient failure. Equipment found to have defects which might affect the operating safety shall not be used until the defects are corrected.

(32) Cleaning pits. Safe means of entrance and exit shall be provided to permit cleaning of pits.

(33) Preventing entry to hazardous area. Where the return of trucks from unstacker to stacker is by mechanical power or gravity, adequate signs, warning devices, or barriers shall be erected to prevent entry into the hazardous area.

AMENDATORY SECTION (Amending WSR 97-22-065, filed 11/3/97, effective 1/1/98)

WAC 296-99-030 What training must an employer provide for employees? (1) The employer must train employees:

(a) Annually; and
(b) Whenever a new job assignment exposes an employee to a new hazard.

(2) The employer must ensure that employees are trained in the following:

(a) General safety precautions against fires and explosions, including how to recognize and prevent the hazards of excess dust accumulation and ignition sources.

(b) Specific procedures and safety practices for job tasks including, but not limited to:

- ! Cleaning grinding equipment;
- ! Clearing choked legs;
- ! Housekeeping;
- ! Hot work; and
- ! Preventive maintenance.

(3) The employer must provide additional training for employees who are assigned special tasks, including but not limited to:

(a) Procedures for grain storage entry according to (~~WAC 296-62-145~~) chapter 296-809 WAC, Confined spaces (entry), and how to:

- ! Control hazardous energy (lockout/tagout) according to (~~WAC 296-24-110~~) chapter 296-803 WAC, Lockout/tagout (control of hazardous energy);
- ! Avoid getting buried by moving grain (engulfment);
- ! Avoid falling from heights; and
- ! Prevent mechanical hazards.

(b) How to handle flammable or toxic substances.

AMENDATORY SECTION (Amending WSR 01-11-038, filed 5/9/01, effective 9/1/01)

WAC 296-99-040 What practices must an employer follow for entry into grain storage structures? This section applies to employee entry into all grain storage structures.

(1) The employer must ensure that the practice of walking down grain is prohibited. "Walking down grain" means an employee walks on grain to make it flow within or out from a grain storage

structure, or an employee is on moving grain.

(2) The employer must ensure that during the entry and occupation of a storage structure the employee uses:

- ! A body harness with a lifeline; or
- ! A boatswain's chair that meets the requirements of Part J-2 of chapter 296-24 WAC whenever:

(a) The employee is exposed to a fall hazard such as when entering from the top or above the level of the stored grain; or

(b) The employee is exposed to an engulfment hazard such as when entering at the level of the stored grain, or while walking or standing on the grain. The lifeline must be rigged so that its position and length will prevent the employee from sinking below waist level.

(3) The employer must ensure that during the occupation of storage structures, including walking or standing on grain, employees are protected from hazards related to:

- ! Mechanical;
- ! Electrical;
- ! Hydraulic; and
- ! Pneumatic equipment.

By using safeguards, lockout-tagout, or other equally effective means. All provisions for the control of hazardous energy (lockout/tagout) from (~~(WAC 296-24-110)~~) chapter 296-803 WAC apply to this chapter.

(4) The employer must ensure that employees are prohibited from entering any storage structure where a build-up of grain overhead (bridging) or on the sides could fall and bury them.

(5) The employer must ensure, as minimum precautions, that employee entry and occupation of all grain storage structures including flat storage structures is done according to all applicable requirements of (~~(WAC 296-62-145)~~) chapter 296-809 WAC, Confined spaces, when the storage structure:

- ! Has limited or restricted means of entry and exit; and
- ! Is not designed for continuous employee occupancy.

(6) The employer may allow an employee to perform confined space entry work in grain storage structures without a permit if the employer's representative personally monitors the work to prevent employee exposure to illness or injury from atmospheric hazards during the entire operation.

AMENDATORY SECTION (Amending WSR 97-22-065, filed 11/3/97, effective 1/1/98)

WAC 296-99-065 What preventive maintenance program must an employer implement? (1) The employer must implement a written program that covers the requirements of (~~(WAC 296-24-110, The)~~) chapter 296-803 WAC, Lockout/tagout (control of hazardous energy ((lockout/tagout))).

(2) The employer must implement preventive maintenance procedures that include the following:

(a) Conducting regularly scheduled inspections for specified machinery.

(b) Preparing written inspection reports kept on file that include:

! The date of each inspection;

! The name of the inspector; and

! The serial number, or other identification of the machinery as described next in (c) of this subsection.

(c) Conducting regularly scheduled inspections and completing immediate repairs of the mechanical equipment and safety controls of the following machinery:

! Grain dryers;

! Grain stream processing equipment;

! Dust collection systems including their filter collectors that malfunction or operate below designed efficiency;

! Overheated bearings; and

! Slipping or misaligned belt drives for inside bucket elevators.

When immediate repairs are not feasible, then the affected machine must be taken out of service.

(d) Performing lubrication and other maintenance according to manufacturers' recommendations or more often when needed, such as when operating records indicate that a more stringent schedule is necessary.

AMENDATORY SECTION (Amending WSR 00-23-100, filed 11/21/00, effective 1/1/01)

WAC 296-115-015 Definitions applicable to all sections of this chapter.

Note: Meaning of words. Unless the context indicates otherwise, words used in this chapter will have the meaning given in this section.

Approved means approved by the director; however, if a provision of this chapter requires approval by an agency or organization other than the department such as nationally recognized testing laboratories or the United States Coast Guard is required, then approval by the specified authority will be accepted.

Authorized person means a person approved or assigned by the employer to perform a specific type of duty or duties or be at a specific location or locations at the workplace.

Bare boat charter means the unconditional lease, rental, or charter of a boat by the owner, or his or her agent, to a person who by written agreement, or contract, assumes all responsibility and liability for the operation, navigation, and provisioning of the boat during the term of the agreement or contract, except when a captain or crew is required or provided by the owner or owner's agents to be hired by the charterer to operate the vessel.

Carrying passengers or cargo means the transporting of any person or persons or cargo on a vessel for a fee or other consideration.

CFR means Code of Federal Regulations.

Charter boat means a vessel or barge operating on waters of the state of Washington which is not inspected or licensed by the United States Coast Guard and over which the United States Coast Guard does not exercise jurisdiction and which is rented, leased, or chartered to carry more than six persons or cargo.

Commercial means any activity from which the operator, or the person chartering, renting, or leasing a vessel derives a profit, and/or which qualifies as a legitimate business expense under the Internal Revenue Statutes.

Competent person means someone who is capable of identifying existing and predictable hazards in the surroundings or working conditions that are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt action to eliminate them.

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.

Defect means any characteristic or condition that tends to weaken or reduce the strength of the tool, object, or structure of which it is a part.

Department means the department of labor and industries.

Director means the director of the department of labor and industries, or his/her designated representative.

Employer means any person, firm, corporation, partnership, business trust, legal representative, or other business entity that operates a passenger vessel for hire in this state and employs one or more employees or contracts with one or more persons, the essence of which is the personal labor of such persons. Any person, partnership, or business entity that has no employees, and is covered by the Industrial Insurance Act shall be considered both an employer and an employee.

Enclosed space means any space, other than a confined space, which is enclosed by bulkheads and overhead. It includes cargo holds, tanks, quarters, and machinery and boiler spaces.

Equipment means a system, part, or component of a vessel as originally manufactured, or a system, part, or component manufactured or sold for replacement, repair, or improvement of a system, part, or component of a vessel; an accessory or equipment for, or appurtenance to a vessel; or a marine safety article, accessory, or equipment, including radio equipment, intended for use by a person on board a vessel.

Hazard means a condition, potential or inherent, that is likely to cause injury, death, or occupational disease.

Hazardous substance means a substance that, because it is explosive, flammable, poisonous, corrosive, oxidizing, irritating, or otherwise harmful, is likely to cause death or injury, including all substances listed on the USCG hazardous materials list.

Inspection means the examination of vessels by the director or an authorized representative of the director.

Maritime specialist in P&TS means a technical and operations specialist in maritime issues located in the department of labor and industries' policy and technical services section.

Passenger means any person or persons, carried on board a vessel in consideration of the payment of a fee or other consideration.

Port means left hand side of a vessel as one faces the bow.

Starboard means right hand side of a vessel as one faces the bow.

Power driven vessel means any vessel propelled by machinery.

Qualified means one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated the ability to solve problems relating to the subject matter, the work, or the project.

Safety and health standard means a standard that requires the adoption or use of one or more practices, means, methods, operations, or processes reasonably necessary or appropriate to provide safe or healthful employment and places of employment.

Should means recommended.

Substantial means constructed of such strength, of such material, and of such workmanship, that the object referred to will withstand all normal wear, shock, and usage.

Standard safeguard means a device intended to remove a hazard incidental to the machine, appliance, tool, or equipment to which the device is attached.

Standard safeguards shall be constructed of either metal, wood, other suitable material, or a combination of these. The final determination of the sufficiency of any safeguard rests with the director.

Suitable means that which fits, or has the qualities or qualifications to meet a given purpose, occasion, condition, function, or circumstance.

Under way means a vessel is not at anchor, or made fast to the shore, or aground.

USCG means the United States Coast Guard.

United States Coast Guard Navigation means rules International/Inland, Commandants Instruction M16672.29C as now adopted, or hereafter legally amended by the United States Coast Guard.

Vessel means every description of motorized watercraft, other than a bare boat charter boat, seaplane, or sailboat, used or capable of being used to transport more than six passengers or cargo on water for rent, lease, or hire.

Working day means a calendar day, except Saturdays, Sundays, and legal holidays as set forth in RCW 1.16.050, as now or hereafter amended. The time within which an act is to be done under the provisions of this chapter shall be computed by excluding the first working day and including the last working day.

Worker, personnel, man, person, employee, and other terms of like meaning, unless the context indicates otherwise means an employee of an employer who is employed in the business of his/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 his/her personal labor for an employer whether by manual labor or otherwise.

AMENDATORY SECTION (Amending WSR 00-23-100, filed 11/21/00, effective 1/1/01)

WAC 296-115-035 Specific inspection requirements. (1)
Drydocking or hauling out.

Each passenger vessel subject to the provisions in this section must be drydocked or hauled out at intervals not to exceed sixty months and the underwater hull and appendages, propellers, shafting, stern bearings, rudders, through-hull fittings, sea valves and strainers must be examined to determine that these items are in satisfactory condition.

(2) At the annual inspection the inspector must view the vessel afloat and conduct the following tests and inspections of the hull:

- (a) Hull exterior and interior, bulkheads, and weather deck.
- (b) Examine and test by operation all watertight closures in the hull, decks, and bulkheads.
- (c) Inspect all railings and bulwarks and their attachment to the hull.
- (d) Inspect weathertight closures above the weather deck and drainage or water from exposed decks and superstructure.

(3) At the annual inspection the inspector will examine and test the following items:

- (a) Main propulsion machinery.
 - (b) Engine starting system.
 - (c) Engine control mechanisms.
 - (d) Auxiliary machinery.
 - (e) Fuel systems.
 - (f) Sea valves and bulkhead closure valves.
 - (g) Bilge and drainage systems.
 - (h) Electrical system, including circuit protection.
- (4) Lifesaving and fire extinguishing equipment. At each annual inspection the inspector must inspect the life saving and fire extinguishing equipment for serviceability.

(5) Miscellaneous systems and equipment. At each annual inspection the marine dock inspector must inspect and test the vessel's steering apparatus, ground tackle, navigation lights, sanitary facilities, pressure vessels, and any other equipment aboard the vessel for serviceability and safety.

AMENDATORY SECTION (Amending WSR 04-14-028, filed 6/29/04, effective 1/1/05)

WAC 296-115-050 General requirements. (1) Application.

(a) The following rules are applicable to all vessels operated within the scope of this chapter.

(b) Where an existing vessel does not comply with a particular requirement of this section, the director may grant a temporary variance to allow time for modifications to be made.

(c) Where an existing vessel does not comply with a specific requirement contained herein but the degree of protection afforded is judged to be adequate for the service in which the vessel is used, the director may grant a permanent variance.

(2) Lifesaving equipment. Where equipment required by this section is required to be of an approved type, the equipment is required to be approved by the USCG.

(3) Lifesaving equipment required.

(a) All vessels carrying passengers must carry life floats or buoyant apparatus for all persons on board.

(b) All life floats or buoyant apparatus must be international

orange in color.

(c) In the case of vessels operating not more than one mile from land, the director may permit operation with reduced amounts of life floats or buoyant apparatus, when, in his opinion, it is safe to do so.

(d) 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 director.

(e) Life floats, buoyant apparatus, or any authorized substitute must have the following equipment:

(i) A life line around the sides at least equivalent to 3/8-inch manila, festooned in bights of at least three feet, with a seine float in the center of each bight.

(ii) Two paddles or oars not less than four feet in length.

(iii) A painter of at least thirty feet in length and of at least two-inch manila or the equivalent.

(f) All vessels must have an approved adult type life preserver for each person carried, with at least ten percent additional of a type suitable for children.

(g) Life preservers must be stowed in readily accessible places in the upper part of the vessel, and each life preserver shall be marked with the vessel's name.

(h) All vessels must carry at least one life ring buoy of an approved type with sixty feet of line attached.

(i) The life ring buoy must be carried in a readily accessible location and must be capable of being cast loose at any time.

(4) Fire protection.

(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 by this section, when required to be of an approved type, must be of a type approved by the USCG or other agency acceptable to the director.

(6) Fire pumps.

(a) All vessels carrying more than forty-nine passengers must carry an approved power fire pump, and all other vessels must carry an approved hand fire pump. These pumps must be provided with a suitable suction and discharge hose. These pumps may also serve as bilge pumps.

(b) Vessels required to have a power fire pump must also have a fire main system, including fire main, hydrants, hose, and nozzles. The fire hose may be a good commercial grade garden hose of not less than 5/8 inch size.

(7) Fixed fire extinguishing system.

(a) All vessels powered by internal combustion engines using gasoline or other fuel having a flashpoint of 110°F or lower, must have a fixed fire extinguishing system to protect the machinery and

fuel tank spaces.

(b) This system must be an approved type using carbon dioxide and have a capacity sufficient to protect the space.

(c) Controls for the fixed system must be installed in an accessible location outside the space protected.

(8) Fire axe. All vessels must have one fire axe located in or near the pilothouse.

(9) Portable fire extinguishers.

(a) All vessels must have a minimum number of portable fire extinguishers of an approved type. The number required will be determined by the director.

(b) Portable fire extinguishers must be inspected at least once a month. Extinguishers found defective must be serviced or replaced.

(c) 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.

(d) Portable fire extinguishers must be hydrostatically tested at intervals not to exceed those specified in (~~WAC 296-24-59211(2)~~ and ~~Table I (after August 31, 2001, see)~~) WAC 296-800-300(~~(+)~~) in the safety and health core rules.

(e) 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.

(f) 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 director.

(10) Means of escape.

(a) Except as otherwise provided in this section, all vessels must be provided with not less than 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) Where the length of the compartment is less than twelve feet, one vertical means of escape will be acceptable 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.

(11) 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.

(12) 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 to be carried.

(c) Fixed seating must be installed with spacing to provide for ready escape in case of fire or other casualty.

(d) Fixed seating must be installed as follows, except that special consideration may be given by the director if escape over the side can be readily accomplished through windows or other openings in the way of the seats:

(i) Aisles not over fifteen feet long must be not less than twenty-four inches wide.

(ii) Aisles over fifteen feet long must be not less than thirty inches wide.

(iii) Where seats are in rows the distance from seat front to seat front must be not less than thirty inches.

(e) Portable or temporary seating may be installed but must be arranged in general as provided for fixed seating.

(13) Toilet facilities and drinking water.

(a) Vessels must be provided with toilets and wash basins as specified in WAC 296-800-230, except that in the case of vessels used exclusively on short runs of approximately thirty minutes or less, the director may approve other arrangements.

(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 director may approve other arrangements.

(c) Potable drinking water must be provided for all passengers and crew. The provisions of WAC 296-800-230 apply.

(d) Covered trash containers must be provided in passenger areas.

(14) Rails and guards.

(a) Except as otherwise provided in this section, 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, such as at narrow catwalks in the way of deckhouse sides, hand grabs may be substituted.

(b) Rails must consist of evenly spaced courses. The spacing must not be greater than twelve inches except as provided in WAC 296-115-050 (14)(f). The lower rail courses may not be required where 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 in other than passenger service, the rails must be not less than thirty-six inches high, except that where vessels are used in special service, the director may approve other arrangements, but in no case less than thirty inches.

(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.)

(15) Machinery installation.

(a) Propulsion machinery.

(i) Propulsion machinery must be suitable in type and design for the propulsion requirements of the hull in which it is installed. Installations meeting the requirements of the USCG or other classification society will be considered acceptable to the director.

(ii) Installations using gasoline as a fuel must meet the requirements of applicable USCG standards.

(iii) Installations using diesel 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.

(d) Electrical installations. The electrical installations of all vessels must be at least equal to applicable USCG standards, or as approved by the director.

AMENDATORY SECTION (Amending WSR 00-23-100, filed 11/21/00, effective 1/1/01)

WAC 296-115-070 Rules of navigation. The operation and navigation of all vessels subject to this chapter must be in strict accordance with the United States Coast Guard Navigation Rules International/Inland, Commandants Instruction M16672.29C as now adopted, or hereafter legally amended by the United States Coast Guard.

(1) A copy of the United States Coast Guard Navigation Rules International/Inland, Commandants Instruction M16672.29C, must be on board all vessels subject to this chapter at all times when the

vessel is under way.

(2) At least annually, where applicable, the operator of each vessel must "swing the vessel" to determine the actual compass readings in relation to true compass headings, and must maintain a record on board the vessel.

AMENDATORY SECTION (Amending WSR 06-08-087, filed 4/4/06, effective 9/1/06)

WAC 296-155-160 Gases, vapors, fumes, dusts, and mists. (1) Exposure of employees to inhalation, ingestion, skin absorption, or contact with any material or substance at a concentration above those specified in (~~the general occupational health standards, WAC 296-62-07515~~) chapter 296-841 WAC shall be avoided.

(2) To achieve compliance with subsection (1) of this section, administrative or engineering controls must first be implemented whenever feasible. When such controls are not feasible to achieve full compliance, protective equipment or other protective measures shall be used to keep the exposure of employees to air contaminants within the limits prescribed in WAC 296-62-07515. Any equipment and technical measures used for this purpose must first be approved for each particular use by a competent industrial hygienist or other technically qualified person. Whenever respirators are used, their use shall comply with WAC 296-155-220.

(3) Whenever internal combustion equipment exhausts in enclosed spaces, tests shall be made and recorded to ensure that employees are not exposed to unsafe concentrations of toxic gases or oxygen deficient atmospheres. See chapter 296-62 WAC, the general occupational health standards and chapter 296-841 WAC, identifying and controlling respiratory hazards.

(4) Whenever any employee is exposed to asbestos, the provisions of the general occupational health standards, chapter 296-62 WAC shall apply.

(5) Subsections (1) and (2) of this section do not apply to the exposure of employees to formaldehyde. Whenever any employee is exposed to formaldehyde, the requirements of chapter 296-856 WAC shall apply.

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

WAC 296-155-305 Signaling and flaggers.

Definition:

Flagger means a person who provides temporary traffic control.

For the purposes of this chapter, *MUTCD* means the Federal Highway Administration's Manual on Uniform Traffic Control as currently modified and adopted by the Washington state department of transportation.

Link: For the current version of the MUTCD, see the department of transportation's web site at <http://www.wsdot.wa.gov/biz/trafficoperations/mutcd.htm>.

(1) General requirements for signaling and flaggers.

(a) Employers must first apply the requirements in this section. Then you must set up and use temporary traffic controls according to the guidelines and recommendations in Part VI of the MUTCD.

(b) Job site workers with specific traffic control responsibilities must be trained in traffic control techniques, device usage, and placement.

Note:

! You may purchase copies of the MUTCD by writing:

U.S. Government Printing Office
Superintendent of Documents
Mail Stop: SSOP,
Washington D.C. 20402-9328

! You may view and print a copy of the MUTCD at the following web site <http://www.wsdot.wa.gov/biz/trafficoperations/mutcd.htm>.

(2) When to use flaggers.

(a) Flaggers are to be used only when other reasonable traffic control methods will not adequately control traffic in the work zone.

(b) If signs, signals, and barricades do not provide necessary protection from traffic at work zones and construction sites on or adjacent to a highway or street, then you must use flaggers or other appropriate traffic controls.

(3) Flagger signaling.

(a) Flagger signaling must be with sign paddles approved by WSDOT and conform to guidelines and recommendations of MUTCD.

(b) Sign paddles must comply with the requirements of the MUTCD.

(c) When flagging is done during periods of darkness, sign paddles must be retroreflective or illuminated in the same manner as signs.

(d) During emergency situations, red flags, meeting the specifications of the MUTCD, may be used to draw a driver's attention to particularly hazardous conditions. In nonemergency situations, a red flag may be held in a flagger's free hand to supplement the use of a sign paddle.

(4) Adequate warning of approaching vehicles. Employers must:

! Position work zone flaggers so they are not exposed to traffic or equipment approaching them from behind.

- If this is not possible, then the employer, responsible contractor, and/or project owner must develop and use a method to ensure that flaggers have adequate visual warning of traffic and equipment approaching from behind.

Note: ! The following are some optional examples of methods that may be used to adequately warn or protect flaggers:
- Mount a mirror on the flagger's hard hat.
- Use an observer.
- Use "jersey" barriers.

! The department recognizes the importance of adequately trained flaggers and supports industry efforts to improve the quality of flagger training. However, training alone is not sufficient to comply with the statutory requirement of revising flagger safety standards to improve options available that ensure

flagger safety and that flaggers have adequate visual warning of objects approaching from behind them.

(5) High-visibility garments for flaggers.

(a) While flagging during daylight hours, a flagger must at least wear, as an outer garment:

! A high-visibility safety garment designed according to Class 2 specifications in ANSI/ISEA 107-1999, American National Standard for High-Visibility Safety Apparel.

- Consisting of at least 775 square inches of background material that are fluorescent yellow-green, fluorescent orange-red or fluorescent red in color;

AND

- 201 square inches of retroreflective material that encircles the torso and is placed to provide 360 degrees visibility around the flagger.

! A high visibility hard hat that is white, yellow, yellow-green, orange or red in color.

Note: A high-visibility garment meets Class 2 specifications if the garment:

! Meets the requirements above;

OR

! Has an ANSI "Class 2" label.

Definition:

For the purpose of this rule, **hours of darkness** means one-half hour before sunset to one-half hour after sunrise.

(b) While flagging during hours of darkness, a flagger must at least wear, as an outer garment:

! A high-visibility safety garment designed according to Class 2 specifications in ANSI/ISEA 107-1999.

- Consisting of at least 775 square inches of background material that are fluorescent yellow-green, fluorescent orange-red or fluorescent red in color;

AND

- 201 square inches of retroreflective material that encircles the torso and is placed to provide 360 degrees visibility around the flagger.

! White coveralls, or other coveralls or trousers that have retroreflective banding on the legs designed according to ANSI/ISEA 107-1999 standards.

! When snow or fog limit visibility, pants, coveralls, or rain gear, meeting these additional requirements must be worn:

- In a highly visible color;

- With retroreflective banding on the legs;

- Designed according to ANSI/ISEA 107-1999.

! A high-visibility hard hat:

- Marked with at least 12 square inches of retroreflective material applied to provide 360 degrees of visibility.

Note: ANSI/ISEA 107-1999 is available by:

! Purchasing copies of ANSI/ISEA 107-1999 by writing:

- American National Standards Institute

11 West 42nd Street

New York, NY 10036

OR

- Contacting the ANSI web site at <http://web.ansi.org/>.

OR

! Reading a copy of ANSI/ISEA 107-1999 at any Washington state library.

(6) Flagger training. Employers must make sure that:

(a) Each flagger has in their possession:

! A valid Washington traffic control flagger card; or

! A valid flagger card from a state such as:

- Oregon;
- Idaho;
- Montana;

OR

- Other states having a flagger training reciprocity agreement with Washington.

(b) The flagger card shows the following:

! Verification that the flagger training required is completed;

! Date the flagger received their flagger training;

! Name of the instructor providing the flagger training;

! Name of the state that issued the flagger card;

! The card's expiration date, not to exceed three years from the date of issuance;

AND

! The flagger's picture or a statement that says "valid with photo ID."

(c) Flagger training is based upon the MUTCD.

Exemption: Personnel that have not completed a flagger-training course may be assigned duties as flaggers only during emergencies. Emergency assignments are temporary and last only until a certified flagger can be put into the position.

Definition:

For the purpose of this rule, **emergency** means an unforeseen occurrence endangering life, limb, or property.

(7) Flagger orientation and traffic control plan.

(a) The employer, responsible contractor or project owner must conduct an orientation that familiarizes the flagger with the job site. This requirement applies each time the flagger is assigned to a new project or when job site conditions change significantly.

The orientation must include, but is not limited to:

! The flagger's role and location on the job site;

! Motor vehicle and equipment in operation at the site;

! Job site traffic patterns;

! Communications and signals to be used between flaggers and equipment operators;

! On-foot escape route;

AND

! Other hazards specific to the job site.

(b) If flaggers are used on a job that will last more than one day, then the employer, responsible contractor and/or project owner must keep on-site, a current site specific traffic control plan. The purpose of this plan is to help move traffic through or around the construction zone in a way that protects the safety of the traveling public, pedestrians and workers.

The plan must include, but is not limited to, the following items when they are appropriate:

! Sign use and placement;

! Application and removal of pavement markings;

! Construction;

! Scheduling;

! Methods and devices for delineation and channelization;

- ! Placement and maintenance of devices;
- ! Placement of flaggers;
- ! Roadway lighting;
- ! Traffic regulations;

AND

- ! Surveillance and inspection.

(8) Advance warning signs.

(a) Employers must provide the following on all flagging operations:

! A three sign advance warning sequence on all roadways with a speed limit below 45 mph.

! A four sign advance warning sequence on all roadways with a 45 mph or higher speed limit.

(b) Warning signs must reflect the actual condition of the work zone. When not in use, warning signs must either be taken down or covered.

(c) Employers must make sure to follow Table 1 for spacing of advance warning sign placement.

Table 1. Advanced Warning Sign Spacing

Road Type	Speed	Distances Between Advance Warning Signs*			
		A**	B**	C**	D**
Freeways & Expressways	70	1,500 ft.+/- or per the MUTCD.			
	55				
Rural Highways	65	((1,000)) <u>800</u> ft.+/-	((1,000)) <u>800</u> ft.+/-	((1,000)) <u>800</u> ft.+/-	((1,000)) <u>800</u> ft.+/-
	60				
Rural Roads	55	500 ft.+/-	500 ft.+/-	500 ft.+/-	500 ft.+/-
	45				
Rural Roads and Urban Arterials	40	350 ft.+/-	350 ft.+/-	350 ft.+/-	N/A
	35				
Rural Roads, Urban Streets, Residential Business Districts	30	200 ft.***	200 ft.***	200 ft.***	N/A
	25				
Urban Streets	25 or less	100 ft.***	100 ft.***	100 ft.***	N/A

*All spacing may be adjusted to accommodate interchange ramps, at-grade intersections, and driveways.

**This refers to the distance between advance warning signs. See Figure 1, Typical Lane Closure on Two-Lane Road. This situation is typical for roadways with speed limits less than 45 mph.

***This spacing may be reduced in urban areas to fit roadway conditions.

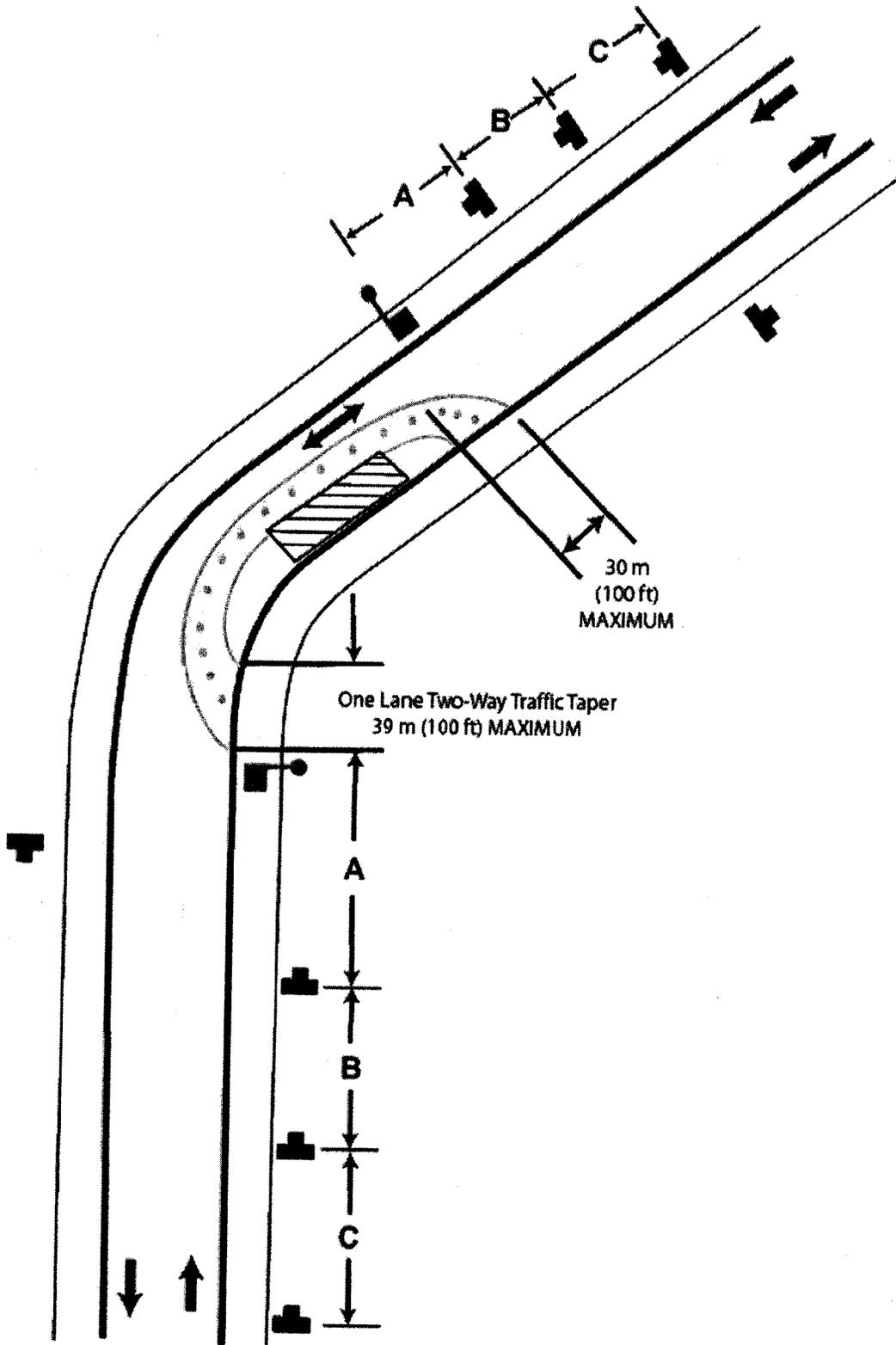
Exemption: In a mobile flagging operation, as defined by the MUTCD when the flagger is moving with the operation, the "flagger ahead (symbol or text)" sign must be:

- ! Within 1,500 feet of the flagger;

AND

- ! The flagger station must be seen from the sign.

If terrain does not allow a motorist to see the flagger from the "flagger ahead" sign, the distance between the flagger and the sign must be shortened to allow visual contact, but in no case can the distance be less than the distance specified in Table 1, Advanced Warning Sign Spacing.



(9) Providing a safe job site for flaggers. Employers, responsible contractors and/or project owners must make sure that:

(a) Flagger stations are located far enough in advance of the work space so that the approaching road users will have sufficient distance to stop before entering the work space. Follow Table 2

for the distance of the flagger workstation in advance of the work space.

Table 2. Distance of Flagger Station in Advance of the Work Space

Speed* (mph)	Distance (ft)**
20	35
25	55
30	85
35	120
40	170
45	220
50	280
55	335
60	415
65	485

*Posted speed, off-peak 85th-percentile speed prior to work starting or the anticipated operating speed.

**This spacing may be reduced to fit roadway and worksite conditions. Distances greater than those listed in the table are acceptable.

(b) Flaggers stand either on the shoulder adjacent to the road user being controlled or in the closed lane prior to stopping road users. A flagger must only stand in the lane being used by moving road users after road users have stopped.

Definition:

Road user means a vehicle operator, bicyclist, or pedestrian within a public roadway, including workers in temporary traffic control zones.

(c) Flagger workstations are illuminated during hours of darkness by floodlights that do not create glare that poses a hazard for drivers.

Note: To identify potential glare, observe the lighted area from various directions and angles on the main roadway after initial floodlight setup.

Exemption: Emergency situations are exempt from these illumination requirements. For the purpose of this rule, *emergency* means an unforeseen occurrence endangering life, limb, or property.

(d) Flaggers are not assigned other duties while engaged in flagging activities.

(e) Flaggers do not use devices that may distract the flagger's vision, hearing, or attention.

! Examples of these devices include cell phones, pagers, radios, and headphones.

! Devices such as two-way radios used for communications between flaggers to direct traffic or ensure flagger safety are acceptable.

(f) Flaggers receive a rest period of at least ten minutes, on the employer's time, for each four hours of working time.

! Rest periods must be scheduled as near as possible to the midpoint of the work period.

! A flagger must not be allowed to work more than three hours without a rest period.

Exemption: Scheduled rest periods are not required where the nature of the work allows a flagger to take intermittent rest periods equivalent to ten minutes for each four hours worked.

AMENDATORY SECTION (Amending Order 88-04, filed 5/11/88)

WAC 296-155-456 Hazardous (classified) locations. (1) Scope. This section sets forth requirements for electric equipment and wiring in locations which are classified depending on the properties of the flammable vapors, liquids or gases, or combustible dusts or fibers which may be present therein and the likelihood that a flammable or combustible concentration or quantity is present. Each room, section or area shall be considered individually in determining its classification. These hazardous (classified) locations are assigned six designations as follows: Class I, Division 1; Class I, Division 2; Class II, Division 1; Class II, Division 2; Class III, Division 1; Class III, Division 2. For definitions of these locations see WAC (~~296-155-428~~) 296-155-462. All applicable requirements in this part apply to all hazardous (classified) locations, unless modified by provisions of this section.

(a) All components and utilization equipment used in a hazardous location shall be chosen from among those listed by a nationally recognized testing laboratory, such as Underwriters' Laboratories, Inc., or Factory Mutual Engineering Corp., except custom-made components and utilization equipment.

(b) Equipment approved for a specific hazardous location shall not be installed or intermixed with equipment approved for another specific hazardous location.

(2) Electrical installations. Equipment, wiring methods, and installations of equipment in hazardous (classified) locations shall be approved as intrinsically safe or approved for the hazardous (classified) location or safe for the hazardous (classified) location. Requirements for each of these options are as follows:

(a) Intrinsically safe. Equipment and associated wiring approved as intrinsically safe is permitted in any hazardous (classified) location included in its listing or labeling.

(b) Approved for the hazardous (classified) location.

(i) General. Equipment shall be approved not only for the class of location but also for the ignitable or combustible properties of the specific gas, vapor, dust, or fiber that will be present.

Note: NFPA 70, the National Electrical Code, lists or defines hazardous gases, vapors, and dusts by "groups" characterized by their ignitable or combustible properties.

(ii) Marking. Equipment shall not be used unless it is marked to show the class, group, and operating temperature or temperature range, based on operation in a 40°C ambient, for which it is approved. The temperature marking shall not exceed the ignition temperature of the specific gas, vapor, or dust to be encountered. However, the following provisions modify this marking requirement

for specific equipment:

(A) Equipment of the nonheat-producing type (such as junction boxes, conduit, and fitting) and equipment of the heat-producing type having a maximum temperature of not more than 100°C (212°F) need not have a marked operating temperature or temperature range.

(B) Fixed lighting fixtures marked for use only in Class I, Division 2 locations need not be marked to indicate the group.

(C) Fixed general-purpose equipment in Class I locations, other than lighting fixtures, which is acceptable for use in Class I, Division 2 locations need not be marked with the class, group, division, or operating temperature.

(D) Fixed dust-tight equipment, other than lighting fixtures, which is acceptable for use in Class II, Division 2 and Class III locations need not be marked with the class, group, division, or operating temperature.

(c) Safe for the hazardous (classified) location. Equipment which is safe for the location shall be of a type and design which the employer demonstrates will provide protection from the hazards arising from the combustibility and flammability of vapors, liquids, gases, dusts, or fibers.

Note: The National Electrical Code, NFPA 70, contains guidelines for determining the type and design of equipment and installations which will meet this requirement. The guidelines of this document address electric wiring, equipment, and systems installed in hazardous (classified) locations and contain specific provisions for the following: Wiring methods, wiring connections, conductor insulation, flexible cords, sealing and drainage, transformers, capacitors, switches, circuit breakers, fuses, motor controllers, receptacles, attachment plugs, meters, relays, instruments, resistors, generators, motors, lighting fixtures, storage battery charging equipment, electric cranes, electric hoists and similar equipment, utilization equipment, signaling systems, alarm systems, remote control systems, local loud speaker and communication systems, ventilation piping, live parts, lightning surge protection, and grounding. Compliance with these guidelines will constitute one means, but not the only means, of compliance with this subsection.

(3) Conduits. All conduits shall be threaded and shall be made wrench-tight. Where it is impractical to make a threaded joint tight, a bonding jumper shall be utilized.

AMENDATORY SECTION (Amending WSR 98-05-046, filed 2/13/98, effective 4/15/98)

WAC 296-155-605 Equipment. (1) General requirements.

(a) All equipment left unattended at night, adjacent to a highway in normal use, or adjacent to construction areas where work is in progress, shall have appropriate lights or reflectors, or barricades equipped with appropriate lights or reflectors, to identify the location of the equipment.

(b) All tire servicing of multipiece and single-piece rim wheels are subject to the requirements of (~~WAC 296-155-61701 through 296-155-61713~~) chapter 296-864 WAC.

(c)(i) Heavy machinery, equipment, or parts thereof, which are suspended or held aloft by use of slings, hoists, or jacks shall be substantially blocked or cribbed to prevent falling or shifting before employees are permitted to work under or between them. Bulldozer and scraper blades, end-loader buckets, dump bodies, and

similar equipment, shall be either fully lowered or blocked when being repaired or when not in use. All controls shall be in a neutral position, with the motors stopped and brakes set, unless work being performed required otherwise.

(ii) Whenever the equipment is parked, the parking brake shall be set. Equipment parked on inclines shall have the wheels chocked and the parking brake set.

(d) The use, care and charging of all batteries shall conform to the requirements of part I of this chapter.

(e) All cab glass shall be safety glass, or equivalent, that introduces no visible distortion affecting the safe operation of any machine covered by this part.

(f) All equipment covered by this part shall comply with the requirements of WAC 296-155-525 (3)(a) when working or being moved in the vicinity of power lines or energized transmitters.

(g) Where traffic is diverted onto dusty surfaces, good visibility shall be maintained by the suppression of dust, through the periodic application of oil or water to the grade surface, as required.

(h) No equipment, vehicle, tool, or individual shall operate within 10 feet of any power line or electrical distribution equipment except in conformity with the requirements of WAC 296-155-525 (3)(a).

(2) Specific requirements. (Reserved.)

AMENDATORY SECTION (Amending WSR 04-24-089, filed 12/1/04, effective 1/1/05)

WAC 296-155-615 Material handling equipment. (1)

General requirements for earthmoving equipment.

(a) Scope.

These rules apply to the earthmoving equipment. Some examples of earthmoving equipment are:

- ! Scrapers;
- ! Loaders;
- ! Crawler or wheel tractors;
- ! Bulldozers;
- ! Off-highway trucks;
- ! Graders;
- ! Agricultural and industrial tractors;

AND

! Similar equipment.

(b) Seat belts.

! Seat belts must be provided and used by all operators and passengers on all equipment covered by this section.

! Seat belts must meet the requirements of the Society of Automotive Engineers, J386-1969, Seat Belts for Construction Equipment.

! Seat belts for agricultural and light industrial tractors must meet the seat belt requirements of Society of Automotive Engineers J333a-1970, Operator Protection for Agricultural and Light Industrial Tractors.

Exemption: Seat belts are not required for equipment designed only for standup operation.

! Seat belts must not be used on equipment that does not have rollover protective structure (ROPS) or adequate canopy protection in place.

Exemption: Mechanics and persons in training may ride on the equipment without a seatbelt if one is not provided.

(c) Access roadways and grades.

! Equipment must not be operated on access roadway or grades unless they are constructed and/or maintained to allow for the safe operation of the equipment.

! Every emergency access ramp and berm used by an employer must be constructed to restrain and control runaway vehicles.

(d) Brakes.

Earthmoving equipment must have brakes capable of stopping and holding the equipment fully loaded.

! Equipment mentioned in (a) of this subsection, General requirements for earthmoving equipment, must have brakes meeting the specifications in Society of Automotive Engineers SAE-J237, Loader Dozer-1971, J236, Graders-1971, and J319b, Scrapers-1971.

! Brake systems for self-propelled rubber-tired off-highway equipment manufactured after January 1, 1972, must meet the applicable minimum performance criteria set forth in the following Society of Automotive Engineers Recommended Practices:

Self-propelled scrapers	SAE J319b-1971
Self-propelled graders	SAE J236-1971
Truck and wagons	SAE J166-1971
Front-end loaders and dozers	SAE J237-1971

(e) Fenders.

! If pneumatic-tired earthmoving haulage equipment has a maximum speed that exceeds fifteen miles per hour, then the equipment must be equipped with fenders on all wheels to meet the requirements of Society of Automotive Engineers SAE J321a-1970, Fenders for Pneumatic-Tired Earthmoving Haulage Equipment.

! An employer may, at any time, seek to show under WAC 296-155-010, Variance and procedure, that the uncovered wheels present no hazard to personnel from flying materials.

Note: Examples of pneumatic-tired earthmoving haulage equipment may include:

! Trucks;
! Scrapers;
! Tractors;

AND

! Trailing units.

(f) Rollover protective structures (ROPS).

For requirements pertaining to rollover protective structures and overhead protection, see WAC 296-155-950 through 296-155-965.

(g) Audible alarms.

! All bidirectional machines must be equipped with a horn, distinguishable from the surrounding noise level. This horn must be:

- Operated as needed when the machine is moving in either

direction;

AND

- Maintained in an operative condition.

Note: Examples of bidirectional machines include:

! Rollers;
! Compactors;
! Front-end loaders;
! Bulldozers;

AND

! Similar equipment.

! Employers must make sure that earthmoving or compacting equipment with an obstructed view to the rear in reverse is not operated unless:

- A reverse signal alarm distinguishable from the surrounding noise level is used;

OR

- An observer signals that it is safe to back up.

! If the surrounding noise level is of such amplitude that reverse signal alarms are not effective, then amber strobe lights must be used.

(h) Operators must look in the direction of travel.

The driver must look in the direction of, and keep a clear view of the path of travel, when operating equipment in reverse.

Exemption: See (g)(ii) of this subsection, Audible alarms, for requirements pertaining to equipment that has an obstructed view to the rear.

(i) Scissor points.

Scissor points on all front-end loaders, which constitute a hazard to the operator during normal operation, must be guarded.

(j) Tractors.

! Tractor motors must be cranked only by operators or other experienced persons.

! Waterproof and comfortable seat cushions must be provided on tractors at all times when working.

! Operator must not leave controls of tractor with master clutch engaged.

(k) Winch lines.

Winch lines must be maintained in good condition and provided with spliced eye, knob or hook in working end, except under conditions where unspliced end is required.

(l) Bulldozers and carry-all gates.

! Repairs on blade or dozer equipment must not be initiated unless the motor has been stopped and dozer blade is resting on the ground or securely blocked. The same applies to carry-all gates.

! Bulldozer blades and carry-all gates must rest on the ground or on blocking when machines are not in operation.

(m) Moving equipment.

Personnel must not get on or off machine while machine is in motion.

(n) Hazardous conditions.

Where excessive dust conditions are created, such areas must be sprinkled with water or an environmentally safe solution to keep dust at a minimum.

Reference: When dust presents a hazard, see chapter 296-841 WAC, Respiratory hazards for additional requirements.

(2) Excavating and other equipment.

(a) Tractors covered in subsection (1) of this section must

have seat belts as required for the operators when seated in the normal seating arrangement for tractor operation.

(b) For the purposes of this part and of Part L of this chapter, the names and descriptions for measurement of dimensions of machinery and attachments must be as described in Society of Automotive Engineers 1970 Handbook, pages 1088 through 1103.

(c) The safety requirements, ratios, or limitations applicable to machines or attachment usage covered in Power Crane and Shovel Association's Standards No. 1 and No. 2 of 1968, and No. 3 of 1969, must be complied with, and must apply to cranes, machines, and attachments under this part.

(3) Lifting and hauling equipment (other than equipment covered under Part L of this chapter). Industrial trucks (including forklifts) shall meet the requirements of (~~WAC 296-24-230~~) chapter 296-863 WAC, WAC 296-155-605 and the following:

(a) Lift trucks, stackers, etc., shall have the rated capacity clearly posted on the vehicle so as to be clearly visible to the operator. When auxiliary removable counter-weights are provided by the manufacturer, corresponding alternate rated capacities also shall be clearly shown on the vehicle. These ratings shall not be exceeded.

(b) No modifications or additions which affect the capacity or safe operation of the equipment shall be made without the manufacturer's or professional engineer's written approval. If such modifications or changes are made, the capacity, operation, and maintenance instruction plates, tags, or decals, shall be changed accordingly. In no case shall the original safety factor of the equipment be reduced.

(c) If a load is lifted by two or more trucks working in unison, the proportion of the total load carried by any one truck shall not exceed its capacity.

(d) Steering or spinner knobs shall not be attached to the steering wheel unless the steering mechanism is of a type that prevents road reactions from causing the steering handwheel to spin. The steering knob shall be mounted within the periphery of the wheel.

(e) All high lift rider industrial trucks shall be equipped with overhead guards which meet the configuration and structural requirements as defined in paragraph 502 of American National Standards Institute B56.1-1975, Safety Standards for Powered Industrial Trucks.

(f) All industrial trucks in use shall meet the applicable requirements of design, construction, stability, inspection, testing, maintenance, and operation, as defined in American National Standards Institute B56.1-1975, Safety Standards for Powered Industrial Trucks.

(g) Unauthorized personnel shall not be permitted to ride on powered industrial trucks. A safe place to ride shall be provided where riding of trucks is authorized.

(h) When a forklift truck is used for elevating workers a platform shall be specifically built for that purpose and shall comply with the following requirements:

(i) The platform shall be securely attached to the forks and

shall have standard guardrails and toeboards on all open sides.

(ii) The hydraulic system of the forklift shall be so designed that the lift mechanism will not drop faster than one hundred thirty-five feet per minute in the event of a failure in any part of the system. Forklifts used for elevating platforms shall be identified that they are so designed.

(iii) A safety strap shall be installed on the control lever shall be locked to prevent the boom from tilting.

(iv) An operator shall be at the controls of the forklift equipment while persons are on the platform.

(v) The operator shall be in the normal operating position while raising or lowering the platform.

(vi) The vehicle shall not travel from point to point while workers are on the platform except that inching or maneuvering at very slow speed is permissible.

(vii) The area between workers on the platform and the mast shall be adequately guarded to prevent contact with chains or other shear points.

(viii) All platforms shall be visually inspected daily or before each use by the person in charge of the work being performed, and shall be tested as frequently as is necessary to maintain minimum safety factors.

(ix) Whenever a truck, except for high lift order picker trucks, is equipped with vertical hoisting controls elevatable with the lifting carriage or forks, the following precautions shall be taken for the protection of personnel being elevated.

(A) Provide a platform secured to the lifting carriage and/or forks.

(B) Provide means whereby personnel on the platform can shut off power to the truck.

(C) Provide such protection from falling objects as indicated necessary by the operating conditions.

AMENDATORY SECTION (Amending WSR 02-13-115, filed 6/19/02, effective 9/1/02)

WAC 296-155-706 Structural steel assembly. (1) Structural stability must be maintained at all times during the erection process.

! Make sure that multistory structures have the following:

- Permanent floors installed as the erection of structural members progress;

- No more than eight stories between the erection floor and the upper-most permanent floor; and

- No more than four floors or forty-eight feet (14.6 m), whichever is less, of unfinished bolting or welding above the foundation or uppermost permanent secured floor.

Exception: The above applies except where the structural integrity is maintained as a result of design.

(2) **Walking/working surfaces.**

(a) Shear connectors and other similar devices.

(i) Shear connectors, reinforcing bars, deformed anchors or threaded studs must not be attached to the top flanges of beams, joists or beam attachments so they project vertically from or horizontally across the top flange of the member until after the metal decking, or other walking/working surface has been installed. This becomes a tripping hazard. Examples of shear connectors are headed steel studs, steel bars or steel lugs.

(ii) Installation of shear connectors on composite floors. When shear connectors are used in construction of composite floors, roofs and bridge decks, employees must lay out and install the shear connectors after the metal decking has been installed, using the metal decking as a working platform.

(b) Slip resistance of metal decking. (Reserved.)

~~(c) ((Workers must not be permitted to walk the top surface of any structural steel member installed after July 18, 2006, that has been coated with paint or similar material. Except when documentation or certification is provided that the coating has achieved a minimum average slip resistance of .50 when measured with an English XL tribometer or equivalent tester on a wetted surface at a testing laboratory is provided. Such documentation or certification must be based on the appropriate ASTM standard test method conducted by a laboratory capable of performing the test. The results must be available at the site and to the steel erector. (Appendix B to this part references appropriate ASTM standard test methods that may be used to comply with this requirement.))~~
Reserved.

(d) Safe access must be provided to the working level. Employees must not slide down ropes, columns, or ladders.

(3) **Plumbing-up.**

(a) When deemed necessary by a competent person, plumbing-up equipment must be installed in conjunction with the steel erection process to ensure the stability of the structure.

(b) When used, plumbing-up equipment must be in place and properly installed before the structure is loaded with construction material such as loads of joists, bundles of decking or bundles of bridging.

(c) Plumbing-up equipment must be removed only with the approval of a competent person.

(4) **Metal decking.**

(a) Hoisting, landing and placing of metal decking bundles.

(i) Bundle packaging and strapping must not be used for hoisting unless specifically designed for that purpose.

(ii) If loose items such as dunnage, flashing, or other materials are placed on the top of metal decking bundles to be hoisted, such items must be secured to the bundles.

(iii) Bundles of metal decking on joists must be landed in accordance with WAC 296-155-709 (5)(d).

(iv) Metal decking bundles must be landed on framing members so that enough support is provided to allow the bundles to be unbanded without dislodging the bundles from the supports.

(v) At the end of the shift or when environmental or job site conditions require, metal decking must be secured against displacement.

(b) Roof and floor holes and openings. Metal decking at roof and floor holes and openings must be installed as follows:

(i) Framed metal deck openings must have structural members turned down to allow continuous deck installation except where not allowed by structural design constraints or constructibility.

(ii) Roof and floor holes and openings must be decked over. Where large size, configuration or other structural design does not allow openings to be decked over (such as elevator shafts, stair wells, etc.) employees must be protected in accordance with chapter 296-155 WAC, Part C-1 or Part K.

(iii) Metal decking holes and openings must not be cut until immediately prior to being permanently filled with the equipment or structure needed or intended to fulfill its specific use and which meets the strength requirements of (c) of this subsection, or must be immediately covered.

(c) **Covering roof and floor openings.** Smoke dome or skylight fixtures that have been installed are not considered covers for the purpose of this section unless they meet the strength requirements of WAC 296-155-505 (4)(g) (Part K).

(d) **Decking gaps around columns.** Wire mesh, exterior plywood, or equivalent, must be installed around columns where planks or metal decking do not fit tightly. The materials used must be of sufficient strength to provide fall protection for personnel and prevent objects from falling through.

(e) **Installation of metal decking.**

(i) Metal decking must be laid tightly and immediately secured upon placement to prevent accidental movement or displacement.

(ii) During initial placement, metal decking panels must be placed to ensure full support by structural members.

(f) **Derrick floors.**

(i) A derrick floor must be fully decked and or planked and the steel member connections completed to support the intended floor loading.

(ii) Temporary loads placed on a derrick floor must be distributed over the underlying support members so as to prevent local overloading of the deck material.

AMENDATORY SECTION (Amending Order 74-19, filed 5/6/74)

WAC 296-301-130 Extractors. (1) Centrifugal extractor.

(a) Cover. Each extractor shall be equipped with a metal cover.

(b) Interlocking device. Each extractor shall be equipped with an interlocking device that will prevent the cover from being opened while the basket is in motion, and also prevent the power operation of the basket while the cover is open.

(c) Brakes. Each extractor shall be equipped with a mechanically or electrically operated brake to quickly stop the basket when the power driving the basket is shut off.

(d) Maximum allowable speed. Each centrifugal extractor shall be effectively secured in position on the floor or foundation so as to eliminate unnecessary vibration, and shall not be operated at a speed greater than the manufacturer's rating, which shall be stamped where easily visible in letters not less than one-quarter inch in height. The maximum allowable speed shall be given in revolutions per minute (rpm).

(2) Engine drum extractor--Over-speed governor. Each engine individually driving an extractor shall be provided with an approved engine stop (~~((approved as specified in WAC 296-24-006, of the general safety and health standards,))~~) and a speed limit governor.

(3) Squeezer or wringer extractor--Nip guards. All nip guards shall comply with the requirements of WAC 296-301-04503(4).

AMENDATORY SECTION (Amending Order 74-19, filed 5/6/74)

WAC 296-301-225 Workroom ventilation. In all workrooms in which potentially toxic substances are used, the maximum allowable concentrations listed in (~~(WAC 296-62-075 through 296-62-07515, of the general occupational health standards)~~) chapter 296-841 WAC, airborne contaminants, shall be maintained. Open surface tanks shall conform to the requirements of WAC 296-62-11021.

AMENDATORY SECTION (Amending WSR 01-11-038, filed 5/9/01, effective 9/1/01)

WAC 296-303-01001 General industrial safety standards. (1) General. These standards shall be augmented by the Washington state general safety and health standards, and any other regulations of general application which are or will be made applicable to all industries.

(2) Additional requirements. The employer shall comply with the provisions of the standards referenced in this section. In the event of any conflict between this section and WAC 296-303-015 through 296-303-040, the requirements of WAC 296-303-015 through 296-303-040 shall apply. The provisions of this chapter shall prevail in the event of conflict with, or duplication of, provisions contained in chapters 296-24, 296-62, and 296-800 WAC.

(a) Industrial lighting. American National Standard Practice for Industrial Lighting, ANSI A11.1-1965 (R-1970).

(b) Floor and wall openings, railings, and toeboards. American National Standard Safety Requirements for Floor and Wall Openings, Railings, and Toeboards, ANSI (~~A13~~) 12.1-1956.

(c) Identification of piping systems. American National Standard (~~Safety Standard for Mechanical Power Transmission Apparatus~~) Scheme for the Identification of Piping Systems, ANSI A13.1-1956.

(d) Mechanical power transmission apparatus. American National Standard Safety Standard for Mechanical Power Transmission Apparatus, ANSI B15.1-1971.

(e) Pressure piping--Power piping. American National Standard Code for Pressure Piping--Power Piping, ANSI B31.1.0-1967. Addenda to the American National Standard Code for Pressure Piping--Power Piping, ANSI B31.1.0a-1969.

(f) Sanitation. American National Standard Requirements for Sanitation in Places of Employment, ANSI Z4.1-1968.

(g) Local exhaust systems. American National Standard Fundamentals Governing the Design and Operation of Local Exhaust Systems, ANSI Z9.2-1960.

(h) Gas appliances and gas piping. American National Standard for the Installation of Gas Appliances and Gas Piping, ANSI Z21.30-1964.

(3) WAC 296-24-012 and 296-800-360 shall apply where applicable to this industry.

WAC 296-303-02001 Washroom machines. (1) Marking machine. Each power marking machine shall be equipped with a spring-compression device of such design as to prevent injury to fingers, should they be caught between the marking plunger and platen; or the marking machine shall be equipped with a control mechanism that will require the simultaneous action of both hands to operate the machine; or there shall be a guard that will act as a barrier in front of, and which will prevent the operator's fingers from coming into contact with the marking plunger.

(2) Washing machine.

(a) Each washing machine shall be equipped with an interlocking device that will prevent the inside cylinder from moving under power when the outer door on the case or shell is open, and will also prevent the door from being opened while the inside cylinder is in motion. This device should not prevent the movement of the inner cylinder under the action of a hand-operated mechanism or under the operation of an "inching device."

(b) Each washing machine shall be provided with means for holding open the doors or covers of inner and outer cylinders or shells while being loaded or unloaded. Spring loaded devices are an acceptable means.

(3) Extractor.

(a) Each extractor shall be equipped with a metal cover.

(b) Each extractor shall be equipped with an interlocking device that will prevent the cover from being opened while the basket is in motion, and will also prevent the power operation of the basket while the cover is not fully closed and secured. This device should not prevent the movement of the basket by hand to ensure an even loading.

(c) Each extractor shall also be effectively secured in position on the floor or foundation so as to eliminate unnecessary vibrations, and shall not be operated at a speed greater than that given in the manufacturer's rating, which shall be stamped on the inside of the basket where it is easily visible, in letters not less than one-fourth inch in height. The maximum permissible speed shall be given in revolutions per minute.

(d) Each engine individually driving an extractor shall be provided with an approved engine stop (~~(approved as specified in WAC 296-24-006, of the general safety and health standards,)~~) and a speed-limit governor. It is suggested that where an extractor is driven by a direct-current motor a "no field" release be installed to prevent overspeed, which may result from an open or broken field.

(4) Power wringer. Each power wringer shall be equipped with a safety bar or other guard across the entire front of the feed or first pressure rolls, so arranged that the striking of the bar or guard by the hand of the operator or other person will stop the machine.

AMENDATORY SECTION (Amending WSR 05-19-086, filed 9/20/05, effective 12/1/05)

WAC 296-304-01001 Definitions. "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.

"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.

"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 do not influence shipyard employment (such as mail delivery or office supply 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 elongation 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.

"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.

"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 fire fighting in accordance with the fire safety plan.

"Fire response organization" - An organized group knowledgeable, trained, and skilled in shipyard fire fighting 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" - Any liquid having a flashpoint 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.

"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 substance" - A substance likely to cause injury because it is explosive, flammable, poisonous, corrosive, oxidizing, irritant, or otherwise harmful.

"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 fire fighting 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.

"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.

"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.

"Multiemployer workplace" - A workplace where there is a host employer and at least one contract employer.

"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 lanyard, 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 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 CFR Part ((78)) 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.

"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 fire fighting" - Specialized fire fighting 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 fire fighting operations usually are exterior operations but may be combined with structural fire fighting operations. Proximity fire fighting is not entry fire fighting.

"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.

"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.

"Shall" or **"must"** - Mandatory.

"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 fire fighting" - 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.

"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.

"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.

AMENDATORY SECTION (Amending WSR 05-19-086, filed 9/20/05, effective 12/1/05)

WAC 296-304-01007 Fire safety plan. (1) **Employer responsibilities.** The employer must develop and implement a written fire safety plan that covers all the actions that employers and employees must take to ensure employee safety in the event of a fire. (See Appendix ((A)) 1 to this section for a model fire safety plan.)

(2) **Plan elements.** The employer must include the following information in the fire safety plan:

- (a) Identification of the significant fire hazards;
- (b) Procedures for recognizing and reporting unsafe conditions;
- (c) Alarm procedures;
- (d) Procedures for notifying employees of a fire emergency;
- (e) Procedures for notifying fire response organizations of a fire emergency;
- (f) Procedures for evacuation;
- (g) Procedures to account for all employees after an evacuation; and
- (h) Names, job titles, or departments for individuals who can be contacted for further information about the plan.

(3) **Reviewing the plan with employees.** The employer must review the plan with each employee at the following times:

- (a) By March 1, 2006, for employees who are currently working;
- (b) Upon initial assignment for new employees; and
- (c) When the actions the employee must take under the plan change because of a change in duties or a change in the plan.

(4) **Additional employer requirements.** The employer also must:

- (a) Keep the plan accessible to employees, employee

representatives, and WISHA;

(b) Review and update the plan whenever necessary, but at least annually;

(c) Document that affected employees have been informed about the plan as required by this subsection; and

(d) Ensure any outside fire response organization that the employer expects to respond to fires at the employer's worksite has been given a copy of the current plan.

(5) **Contract employers.** Contract employers in shipyard employment must have a fire safety plan for their employees, and this plan must comply with the host employer's fire safety plan.

Appendix 1 to WAC 296-304-01007--Model Fire Safety Plan
(Nonmandatory)

Model Fire Safety Plan

Note: This appendix is nonmandatory and provides guidance to assist employers in establishing a fire safety plan as required in WAC 296-304-01007.

Table of Contents

1. Purpose.
2. Worksite fire hazards and how to properly control them.
3. Alarm systems and how to report fires.
4. How to evacuate in different emergency situations.
5. Employee awareness.

1. Purpose

The purpose of this fire safety plan is to inform our employees of how we will control and reduce the possibility of fire in the workplace and to specify what equipment employees may use in case of fire.

2. Work site fire hazards and how to properly control them

- (a) Measures to contain fires.
- (b) Teaching selected employees how to use fire protection equipment.
- (c) What to do if you discover a fire.
- (d) Potential ignition sources for fires and how to control them.
- (e) Types of fire protection equipment and systems that can control a fire.
- (f) The level of fire fighting capability present in the facility, vessel, or vessel section.
- (g) Description of the personnel responsible for maintaining equipment, alarms, and systems that are installed to prevent or control fire ignition sources, and to control fuel source hazards.

3. Alarm systems and how to report fires

- (a) A demonstration of alarm procedures, if more than one type exists.
- (b) The worksite emergency alarm system.
- (c) Procedures for reporting fires.

4. How to evacuate in different emergency situations

- (a) Emergency escape procedures and route assignments.
- (b) Procedures to account for all employees after completing

an emergency evacuation.

(c) What type of evacuation is needed and what the employee's role is in carrying out the plan.

(d) Helping physically impaired employees.

5. Employee awareness

Names, job titles, or departments of individuals who can be contacted for further information about this plan.

AMENDATORY SECTION (Amending WSR 95-04-006, filed 1/18/95, effective 3/10/95)

WAC 296-304-04005 Welding, cutting and heating in way of preservative coatings. (1) Before welding, cutting or heating is commenced on any surface covered by a preservative coating whose flammability is not known, a test shall be made by a competent person to determine its flammability. Preservative coatings shall be considered to be highly flammable when scrapings burn with extreme rapidity.

(2) Precautions shall be taken to prevent ignition of highly flammable hardened preservative coatings. When coatings are determined to be highly flammable they shall be stripped from the area to be heated to prevent ignition. A 1 1/2-inch or larger fire hose with fog nozzle, which has been uncoiled and placed under pressure, shall be immediately available for instant use in the immediate vicinity, consistent with avoiding freezing of the hose.

(3) Protection against toxic preservative coatings.

(a) In enclosed spaces all surfaces covered with toxic preservatives shall be stripped of all toxic coatings for a distance of at least 4 inches from the area of heat application or the employees shall be protected by air line respirators meeting the requirements of chapter ((296-62)) 296-842 WAC, ((Part E)) Respirators.

(b) In the open air employees shall be protected by a filter type respirator in accordance with the requirements of chapter ((296-62)) 296-842 WAC, ((Part E)) Respirators.

(4) Before welding, cutting or heating is commenced in enclosed spaces on metals covered by soft and greasy preservatives, the following precautions shall be taken:

(a) A competent person shall test the atmosphere in the space to ensure that it does not contain explosive vapors, since there is a possibility that some soft and greasy preservatives may have flash points below temperatures which may be expected to occur naturally. If such vapors are determined to be present, no hot work shall be commenced until such precautions have been taken as will ensure that the welding, cutting or heating can be performed in safety.

(b) The preservative coatings shall be removed for a sufficient distance from the area to be heated to ensure that the

temperature of the unstripped metal will not be appreciably raised. Artificial cooling of the metal surrounding the heated area may be used to limit the size of the area required to be cleaned. The prohibition contained in WAC 296-304-03005 (2)(b) shall apply.

(5) Immediately after welding, cutting or heating is commenced in enclosed spaces on metal covered by soft and greasy preservatives, and at frequent intervals thereafter, a competent person shall make tests to ensure that no flammable vapors are being produced by the coatings. If such vapors are determined to be present, the operation shall be stopped immediately and shall not be resumed until such additional precautions have been taken as are necessary to ensure that the operation can be resumed safely.

AMENDATORY SECTION (Amending WSR 03-04-099, filed 2/4/03, effective 8/1/03)

WAC 296-304-05003 Ladders. (1) General requirements.

(a) The use of ladders with broken or missing rungs or steps, broken or split side rails, or other faulty or defective construction is prohibited. When ladders with such defects are discovered, they shall be immediately withdrawn from service. Inspection of metal ladders shall include checking for corrosion of interiors of open end, hollow rungs.

(b) When sections of ladders are spliced, the ends shall be abutted, and not fewer than 2 cleats shall be securely nailed or bolted to each rail. The combined cross sectional area of the cleats shall be not less than the cross sectional area of the side rail. The dimensions of side rails for their total length shall be those specified in (2) or (3) of this section.

(c) Portable ladders shall be lashed, blocked or otherwise secured to prevent their being displaced. The side rails of ladders used for access to any level shall extend not less than 36 inches above that level. When this is not practical, grab rails which will provide a secure grip for an employee moving to or from the point of access shall be installed.

(d) Portable metal ladders shall be of strength equivalent to that of wood ladders. Manufactured portable metal ladders provided by the employer shall be in accordance with the provisions of the United States of America Standard Safety Code for Portable Metal Ladders, A14.2-1972.

(e) Portable metal ladders shall not be used near electrical conductors nor for electric arc welding operations.

(f) Manufactured portable wood ladders provided by the employer shall be in accordance with the provisions of the United States of America Standard Safety Code for Portable Wood Ladders, A-14.1-1968.

(2) Construction of portable wood cleated ladders up to 30 feet in length.

(a) Wood side rails shall be made from west coast hemlock,

eastern spruce, Sitka spruce, or wood of equivalent strength. Material shall be seasoned, straight-grained wood, and free from shakes, checks, decay or other defects which will impair its strength. The use of low density woods is prohibited.

(b) Side rails shall be dressed on all sides, and kept free of splinters.

(c) All knots shall be sound and hard. The use of material containing loose knots is prohibited. Knots shall not appear on the narrow face of the rail and, when in the side face, shall be not more than 1/2 inch in diameter or within 1/2 inch of the edge of the rail or nearer than 3 inches to a tread or rung.

(d) Pitch pockets not exceeding 1/8 inch in width, 2 inches in length and 1/2 inch in depth are permissible in wood side rails, provided that not more than one such pocket appears in each 4 feet of length.

(e) The width between side rails at the base shall be not less than 11 1/2 inches for ladders 10 feet or less in length. For longer ladders this width shall be increased at least 1/4 inch for each additional 2 feet in length.

(f) Side rails shall be at least 1 5/8 x 3 5/8 inches in cross section.

(g) Cleats (meaning rungs rectangular in cross section with the wide dimension parallel to the rails) shall be of the material used for side rails, straight-grained and free from knots. Cleats shall be mortised into the edges of the side rails 1/2 inch, or filler blocks shall be used on the rails between the cleats. The cleats shall be secured to each rail with three 10d common wire nails or fastened with through bolts or other fasteners of equivalent strength. Cleats shall be uniformly spaced not more than 12 inches apart.

(h) Cleats 20 inches or less in length shall be at least 25/32 x 3 inches in cross section. Cleats over 20 inches but not more than 30 inches in length shall be at least 25/32 x 3 3/4 inches in cross section.

(3) Construction of portable wood cleated ladders from 30 to 60 feet in length.

(a) Ladders from 30 to 60 feet in length shall be in accordance with the specifications of (2) of this section with the following exceptions:

(i) Rails shall be of not less than 2 x 6 inch lumber.

(ii) Cleats shall be of not less than 1 x 4 inch lumber.

(iii) Cleats shall be nailed to each rail with five 10d common wire nails or fastened with through bolts or other fastenings of equivalent strength.

AMENDATORY SECTION (Amending WSR 03-04-099, filed 2/4/03, effective 8/1/03)

WAC 296-304-05005 Guarding of deck openings and edges. (1) When employees are working in the vicinity of flush manholes and other small openings of comparable size in the deck and other working surfaces, such openings shall be suitably covered or guarded to a height of not less than 30 inches, except where the use of such guards is made impracticable by the work actually in progress.

(2) When employees are working around open hatches not protected by coamings to a height of 24 inches or around other large openings, the edge of the opening shall be guarded in the working area to a height of 36 to 42 inches, except where the use of such guards is made impracticable by the work actually in progress.

(3) When employees are exposed to unguarded edges of decks, platforms, flats, and similar flat surfaces, more than 5 feet above a solid surface, the edges shall be guarded by adequate guardrails meeting the requirements of WAC 296-304-05001 (~~((+1+))~~) (9)(a) and (b), unless the nature of the work in progress or the physical conditions prohibit the use or installation of such guardrails.

(4) When employees are working near the unguarded edges of decks of vessels afloat, they shall be protected by buoyant personal flotation devices, meeting the requirements of WAC 296-304-09017(1).

(5) Sections of bilges from which floor plates or gratings have been removed shall be guarded by guardrails except where they would interfere with work in progress. If these open sections are in a walkway at least two 10-inch planks placed side by side, or equivalent, shall be laid across the opening to provide a safe walking surface.

(6) Gratings, walkways, and catwalks, from which sections or ladders have been removed, shall be barricaded with adequate guardrails.

AMENDATORY SECTION (Amending WSR 01-11-038, filed 5/9/01, effective 9/1/01)

WAC 296-304-06013 Health and sanitation. "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 fire fighting 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.

(1) 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), (~~Federal Office Building, 909 First Avenue~~) 1111 3rd Ave. Suite 715, Seattle, Washington (~~(98174)~~) 98101.

A completed MSDS 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, 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 03-11-060, filed 5/19/03, effective 8/1/03)

WAC 296-304-08009 Powder-actuated fastening tools. (1) The employer must ensure powder-actuated fastening tools are used, designed, constructed, and maintained according to the requirements of WAC ((296-24-663, ~~Safety requirements for powder-actuated fastening systems~~)) 296-807-150, Powder actuated fastening systems.

(2) The employer must ensure that employees using powder-actuated fastening tools are protected by personal protective equipment that meets the requirements of WAC 296-304-09005 (1) and (2). The employer must also meet the requirements of chapter 296-817 WAC, Hearing loss prevention (noise).

AMENDATORY SECTION (Amending Order 74-25, filed 5/7/74)

WAC 296-304-11003 Drums and containers. (1) Shipping drums and containers shall not be pressurized to remove their contents.

(2) A temporarily assembled pressurized piping system conveying hazardous liquids or gases shall be provided with a relief valve and by-pass to prevent rupture of the system and the escape of such hazardous liquids or gases.

(3) Pressure vessels, drums and containers containing toxic or flammable liquids or gases shall not be stored or used where they are subject to open flame, hot metal, or other sources of artificial heat.

(4) Unless pressure vessels, drums and containers of 30 gallon capacity or over containing flammable or toxic liquids or gases are placed in an out-of-the-way area where they will not be subject to physical injury from an outside source, barriers or guards shall be erected to protect them from such physical injury.

(5) Containers of 55 gallons or more capacity containing flammable or toxic liquid shall be surrounded by dikes or pans which enclose a volume equal to at least ((25)) 35 percent of the total volume of the containers.

(6) Fire extinguishers adequate in number and suitable for the hazard shall be provided. These extinguishers shall be located in the immediate area where pressure vessels, drums and containers containing flammable liquids or gases are stored or in use. Such extinguishers shall be ready for use at all times.

AMENDATORY SECTION (Amending Order 74-25, filed 5/7/74)

WAC 296-304-14007 Criteria governing accreditation to certificate vessels' cargo gear. (1) A person applying for accreditation to issue registers and pertinent certificates, to maintain registers and appropriate records, and to conduct initial, annual and quadrennial surveys, shall not be accredited unless he is engaged in one or more of the following activities:

- (a) Classification of vessels;
- (b) Certification of vessels' cargo gear;
- (c) Shipbuilding or ship repairing, or both insofar as related to work on vessels' cargo handling gear;
- (d) Unit and loose gear testing of vessels' cargo handling gear.

(2) Applicants for accreditation under WAC 296-304-14007(1) for operations in coastal or Great Lakes ports who come within WAC 296-304-14007 (1)(b) or (d) shall not be accredited unless they conduct at least 1,500 hours of cargo gear certification work per year.

(3) A person applying for accreditation to carry out tests of loose gear or wire rope, or both, or to carry out heat treatments, and to issue the related certificates, shall be engaged in one or both of the following activities:

- (a) Testing of loose gear or wire rope, or both;
- (b) Heat treatment of chains and loose cargo gear.

(4) A person applying for accreditation shall be staffed by individuals technically qualified to conduct the inspections and examinations and to conduct or supervise tests and heat treatments prescribed in this part. Any representatives, agents or surveyors acting on behalf of a person applying for accreditation in ports in which such operations are conducted shall be similarly qualified.

(a) Accreditation to conduct such nondestructive examination as may be a part of any certification activity may be granted to applicants found competent and equipped to carry out this activity.

(5) Except as noted in WAC (~~(296-304-13501(3))~~) 296-304-13001(2)(a), and unless exemptions are granted under WAC 296-304-15001(8), a person applying for accreditation as specified in WAC 296-304-14007(1) shall be prepared to carry out all of the requirements of WAC 296-304-150 through 296-304-15005, 296-304-160 through 296-304-16025, and 296-304-170 through 296-304-17023 except that loose gear and wire rope tests and heat treatments may be carried out by the manufacturer of the gear concerned or by another person accredited specifically for this purpose.

(6) A person applying for accreditation shall have a satisfactory record of performance.

AMENDATORY SECTION (Amending Order 74-25, filed 5/7/74)

WAC 296-304-15001 General duties--Exemptions. (1) Except as noted in WAC ((~~296-304-13501~~)) 296-304-13001 and 296-304-15001(8), the requirements set forth in WAC 296-304-160 through 296-304-16025 and 296-304-170 through 296-304-17023 shall be strictly adhered to in all testing, examinations, inspections and heat treatments.

(2) Supervision of all testing, examinations, inspections, and heat treatments shall be carried out only by such persons as are listed in the application for accreditation or subsequent supplements thereto, submitted pursuant to this section.

(3) The certificates issued by an accredited person shall be signed and all register entries made only by an authorized agent of such accredited person. No certification shall be issued until any deficiencies considered by the accredited person to constitute a currently unsatisfactory condition have been corrected. Replacement parts shall be of equal or better quality as original equipment and suitable for the purpose. In the event deficiencies remain uncorrected and no certification may therefore be issued, the accredited person shall inform the nearest district office of the department of labor and industries of the circumstances.

(4) Dynamometers or other recording test equipment owned by an accredited person shall have been tested for accuracy within the six months next preceding application for accreditation or renewal of same. Such test shall be performed with calibrating equipment which has been checked in turn so that indications are traceable to the U.S. Bureau of Standards. A copy of test reports shall accompany the application. Where test equipment is not the property of the accredited person, that person shall not issue any certificate based upon the use of such equipment unless its owner has made available a certificate of accuracy based on the requirements of this section, obtained within 1 year prior to such use, and stating the errors of the equipment. Reasonable standards of accuracy shall be met and proof loads adjusted as necessary.

(5) An accredited person shall, upon request, provide the nearest local office of the department of labor and industries with advance information as to scheduled testing or of such other functions as are performed and facilitate the department of labor and industries observation of any such activities as it may desire to witness: Provided, however, That tests need not be delayed, except when specifically requested by the department of labor and industries under unusual circumstances.

(6) All cargo gear registers or certificates issued by an accredited person shall be made on forms prescribed or approved by the department of labor and industries.

(7) Unless otherwise instructed by the director in specific instances, any person accredited under WAC 296-304-14007(1) shall accept certificates relating to loose gear or wire rope tests or to heat treatments which are issued by the manufacturer of the gear concerned, by another person accredited specifically by the director for this purpose, or by any other person whose certificates are acceptable to the department of labor and industries. Such certificates shall either be attached as a part

of the vessel's certification or shall be used as the basis for the issuance of the accredited person's own loose gear, wire rope, or heat treatment certificates. In the latter case, the original certificates shall be kept on file by the accredited person as part of the permanent record of the vessel concerned.

(8) In case of practical difficulties or unnecessary hardships, the director in his discretion may grant exemptions from any provision of WAC 296-304-150 through 296-304-15005, 296-304-160 through 296-304-16025 and 296-304-170 through 296-304-17023.

AMENDATORY SECTION (Amending Order 74-25, filed 5/7/74)

WAC 296-304-16001 General. (1) Except as noted in WAC ((~~296-304-13501~~)) 296-304-13001 and as provided in exemptions under WAC 296-304-15001(9), certification performed by accredited persons shall conform to the requirements contained in this section.

(2) Safe working loads assigned to assembled units of gear shall be based on applicable design criteria acceptable to the accredited person. Where no design data on which to base a rating is obtainable, the safe working load ratings assigned shall be based on the owner's information and warranty that those so assigned are correct. Unit test certificates shall state the basis for any such safe working load assignment.

AMENDATORY SECTION (Amending Order 74-25, filed 5/7/74)

WAC 296-304-17011 Proof tests--Loose gear. (1) Chains, rings, shackles and other loose gear (whether accessory to a machine or not) shall be tested with a proof load equal to that shown against the article in the following table:

Article of gear	Proof load
Chain, ring, hook, shackle or swivel	100 percent in excess of the safe working load.
Blocks:	
Single sheave block	300 percent in excess of the safe working load. ¹
Multiple sheave block with safe working load up to and including 20 tons	100 percent in excess of the safe working load.

Multiple sheave block
with safe working load
over 20 tons up to and
including 40 tons 20 tons in excess of the safe
working load.

Multiple sheave block
with safe working load
over 40 tons 50 percent in excess of the
safe working load.

Pitched chains used with
hand-operated blocks and
rings, hooks, shackles or
swivels permanently
attached thereto 50 percent in excess of the
safe working load.

Hand-operated blocks
used with pitched chains
and rings, hooks, shackles
or swivels permanently
attached thereto 50 percent in excess of the
safe working load.

¹The proof load applied to the block is equivalent to twice the maximum resultant load on the eye or pin of the block when lifting the nominal safe working load defined in WAC 296-304-17011 (1)(a) below. The proof load is, therefore, equal to four times the safe working load as defined in WAC 296-304-17011 (1)(a) below or twice the safe working load as defined in WAC 296-304-17011 (1)(b) below.

(a) The nominal safe working load of a single-sheave block should be the maximum load which can be safely lifted by the block when the load is attached to a rope which passes around the sheave of the block.

(b) In the case of a single-sheave block where the load is attached directly to the block instead of to a rope passing around the sheave, it is permissible to lift a load equal to twice the nominal safe working load of the block as defined in WAC 296-304-17011 (1)(a) above.

(c) In the case of a lead block so situated that an acute angle cannot be formed by the two parts of the rope passing over it (i.e., the angle is always 90° or more), the block need not have a greater nominal safe working load than one-half the maximum resultant load which can be placed upon it.

(2) In cases where persons accredited to carry out loose gear tests may be retained to conduct tests of special stevedoring gear as described in WAC ((~~296-56-45001(2)~~) 296-56-60098 (8)(e), which does not form part of a vessel's equipment, such tests shall adhere to the requirements set forth in WAC ((~~296-56-45001 (2)(a), (b) and (c)~~) 296-56-60098 (8)(e).

(3) After being tested as required by WAC 296-304-17011(1), and before being taken into use, all chains, rings, hooks, shackles, blocks or other loose gear, except as noted in WAC 296-304-17013, shall be thoroughly examined, the sheaves and pins of the blocks being removed for this purpose, to determine whether any part has been injured or permanently deformed by the test. Shell bolt nuts shall be securely locked upon reassembly. Defective

loose gear components shall be replaced before the certificate is issued.

(4) Any certificate relating to shackles, swivels or strength members of single-sheave blocks which have been restored to original dimensions by welding shall state this fact.

AMENDATORY SECTION (Amending Order 74-25, filed 5/7/74)

WAC 296-304-20001 General provisions. (1) Certification of shore-based material handling devices shall conform to the requirements contained in this section, except in cases for which exemptions or variations have been granted by the director as provided in WAC 296-304-18001(4) and (~~(296-304-19001(1))~~) 296-304-190.

(2) Any replacements or repairs deemed necessary by the accredited person shall be carried out before application of a proof test.

(3) "Ton" in this section means a ton of 2,000 pounds.

(4) When applied to shore-based material handling devices, ratings may be stated in pounds rather than tons. When stated in tons of 2,000 pounds, this fact shall be indicated.

AMENDATORY SECTION (Amending WSR 01-11-038, filed 5/9/01, effective 9/1/01)

WAC 296-305-01009 Appeals. Any party authorized to appeal from an action of the department as set forth in RCW 49.17.140(3), may do so by filing a notice of appeal in writing. The appeal must contain the recommended subject matter, as noted below, by serving a copy of such notice of appeal either in person or by mail upon the assistant director of the Consultation and Compliance Services Division, (7273 Linderson Way, Tumwater, Washington) P.O. Box 44600, Olympia, Washington 98504-4600. The appeal must be sent to the department within fifteen working days of the communication of the notice.

The notice of appeal should contain:

(1) The name and address of the appealing party and his/her representative if any;

(2) The place where the alleged safety violation occurred;

(3) A statement identifying the order, decision or citation appealed from, by report number and date of issuance;

(4) The grounds upon which the appealing party considers such order, decision, or citation to be unjust or unlawful;

(5) A statement of facts in support of each grounds stated;

(6) The relief sought, including the specific nature and extent;

(7) A statement that the person signing the notice of appeal has read it and to the best of his/her knowledge, information and belief there is good ground to support it. A notice of appeal may be signed by the party or by his/her authorized representative.

((References:

~~WAC 296-800-350, Inspections, citations and appeals--Contents
RCW 49.17.140(3).)~~)

AMENDATORY SECTION (Amending WSR 04-14-028, filed 6/29/04, effective 1/1/05)

WAC 296-806-405 Summary.

! In addition to the requirements in this section, you need to refer to the following sections of this chapter in order to fully protect your employees from machine hazards.

! Requirements for all machines, WAC 296-806-200 and 296-806-300.

! You need to refer to Portable power tools, chapter 296-807 WAC for requirements relating to hand-held abrasive wheel tools.

This section applies to machines that are not hand held and that use an abrasive wheel.

Exemption: This rule does not apply to natural sandstone wheels and metal, wooden, cloth or paper discs having a layer of abrasive on the surface.

Definition:

An *abrasive wheel* is a grinding tool consisting of bonded abrasive grains. This includes diamond and reinforced wheels.

Your responsibility:

To make sure abrasive wheel machines and wheels are safe to use.

You must:

GENERAL REQUIREMENTS FOR ABRASIVE WHEELS

Make sure abrasive wheels and machines are properly designed and constructed

WAC 296-806-40502.

Make sure machines have safety guards

WAC 296-806-40504.

Make sure safety guards meet specific requirements

WAC 296-806-40506.

Provide a tongue guard on bench, pedestal, floorstand, and cylindrical grinders

WAC 296-806-40508.

Use a work rest for off-hand grinding

WAC 296-806-40510.

MOUNTING ABRASIVE WHEELS

Make sure abrasive wheels are safe to use

WAC 296-806-40512.

Mount wheels properly

WAC 296-806-40514.

Use proper flanges

WAC 296-806-40516.

Make sure flanges are in good condition

WAC 296-806-40518.

Use specific flanges for Type 1 cutting-off wheels

WAC 296-806-40520.

Use specific flanges for Type 27A cutting-off wheels

WAC 296-806-40522.

Use blotters when required

WAC 296-806-40524.

Meet specific blotter requirements when using modified Types 6 and 11 wheels (terrazzo)

WAC 296-806-40526.

AMENDATORY SECTION (Amending WSR 04-14-028, filed 6/29/04, effective 1/1/05)

WAC 296-806-42516 Safeguard storage bins.

Exemption: This requirement does not apply to under-the-counter ingredient bins found in retail stores.

You must:

(1) Provide locks or latches to keep storage bin covers closed, and gaskets or other equivalent devices, to make sure covers are dust tight.

(2) Make sure employees lock covers in the open position when entering bins.

! Covers for bins that employees may enter must have a metal fastener (hasp) and lock that can be locked in the "open" position.

(3) Provide a standard stationary safety ladder on the inside and outside of storage bins with sides more than five feet deep.

! The ends of ladders must be kept away from moving screw conveyors.

! Outside ladders must reach from floor level to the top of the bin.

! Inside ladders must reach from the top of the bin to the bottom of the bin.

(4) Provide an electric interlock on the main entrance cover of large storage bins near the interior exit ladder.

! The interlock needs to prevent feed and unloading screw motors from operating while the cover is open.

Reference: You may need to follow other requirements found in (~~Confined spaces~~) chapter (~~296-811~~) 296-809 WAC, Confined spaces.

AMENDATORY SECTION (Amending WSR 04-14-028, filed 6/29/04, effective 1/1/05)

WAC 296-806-45004 Safeguard work-holding devices (chucks).

You must:

! Provide a fixed or movable guard, device, awareness barrier, or peripheral cover over areas exposed to the operator on work-holding devices or chucks when:

- (~~It is~~) They are in the clamped mode and (~~has~~) have parts that extend beyond the outside diameter of the holding

device.

- (~~it has~~) They have an irregular shape to the periphery of
(~~its~~) their body.

AMENDATORY SECTION (Amending WSR 03-09-009, filed 4/4/03, effective 8/1/03)

WAC 296-807-100 Scope. This chapter applies to the tools and equipment shown in Table 1, Scope of this chapter.

Table 1
Scope of this Chapter

Section:	Applies to:
110 Switches (controls)	Hand-held portable power tools.
120 Portable circular saws	Hand-held portable circular saws.
130 Portable belt sanding machines	Hand-held portable belt sanding machines.
140 Compressed air tools((, hose, and pipe))	Hand-held portable compressed air powered tools. It also applies to airhose and plastic pipe used to supply compressed air to these tools.
150 Powder actuating fastening systems	Powder actuated fastening systems designed to use the expanding gases from a powder load to propel a stud, pin, fastener, or other object into hard structural material.
160 Power lawnmowers	Consumer and commercial power lawnmowers.
170 Jacks	Portable hand- or power-operated: ! Hydraulic jacks ! Mechanical ratchet jacks ! Mechanical screw jacks.
180 Portable tools using abrasive wheels	Portable tools using abrasive wheels.

AMENDATORY SECTION (Amending WSR 03-09-009, filed 4/4/03, effective 8/1/03)

WAC 296-807-14035 Use air tools safely.

Exemption:

This section does not apply to:

- ! Tools specifically for medical or dental use
- ! Tools specifically for use in the food processing industry
- ! Tools mounted in stationary installations
- ! Air hoists
- ! Construction and mining tools such as paving breakers, diggers, tampers, and rock drills.

You must:

(1) Relieve the pressure in the air line before disconnecting a compressed air tool from the line or disconnecting a hose joint unless there is automatic valve closing protection at the joint being separated.

(2) Disconnect the tool from the compressed air supply before repairs are done.

(3) Make sure that eye protection is worn at all times by:

- ! The person operating the tool
- ! Other persons in the area where tools are being used.

((**References:** ~~# Use the PPE hazard assessment to determine which employees other than the tool operator need to wear eye protection and the type of eye protection they need to wear. See WAC 296-800-160 in the safety and health core rules.~~
~~# Chapter 296-62 WAC, Part K, Hearing conservation, may require the use of hearing protection.))~~

AMENDATORY SECTION (Amending WSR 03-09-009, filed 4/4/03, effective 8/1/03)

WAC 296-807-15010 Make sure employees are aware tools are in use and wear appropriate personal protective equipment (PPE).

You must:

(1) Make sure eye or face protection is worn by:

- ! Tool operators
- ! Assistants
- ! Persons close to where the tool is being used.

((**Reference:** ~~# Use the PPE hazard assessment to determine which employees other than the tool operator need to wear eye protection and the type of eye protection they need to wear. See WAC 296-800-160 in the safety and health core rules.~~
~~# Chapter 296-62 WAC, Part K, Hearing conservation may require the use of hearing protection.))~~

You must:

(2) Post signs where tools are being used and in adjacent areas where tool use could pose a hazard. Signs must:

- ! Be easily seen
- ! Be at least 8 x 10 inches (20 x 25 cm)
- ! Use letters in boldface type at least one inch (2.5 cm) high
- ! Read "POWDER ACTUATED TOOL IN USE" or similar wording.

Note: Tool use could create a hazard in adjacent areas by allowing a fastener to penetrate one or more of the following:
! Wall

- ! Floor
- ! Other working surface.

AMENDATORY SECTION (Amending WSR 03-09-009, filed 4/4/03, effective 8/1/03)

WAC 296-807-17020 Visually inspect jacks and keep them in good working order.

Note: There are two types of inspection, frequent or periodic, depending on how often they are done.

You must:

(1) Inspect jacks at appropriate intervals:

! Make sure frequent inspections are done by the operator or other designated person as follows:

- Before a jack is first placed in service.
- Monthly for a jack used in normal service.
- Daily or before each use for a jack used for other than normal service.
- Before using a jack that has been altered, modified, or repaired.
- Before using a jack that has not been used in one year or more.

! Make sure a periodic inspection of the jack is done once a year.

! Inspect the jack using Table 4, Jack Inspection Requirements, during any frequent or periodic inspection.

(2) Make sure a jack that is out of order is:

! Tagged

! Not used until repaired.

(3) Make sure a jack is properly lubricated at regular intervals.

Note: The jack should be lubricated following the manufacturer's instructions.

**Table 4
Jack Inspection Requirements**

Inspection Item	Frequent Inspection	Periodic Inspection
Check all of the following items that apply to the jack:		
Improper pawl engagement	X	X
Excessive pawl wear	X	X
Chipped, cracked, or worn rack teeth	X	X
<u>Cracked or damaged housing</u>	<u>X</u>	<u>X</u>
Damaged, bent, or worn threads	X	X
Leaking hydraulic fluid	X	X

Inspection Item	Frequent Inspection	Periodic Inspection
Check all of the following items that apply to the jack:		
Scored or damaged plunger	X	X
Improper functioning	X	X
Free movement of swivel, heads, and caps	X	X
Loose bolts or rivets	X	X
Damaged or improperly assembled accessory equipment	X	X
Rack wear or bending	X	X
Other items as specified in the manufacturer's instructions	X	X
Watch the jack during operation	X	X
More detailed inspection required if a designated person determines any condition discovered is a hazard	X	
Clean and check internal parts for wear or damage if inspection indicates an internal problem		X

AMENDATORY SECTION (Amending WSR 03-09-009, filed 4/4/03, effective 8/1/03)

WAC 296-807-18050 Use proper flanges.

You must:

! Mount all abrasive wheels between flanges that have a diameter at least one-third the diameter of the wheel.

Exemption: This requirement does not apply to the following types of wheels:

- ! Mounted wheels
- ! Cup, cone or plug wheels with threaded inserts or projecting studs
- ! Abrasive disc wheels (inserted nut, inserted washer and projecting stud type)
- ! Plate mounted wheels
- ! Cylinder, cup, or segmental wheels mounted in chucks
- ! Types 27, 28 and 29 wheels
- ! Internal wheels less than two inches in diameter

! Modified Type 6 and 11 wheels (terrazzo)

! Types 1 and 27A cutting-off wheels.

You must:

! Make sure flanges are:

- Dimensionally accurate
- Properly balanced
- Flat
- Free of rough surfaces or sharp edges.

! Make sure, if a wheel is mounted between two flanges, that both flanges:

- Are the same diameter
- Have equal bearing surfaces.

Exemption:

The following wheels do not require same diameter, equal bearing surface flanges:

! Types 27, 28, and 29 wheels with adaptors

! Modified Types 6 and 11 wheels with tapered K dimension

! Internal wheels less than two inches in diameter.

You must:

! Make sure the driving flange is:

- Part of the spindle

OR

- Securely fastened to the spindle.

AMENDATORY SECTION (Amending WSR 04-03-081, filed 1/20/04, effective 5/1/04)

WAC 296-809-70002 Follow these requirements when classifying a confined space as a nonpermit confined space.

You must:

! Make sure the confined space meets these conditions to be classified as nonpermit confined spaces:

- The confined space does not contain an actual or potential hazardous atmosphere.

- The confined space does not contain hazards capable of causing death or serious physical harm. This includes any recognized health or safety hazards including engulfment in solid or liquid material, electrical shock, or moving parts.

- If you must enter to remove hazards, the space must be treated as a permit-required confined space until hazards have been eliminated.

Note: ! Controlling atmospheric hazards through forced air ventilation does not eliminate the hazards.
! You should evaluate the use of lockout-tagout, as covered in (~~WAC 296-24-110~~) chapter 296-803 WAC, to determine if using it fully eliminates the hazard.
! You are allowed to use alternate entry procedures covered in WAC 296-809-600, if you can demonstrate that forced air ventilation alone will control all hazards in the space.

You must:

! Document how you determined the confined space contained no permit-required confined space hazards. Certify this documentation with the following:

- Date.

- Location of the space.

- Signature of the person making the determination.

! Make the certification available to each entrant, or their authorized representative.

Note: This certification must be completed every time a permit-required confined space is reclassified as a nonpermit space.

AMENDATORY SECTION (Amending WSR 04-12-070, filed 6/1/04, effective 9/1/04)

WAC 296-823-18015 Make sure these practices for contaminated material and waste are followed.

You must:

! Incinerate or decontaminate all regulated waste by a method known to effectively destroy bloodborne pathogens, such as autoclaving

! Make sure to place materials to be decontaminated away from the work area in a container that is:

- Durable
- Leakproof
- Appropriately labeled, or color-coded
- Closed before being removed from the work area.

Reference: You can find additional requirements for appropriate labels and color-coding in WAC 296-823-14025.

You must:

! Incinerate or decontaminate ALL waste from work areas and from animal rooms before disposal

! Make sure an autoclave is available for decontamination of regulated waste. (~~The autoclave must be available within or as near as possible to the work area.~~)

AMENDATORY SECTION (Amending WSR 04-12-070, filed 6/1/04, effective 9/1/04)

WAC 296-823-18055 Make sure these additional criteria are followed for HIV and HBV production facilities.

You must:

! Separate the HIV and HBV work areas from areas that are open to unrestricted traffic flow within the building

! Use two sets of doors to separate HIV and HBV work areas from access corridors or other contiguous areas.

Note: You may provide a physical separation of the high-containment work area from access corridors or other areas or activities by providing:

- A double-doored clothes-change room (showers may be included)
- Airlock

OR

- Other access facilities that require passing through two sets of doors before entering the work area.

! Make sure the surfaces of doors, walls, floors, and ceilings in the work area are water resistant so they can be easily cleaned. These surfaces must be sealed or capable of being sealed to facilitate decontamination

! Make sure access doors to the work area or containment module are self-closing

! Provide a ducted exhaust-air ventilation system. This system must create directional airflow that draws air into the work area through the entry area and you must verify this airflow. The exhaust air must:

- NOT be recirculated to any other area of the building
- Be discharged to the outside
- Be dispersed away from occupied areas and air intakes.

! Make sure an autoclave for decontamination of regulated waste is available within or as near as possible to the work area.

AMENDATORY SECTION (Amending WSR 02-20-034, filed 9/24/02, effective 10/1/02)

WAC 296-824-100 Scope. This chapter states the minimum requirements that help you protect the safety and health of your employees during a response to a *hazardous substance releases* in your *workplace* or any other location.

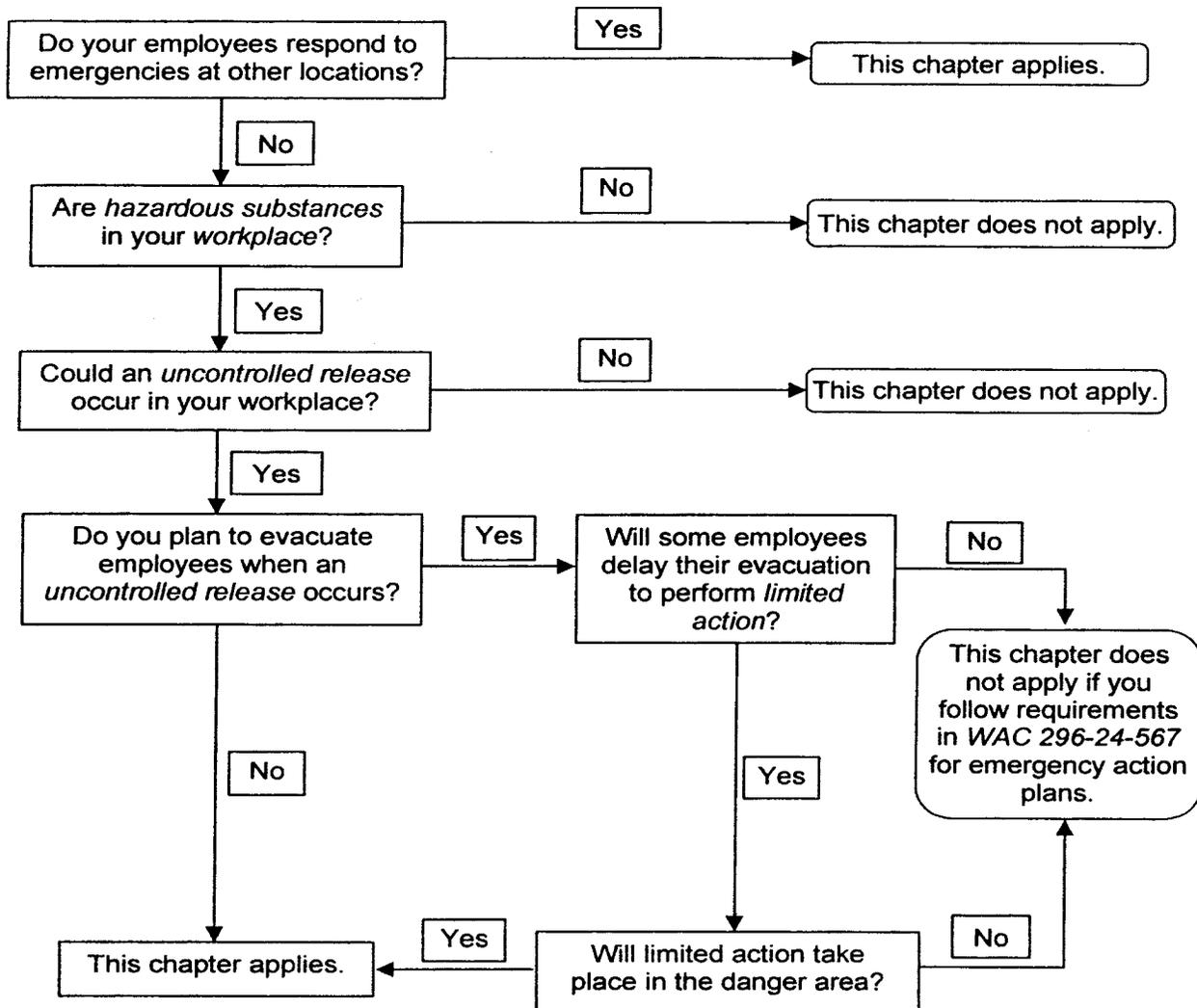
This chapter applies if your employees are, or could become, involved in responding to uncontrolled releases of hazardous substances in your workplace or any other location. Use the scope flow chart, and definitions that follow, to determine if this chapter applies to your workplace(s). Defined words are italicized in the flow chart.

EXEMPTION: ! This chapter does not apply to you if your workplace is a hazardous waste site. If you are not sure about your site classification, see chapter ~~((296-62))~~ 296-843 WAC, ~~((Part P,))~~ Hazardous waste operations ~~((and treatment, storage, and disposal facilities))~~.

! If your workplace is a treatment, storage, and disposal site this chapter may apply.

Note: Requirements in other chapters may also apply to your workplace. You will find some safety and health requirements (for example, personal protective equipment) are addressed on a general level in the WISHA Safety and Health Core Rules, chapter 296-800 WAC, while being addressed for a specific application in this rule. When this happens, both requirements apply and should not conflict.

If you are uncertain which requirements to follow, you must comply with the more protective requirement. Contact your local L&I office if you need assistance in making this determination.



Definitions applicable to the flow chart. (See WAC 296-824-800 for additional definitions used in the chapter):

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.

Emergency response

A response to an anticipated release of a hazardous substance that is, or could become, an *uncontrolled release*.

Hazardous substance

Any biological, radiological, or chemical substance that can

have adverse effects on humans. (See WAC 296-824-800 for a more specific definition.)

Immediately dangerous to life or health (IDLH)

Any atmospheric condition that would:

- ! Cause an immediate threat to life
- ! Cause permanent or delayed adverse health effects
- ! 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*.

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.

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.

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.

AMENDATORY SECTION (Amending WSR 05-03-093, filed 1/18/05, effective 3/1/05)

WAC 296-824-20005 Develop an emergency response plan.

Note: ! You may already have an emergency response plan, such as required by chapter ~~((296-62))~~ 296-843 WAC, ~~((Part P))~~ Hazardous waste operations ~~((and treatment, storage and disposal facilities))~~ or by state and locally coordinated response efforts (Section 303 of Superfund Amendments and Reauthorization Act (SARA), Title III). You may use those plans to comply with this section, if they include the items listed below.

! Before a written emergency response plan can be developed, you will need to anticipate the types of uncontrolled releases that employees could encounter in your workplace(s).

You must:

(1) Make sure your plan is written and adequately addresses, as a minimum, all of the following:

! Preemergency planning and coordination with additional responders (including personnel from other employers such as: Fire departments, law enforcement agencies, emergency medical services, and state or federal agencies).

! Personnel roles, (See Table 1) and lines of authority and communications for all affected parties including responders

! Employee training (see WAC 296-824-30005 for more detail):

Note: ! Responders' level of training depends on the duties or roles the employer assigns.

! Training for the employees' role should address the competencies specified in Tables 3 through 6.

! Training on specific substances may be appropriate depending on the number and characteristics of hazardous substances expected to be encountered. For example, if employees may only respond to one substance, you could provide training (covering the knowledge and skills specified in Tables 3 through 6) on that single substance. If employees might respond to a range of hazardous substances, training may be required to cover categories of hazardous substances.

! Videos and automated training methods (for example: Interactive computer-based programs) may be used in training; however, instructors must be readily available to:

- Encourage and provide responses to questions for the benefit of the group.

- Evaluate employee understanding of the material.

- Provide other instructional interaction to the group.

! Emergency recognition

! Immediate emergency procedures including:

- Methods of alerting employees (see WAC 296-800-310, exit routes and employee alarm systems) and outside responders

- Procedures for limited action (emergency prevention)

Note: *Limited action* includes shutting down processes, closing emergency valves and other critical actions to secure the operation, or prevent the incident from increasing in severity.

Limited Action and Employee Roles	
If ...	Then employees involved would be:
Limited action could be conducted in the danger area	Considered emergency responders
Limited action will not be conducted in the danger area	Considered evacuees, not emergency responders

- Details of who will evacuate immediately and who will remain behind for limited action

- Evacuation routes and procedures

- How to establish safe distances and places of refuge (for example, during emergency response the incident commander (IC) decides to make changes based on new developments, i.e., changes in the wind direction).

- ! Methods of securing and controlling access to the site

- ! Emergency medical treatment and first aid

- ! A complete personal protective equipment (PPE) program that addresses:

- Selection of PPE including selection criteria to be used and the identification, specified use and limitations of the PPE selected.

- Training on proper use of PPE (including maintenance).

- Hazards created by wearing PPE including heat stress during temperature extremes, and/or other appropriate medical considerations.

- Criteria used for determining the proper fit of PPE.

- Procedures covering proper use of PPE including procedures for inspection, putting it on (donning) and removing it (doffing).

- Maintenance of PPE including procedures for decontamination, disposal and storage.

- Methods used to evaluate the effectiveness of your PPE program.

Note: ! If a manufacturer's printed information or WISHA rule adequately addresses procedural requirements (such as donning or doffing for PPE), it is not necessary to rewrite this into your program; simply attach the printed information.

! You may use written procedures provided by the equipment manufacturer when they meet the requirements of other chapters, including chapter 296-842 WAC, Respirators.

- ! Emergency equipment

- ! Emergency response procedures

- ! Decontamination procedures determined by a hazardous materials specialist or other qualified individual

- ! Methods to critically assess the response and conduct appropriate follow-up

You must:

(2) Make your written emergency response plan available to employees, their representatives, and WISHA personnel for inspecting or copying.

Note: In situations where multiple employers could respond to an incident, all plans should consistently address:

- ! Who will be designated as the incident commander (IC)

AND

! If, when, and how transfer of the incident commander (IC) position will take place.

Table 1 Roles and Duties of Emergency Responders	
If the employee's role is:	Then all of the following apply. They:
First responder at the awareness level	<ul style="list-style-type: none"> ! Are likely to witness or discover a hazardous substance release ! Are trained to initiate an emergency response by notifying the proper authorities of the release ! Take no further action beyond notifying the authorities
First responder at the operations level	<ul style="list-style-type: none"> ! Respond to actual or potential releases in order to protect nearby persons, property, and/or the environment from the effects of the release ! Are trained to respond defensively, without trying to stop the release ! May try to: <ul style="list-style-type: none"> - Confine the release from a safe distance - Keep it from spreading - Protect others from hazardous exposures
Hazardous materials technician	<ul style="list-style-type: none"> ! Respond to releases or potential releases, with the intent of stopping the release ! Are trained to approach the point of release offensively in order to, either: <ul style="list-style-type: none"> - Plug - Patch - Stop the release using other methods
Hazardous materials specialist	<ul style="list-style-type: none"> ! Respond along with, and provide support to, hazardous materials technicians ! Are required to have more specific knowledge of hazardous substances than a hazardous materials technician ! Act as the site activity liaison when federal, state, local, and other government authorities participate
Incident commander	<ul style="list-style-type: none"> ! Have ultimate responsibility for: <ul style="list-style-type: none"> - Direction - Control - Coordination of the response effort - Will assume control of the incident beyond the first responder awareness level
Specialist employee	<ul style="list-style-type: none"> ! Are a technical, medical, environmental, or other type of expert ! May represent a hazardous substance manufacturer, shipper, or a government agency ! May be present at the scene or may assist from an off-site location ! Regularly work with specific hazardous substances ! Are trained in the hazards of specific substances

Table 1 Roles and Duties of Emergency Responders	
If the employee's role is:	Then all of the following apply. They:
	<ul style="list-style-type: none"> ! Are expected to give technical advice or assistance to the incident commander or incident safety officer, when requested
Skilled support personnel	<ul style="list-style-type: none"> ! Are needed to perform an immediate, specific emergency support task at the site ! Are skilled in the operation of equipment including: <ul style="list-style-type: none"> - Earth moving equipment - Cranes - Hoisting equipment
Incident safety officer	<ul style="list-style-type: none"> ! Are designated by the incident commander ! Are knowledgeable in operations being implemented at the site ! Have specific responsibility to: <ul style="list-style-type: none"> - Identify and evaluate hazards - Provide direction on employee safety matters

AMENDATORY SECTION (Amending WSR 05-03-093, filed 1/18/05, effective 3/1/05)

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

<p>When postemergency response cleanup is performed by employees who were not part of the initial emergency response and:</p>	<p>The following rules or requirements apply:</p>
<p>It is necessary to remove hazardous substances, health hazards and contaminated materials (example: Soil) from the site</p>	<p>Chapter ((296-62)) 296-843 WAC, ((Part P;)) Hazardous waste operations ((and treatment, storage and disposal facilities)).</p>
<p>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.</p>	<p>For training: ! WAC 296-24-567(1), Employee emergency action plans ! Chapter 296-842 WAC, Respirators ! WAC 296-800-170, Employer chemical hazard communication ! 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.</p>

AMENDATORY SECTION (Amending WSR 06-02-060, filed 1/3/06, effective 4/1/06)

WAC 296-828-20010 Exposure evaluation.

IMPORTANT:

For any of the specific substances listed in Table 2 of the scope of this chapter, you need to follow the exposure evaluation procedures found in the chapters regulating those substances if employee exposure routinely exceeds the AL or PEL. For all other employee exposures follow this section to determine exposure evaluation procedures.

You must:

! Determine if you could have a respiratory hazard as described in chapter 296-841 WAC, Respiratory hazards.

Reference: For additional requirements relating to respiratory hazards, see:
- Chapter 296-841 WAC, Respiratory hazards.
- Chapter 296-842 WAC, Respirators.
- The specific rule for your chemical.

You must:

! Provide written notification of exposure monitoring results to employees represented by your exposure evaluation, within five business days after the results become known to you.

Note: ! You can notify employees either individually or by posting the notification in areas readily accessible to all affected employees.
! Posted notifications may need information that allows affected employees to determine which monitoring results apply to them.
! Notification may be:
- In any written form, such as hand-written or e-mail.
- Limited to the required information, such as exposure monitoring results.

Reference: ! For additional requirements relating to employee exposure records, go to (~~Access to records~~) chapter 296-802 WAC, Employee medical and exposure records.

AMENDATORY SECTION (Amending WSR 06-02-060, filed 1/3/06, effective 4/1/06)

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 ((~~RELS~~)) 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), 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 296-828-20030 Medical evaluations.

IMPORTANT:

For any of the specific substances listed in Table 2 of the scope of this chapter, you need to follow the medical evaluation procedures found in the chapters regulating those substances if employee exposure routinely exceeds the AL or PEL. For all other employee exposures follow this section to determine medical evaluation procedures.

You must:

- (1) Make medical evaluations available when:
 - ! An employee develops signs or symptoms associated with a

hazardous substance from laboratory exposure.

! Any emergency situation that could cause a hazardous exposure, such as a spill, leak, or explosion, occurs.

! A medical provider recommends a follow-up evaluation.

! Exposure monitoring for any of the substances found in Table 2 reveals exposures routinely over the action level (AL) or in the absence of an AL the permissible exposure level (PEL).

(2) Make sure medical evaluations are provided at reasonable times and places, and at no cost to employees.

Note: This includes travel costs and wages associated with any time spent obtaining the medical evaluation.

You must:

! Provide the LHCP the following information before the medical evaluation is performed:

- The name of the hazardous chemicals the employee may have been exposed to.

- Any signs or symptoms of exposure the employee has.

- A description of the conditions under which the exposure occurred.

- The exposure monitoring results for the conditions, if available.

! Obtain the LHCP's written opinion for each medical evaluation that includes the following:

- Recommendations for medical follow-up.

- Any medical conditions found that would increase the employee's risk for impairment from exposure to a hazardous chemical.

- A statement that the employee has been informed of exposure-related medical results and conditions that require further examination or treatment.

- A written opinion that does not contain any medical information unrelated to the employee's occupational exposures.

If the written opinion contains any medical information unrelated to occupational exposures, return it to the LHCP and obtain a revised version without the additional medical information.

Reference: ! For additional requirements relating to employee medical records, go to (~~Access to records~~) chapter 296-802 WAC, Employee medical and exposure records.

AMENDATORY SECTION (Amending WSR 06-02-060, filed 1/3/06, effective 4/1/06)

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.

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 healthcare professional (LHCP)

An individual whose legally permitted scope of practice allows him or her to provide some or all of the healthcare 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.

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.

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).

Select carcinogen

Any substance meeting one of the following criteria:

- Regulated by WISHA as a carcinogen.
- Listed in the "~~((know))~~ 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/m³; **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 (TWA₈)

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 296-835-11035 Prepare dip tanks before cleaning.

You must:

(1) Drain the contents of the tank and open any cleanout doors.

(2) Ventilate the tank to clear any accumulated hazardous vapors.

Reference: There may be requirements that apply before an employee enters a dip tank. See (~~Permit-required confined spaces, WAC 296-62-141 and safety procedures, chapter 296-24 WAC, Part A-4~~) chapter 296-809 WAC, Confined spaces.

AMENDATORY SECTION (Amending WSR 02-15-102, filed 7/17/02, effective 10/1/02)

WAC 296-835-12015 Provide bottom drains.

Exemption: A bottom drain is not required if:

- The viscosity of the liquid makes it impractical to empty the tank by gravity or pumping

OR

- The dip tank has an automatic closing cover that meets the requirements of WAC (~~296-835-12030~~) 296-835-12025.

You must:

! Provide a bottom drain on all dip tanks that hold more than five hundred gallons of liquid.

! Make sure the bottom drain:

- Is properly trapped

- Will empty the dip tank during a fire

- Has pipes large enough to empty the tank within five minutes

- Uses automatic pumps if gravity draining is not practical

- Is capable of both manual and automatic operation

- Discharges to a safe location.

Note: Discharges to a safe location could be a:

- Safe location outside the building

OR

- Closed, properly vented salvage tank or tanks that can hold more than the dip tank.

You must:

! Make sure manual operation of the bottom drain is performed from a safe and easily accessible location.

WAC 296-835-12025 Provide additional fire protection for large dip tanks.

You must:

! Provide at least one automatic fire extinguishing system or an automatic dip tank cover if the tank:

- Holds one hundred fifty gallons or more of liquid

OR

- Has four square feet or more of liquid surface area.

! Make sure automatic fire extinguishing systems or automatic dip tank covers meet the requirements of Table 1.

Exemption: An automatic fire extinguishing system or an automatic dip tank cover is **not** required for a hardening or tempering tank that:

! Holds less than five hundred gallons

OR

! Has less than twenty-five square feet of liquid surface area.

Table 1: Automatic Fire Protection System Requirements

IF YOU PROVIDE:	THEN YOU MUST:
An automatic fire extinguishing system	! Use extinguishing materials suitable for a fire fueled by the liquid in the tank ! Make sure the system protects the: - Tanks - Drain boards - Stock over drain boards.
A dip tank cover	! Make sure the cover is: - Closed by approved automatic devices in the event of fire - Able to be manually activated - Kept closed when the tank is not being used - Made of noncombustible material or ((metal) <u>tin</u> -clad material with locked metal joints.

Reference: Automatic fire extinguishing systems have specific requirements. See:

- WAC 296-24-622 for automatic dry chemical extinguishing system requirements
- WAC 296-24-623 for automatic carbon dioxide extinguishing system requirements
- WAC 296-24-627 for automatic water spray extinguishing

system and automatic foam extinguishing system requirements.

AMENDATORY SECTION (Amending WSR 04-02-053, filed 1/5/04, effective 5/1/04)

WAC 296-843-12005 Develop and maintain a written site-specific health and safety plan (HASP).

Reference: If your overall program required under WAC 296-800-140, Accident prevention program (APP), meets requirements of this chapter, you do not need to duplicate those portions of your APP in the site-specific health and safety plan (HASP).

You must:

! Develop a written HASP for each hazardous waste site, **BEFORE** beginning hazardous waste operations, that includes at least the following:

Hazard analysis:

- Identification and evaluation of on-site safety and health hazards.
- A safety and health risk (hazard) analysis for each site task and operation that is identified in the comprehensive work plan.

Organization chart:

- An organizational structure that reflects current site operations, including the following:
 - # Establish and identify the chain of command.
 - # Identify the site safety and health supervisor and other personnel responsible for employee safety and health.
 - # Specify the overall responsibilities of supervisors and employees.
 - # Include the name and title of the person with responsibility and authority to direct all hazardous waste operations.
 - # Include a site safety and health supervisor responsible for developing and implementing the HASP and verifying compliance.
 - # Identify the functions and responsibilities of all personnel needed for hazardous waste operations and emergency response.
 - # Identify site specific lines of authority, responsibility, and communication.

Comprehensive work plan:

- A written comprehensive work plan of tasks, objectives, logistics, and resources for site operations, including the following:
 - # Addresses anticipated clean-up activities and normal operating procedures unless that information is already available in another document.
 - # Defines work tasks and objectives.
 - # Describes how the work tasks and objectives will be accomplished.
 - # Establishes the personnel requirements to implement the work plan.
 - # Provides for implementation of training, briefings, and information as required by WAC 296-843-200.

Site control plan:

- An up-to-date site control plan before clean-up operations begin to minimize employee exposure to hazardous substances and including the following (unless it's available in another document):

- # A site map.
- # Establish site work zones.
- # How the "buddy system" is used.
- # The site communications plan, including how employees are alerted during emergencies.
- # The site's standard operating procedures (SOPs) or safe work practices.
- # Identification of the nearest medical assistance.

Personal protective equipment:

- A PPE plan that addresses all of the following:
 - # Site hazards and activities.
 - # Methods to evaluate the effectiveness of the PPE plan.
 - # Criteria for selecting and fitting PPE, including work duration, use limitations of particular PPE, and medical considerations such as temperature extremes and heat stress.
 - # Training on PPE use.
 - # Procedures for putting on and taking off PPE.
 - # PPE inspection procedures prior to, during, and after use.
 - # Decontamination and disposal of PPE.
 - # Maintenance and storage of PPE.

Additional elements:

- A sampling and monitoring plan (see WAC 296-843-130) that includes sampling of drums and containers.
- Site control measures (see WAC 296-843-140).
- Decontamination procedures (see WAC 296-843-150).
- Spill containment plans (see WAC 296-843-180, Drum and container handling).
- Standard operating procedures for sampling, managing, and handling drums and containers (see WAC 296-843-180).
- Entry procedures for tanks or vaults (see ~~((WAC 296-62-141))~~ chapter 296-809 WAC, Confined spaces).
- A training, briefings, and information plan (see WAC 296-843-200).
- A medical surveillance plan (see WAC 296-843-210), that includes site-specific medical surveillance requirements.
- Sanitation (see WAC 296-155-140).
- Lighting (see WAC 296-800-210).
- Excavations (see chapter 296-155 WAC, Part N, Excavation, trenching and shoring).
- Any relationship or interaction between other programs and the site-specific program.

Note: The emergency response plan required by WAC 296-843-160, Emergency response for hazardous waste sites, is also included as a separate section in the HASP.

You must:

! Keep a copy of your HASP on site.

Reference: For more information, see WAC 296-843-220, Recordkeeping and information access.

AMENDATORY SECTION (Amending WSR 05-13-152, filed 6/21/05, effective 8/1/05)

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.

If employees do any of the following:	Then the only requirements in this chapter that apply to those tasks are:
Perform tasks around sealed transport pipelines carrying gasoline, crude oil, or other liquids containing more than 0.1% benzene.	<p>! This requirement found in Training, WAC 296-849-11050:</p> <ul style="list-style-type: none"> - Make sure training and information includes specific information on benzene for each hazard communication training topic. For the list of hazard communication training 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.
Work with, or around, sealed containers of liquids containing more than 0.1% benzene.	<p>! Emergency requirements found in Medical evaluations, WAC 296-849-12030.</p> <p>! Requirements found in Medical records, WAC 296-849-12080.</p> <p>! Respirator requirements found in Respirators, WAC 296-849-13045.</p>

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 (**TWA₈**)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 ((296-849-12005)) <u>296-849-12010</u> through 296-849-12080; AND ! 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 02-17-106, filed 8/21/02, effective 10/1/02)

WAC 296-860-100 Scope.

IMPORTANT:

This chapter applies to all railroad clearances and walkways in rail yards and plants including logging railroad yards such as mill yards, maintenance yards and sorting yards.

If you are uncertain about which WISHA requirements to follow, you must comply with those that best protect employees' safety and health. Contact your local L&I office if you need assistance in making this decision.

Exemptions:

! These exemptions apply to chapter 296-860 WAC, Railroad clearances and walkways in private rail yards and plants, and do not require a department variance:

- You may move the following equipment, using less than the minimum standard clearances, if the situation is unavoidable and you have taken all reasonable steps to protect your employees:

Track construction or maintenance materials

Special work equipment used for railroad construction, maintenance or operations

Any railroad equipment during emergencies.

- You may have overhead or side clearances less than the minimum standard clearances required in this chapter if they were legally created before April 3, 1961.

Note: If a building, structure, or facility constructed before April 3, 1961, is relocated or reconstructed, the clearance requirements in this chapter apply unless the department grants a variance.

- Tracks built before April 3, 1961:

May be extended according to the legal track clearance requirements in effect when they were originally constructed

Are exempt from the track clearance requirements in WAC ((~~296-860-10050~~)) 296-860-20060, Table 5.

- Chapter 296-54 WAC, Safety standards--Logging operations, regulates all logging railroads or any rail operations related to logging, except for yard clearances.

Other rules that may apply to your workplace

The *WISHA Safety & Health Core Rules* book, chapter 296-800 WAC, contains the basic requirements that apply to employers in Washington. It also contains:

! An introduction that lists important information you should know, including a section on building, fire and electrical codes

! A resource section that includes a complete list of all WISHA rules

Other WISHA rules may apply to you, depending upon the activities and operations of your workplace. Contact your local L&I office if you are uncertain about which WISHA requirements pertain to you.

! To access the *Safety & Health Core Rules* book online:
<http://www.lni.wa.gov/wisha/corerules/default.htm>

! For a CD or paper copy contact us:

Labor and Industries

P.O. Box 44620

Olympia, WA 98504-4620

Telephone: 1-800-4be-safe (1-800-423-7233)

AMENDATORY SECTION (Amending WSR 02-17-106, filed 8/21/02, effective 10/1/02)

WAC 296-860-20020 Construct and maintain rail yard walkways for employee safety.

Important:

! You have two years from October 01, 2002, (the effective date of this rule), to comply with the construction requirements of this section, unless the department determines during an inspection that your walkways create a serious safety hazard.

! If you are not sure a serious safety hazard exists in your workplace, you can request a free consultation from the department by calling your local L&I office.

Construction of walkways

You must:

! Build walkways in rail yard areas where employees regularly work on the ground.

! Construct rail yard walkways that can be maintained in a safe condition:

- With reasonably smooth walking surfaces
- That will not interfere with track drainage.

! Use any of the following materials when constructing your walkway:

- Crushed material that does not exceed 1 1/2 inches in size. For this rule, "1 1/2 inches in size" means one of the following (percentages refer to weight measurement and sieve size standard in the industry):

Percentage of material passing through a sieve opening	Sieve opening size
100	1 1/2 inch square
90 - 100	1 inch square
40 - 80	3/4 inch square
15 - 60	1/2 inch square
0 - 30	3/8 inch square

Percentage of material passing through a sieve opening	Sieve opening size
0 - 10	#4
0 - 5	#8
0 - 0.5	#200

Smaller crushed material is preferred and should be used where drainage and durability is not an issue. Crushed material that is 3/4 inch or less in size is recommended for switching leads in yards.

! Asphalt, concrete, planking, grating, or other similar material.

! Natural materials such as gravel or dirt.

You must:

! Construct walkways wide enough for employees to safely perform their duties

! Construct walkways with a grade or slope in any direction with not more than one inch of elevation for each eight inches of horizontal length, unless it is geographically impractical.

Maintenance of walkways

You must:

! Keep all walkways clear of vegetation, debris, mud, or other obstructions that create a potential hazard for employees.

! Remove all standing water from all walkways as soon as reasonably possible.

! Reopen walkways temporarily closed for a construction project within thirty days after the project is completed.

You must:

! Repair walkways that have been damaged and temporarily closed because of an emergency within thirty days after the emergency ends.

Definition:

Emergency: Any unforeseen occurrence endangering life, limb, or property.

! Obtain a department variance before permanently removing any bridge or trestle walkway from use after October 1, 2002 (the effective date of this rule).

Note: The requirements for filing a variance are located in the Safety and health core rules(7) and chapter ((296-350)) 296-900 WAC, ((and WISHA appeals, penalties, and other procedural)) Administrative rules.

WAC 296-860-20040 Maintain overhead clearances.

Exemption:

Engine houses and car shops are exempt from the overhead clearance requirements of this section.

You must:

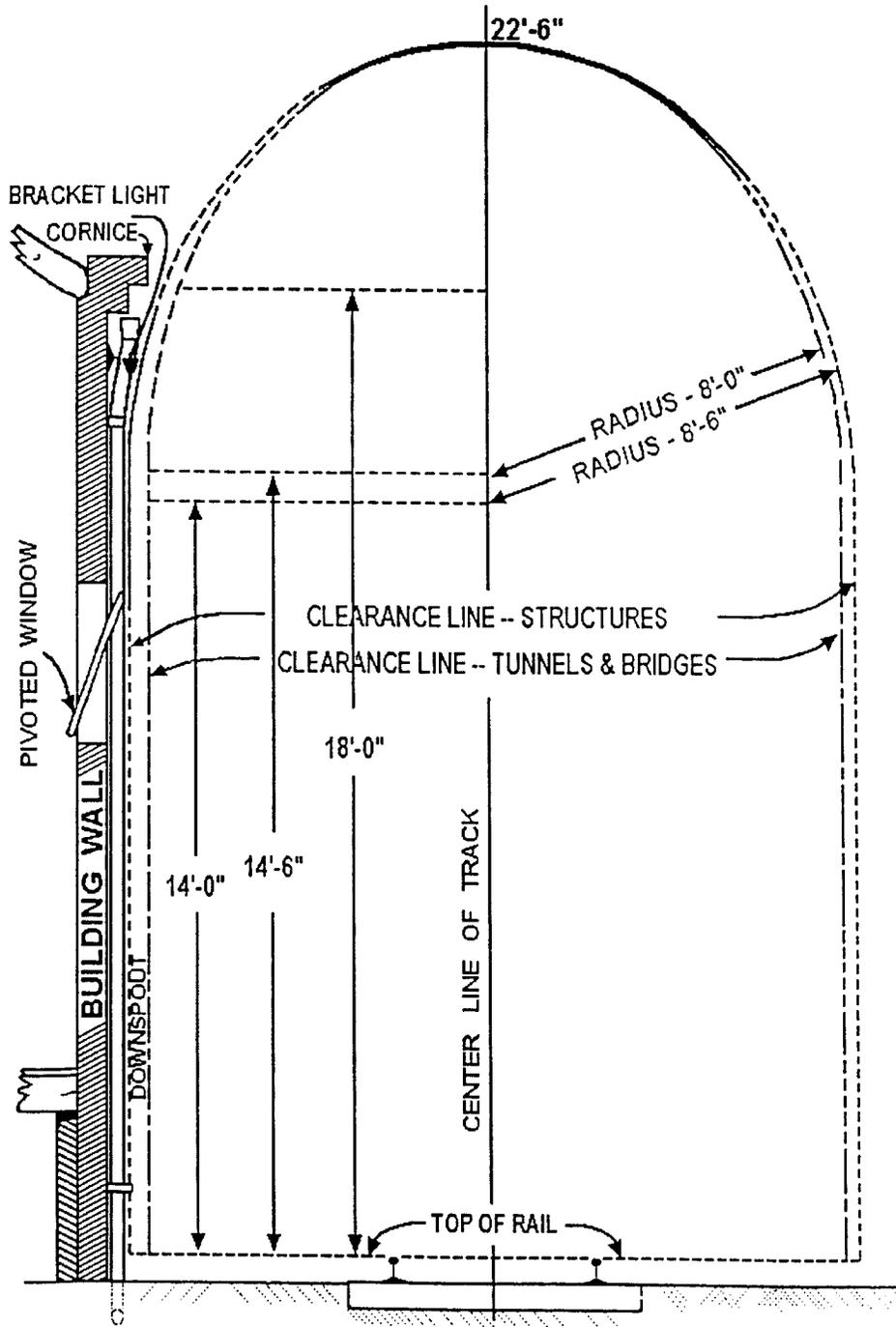
! Make sure overhead railroad clearances are at least twenty-two feet six inches unless a clearance requirement found in Table 1 applies.

Note: ! Clearance requirements are based on the assumption that generally used rail equipment in private yards and plants is no more than ten feet ten inches wide by fifteen feet six inches high.
 ! WAC ((~~296-860-10060~~) 296-860-20070) regulates the use of any rail equipment that exceeds the above dimensions.
 ! Minimum vertical clearances for all overhead wires are specified in Parts 1, 2, and 3 of the National Electrical Safety Code (NESC) as referenced in WAC 296-45-045, electrical workers safety rules, NESC applicable. See NESC 231 and 232.

Table 1 - Minimum Overhead Clearances for Buildings, Structures, Tunnels, and Bridges

If your overhead clearance involves:	Then the minimum overhead clearance requirements are:
An entirely enclosed building	18 feet when tracks end inside an entirely enclosed building. Also: ! The department must approve any reduction from 22 feet 6 inches before the reduction takes place. ! If an overhead clearance is less than 22 feet 6 inches, all cars, locomotives or other equipment must come to a full stop before entering the building. ! See Illustration 1.
All other structures	Defined by the half-circumference of a circle whose: ! Radius is 8 feet 6 inches AND ! Center is located on a line perpendicular to the track's centerline and 14 feet above the top of the highest rail. ! See Illustration 1.
Tunnels, over-crossings, and bridges	Defined by the half-circumference of a circle whose: ! Radius is 8 feet AND ! Center is located on a line perpendicular to the track's centerline and 14 feet 6 inches above the top of the highest rail. ! See Illustration 1.

Illustration 1 - Minimum Overhead Clearances for Buildings, Structures, Tunnels, and Bridges



WAC 296-860-20050 Maintain side clearances.

You must:

! Make sure side clearances are at least eight feet six inches from the track centerline unless clearance requirements found in Tables 2, 3, or 4 apply.

Note: All side clearances in Tables 2, 3, and 4 that reference "the track centerline" are based on the assumption that private rail operations generally use track that is standard gauge width (4 feet 8 1/2 inches).

Table 2 - Minimum Side Clearance for Platforms

If Your Platform Type is:	Then the Minimum Clearance Requirements Between the Track Centerline and a Platform Edge are:
Type 1 Platforms with heights of 8 inches or less above the top of the rail.	4 feet 8 inches See Illustration 2.
Type 2 Platforms with heights of 4 feet or less above the top of the rail.	7 feet 3 inches See Illustration 2.
Type 3 Platforms with heights of 4 feet 6 inches or less above the top of the rail and the platforms are used primarily for loading and/or unloading refrigerator cars.	8 feet See Illustration 2.
Type 4 Icing platforms and supports.	7 feet 3 inches See Illustration 2.
Type 5 Retractable platforms attached to permanent structures.	When not in use, use the clearance requirements for a platform of its height.
Type 6 Platforms that are a combination of Types 1 through 3. (Only Types 1 through 3 platforms can be combined.)	Platforms may be combined if the Type 1 platform has a level surface no more than 4 feet 8 inches from the track centerline to the face of the platform wall with which it is combined.

Illustration 2 - Minimum Side Clearances for Platforms

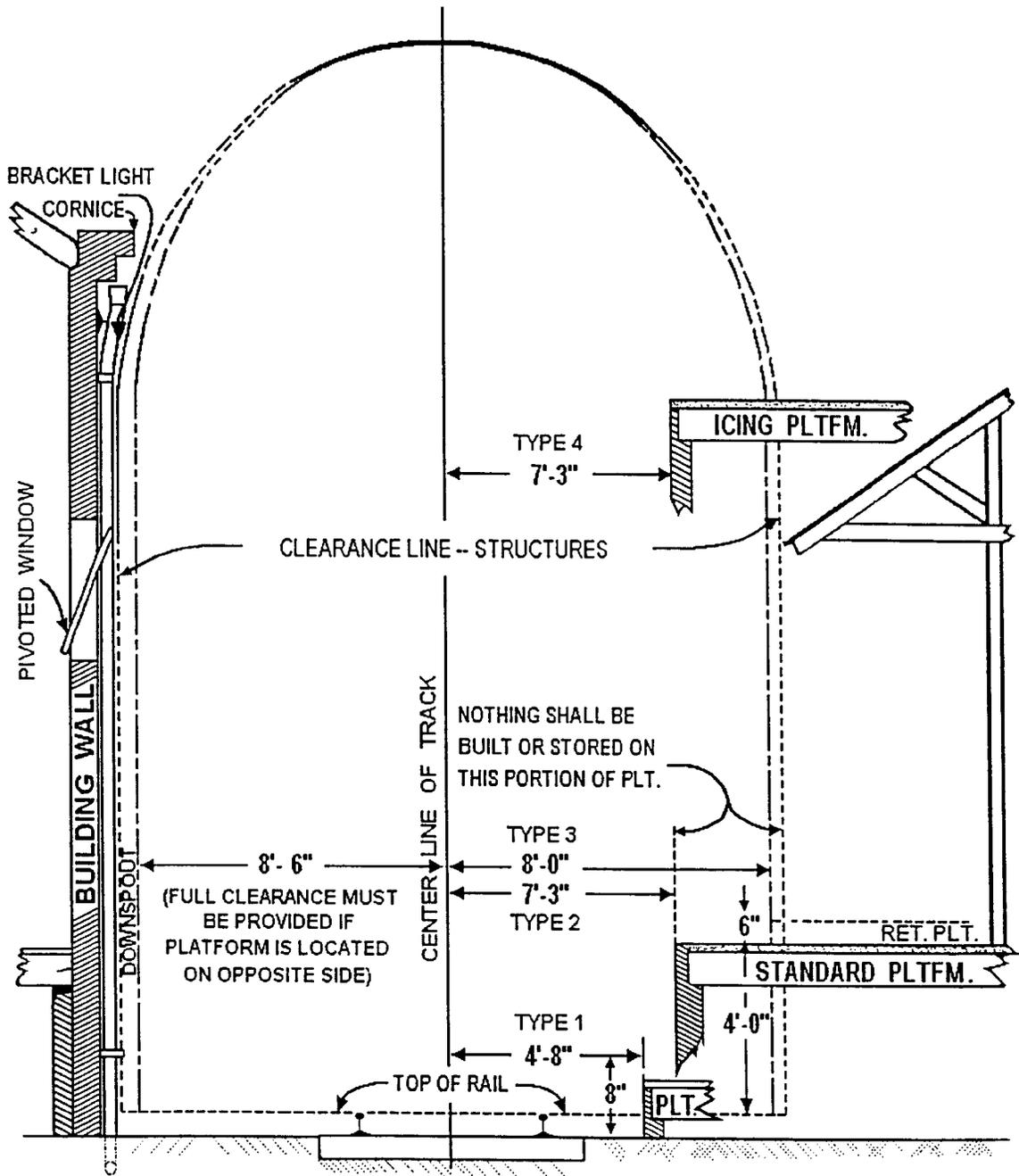


Table 3 - Minimum Side Clearances for Bridges, Tunnels and Related Structures

- Exemption:** ! Except for handrail and water barrel clearances, the clearance requirements in Table 3 do not apply to bridge decks where railroad employees couple or uncouple cars on a switching lead unless the department approves them.
- Note:** ! The requirements for filing a variance are located in the Safety and health core rules(§) and chapter ((296-350)) 296-900 WAC, ((and WISHA appeals, penalties and other procedural)) Administrative rules.

If your side clearance requirement involves:	Then the minimum side clearance requirements between the track centerline and the bridge, tunnel or related structure are:
Bridge and tunnel sides - lower section	8 feet
Bridge and tunnel sides - upper section	Defined by the half-circumference of a circle whose: <ul style="list-style-type: none"> ! Radius is 8 feet <li style="text-align: center;">AND ! Center is located on a line perpendicular to the track's centerline and 14 feet 6 inches above the top of the highest rail. ! See Illustration 3.
Related structures on bridges and in tunnels - lower section structures (or portions of them) that are no more than 4 feet above the top of the rail. For example: <ul style="list-style-type: none"> ! Refuge platforms on bridges and trestles. ! Water columns, oil columns, and block signals. ! Cattle chutes. 	Defined by lines extending: <ul style="list-style-type: none"> ! 5 feet laterally from the track centerline to a point level with the top of the rail and then diagonally upward to another point 4 feet above the top of the rail <li style="text-align: center;">AND ! 8 feet laterally from the track centerline to a point 4 feet above the top of the rail. ! See Illustration 3A. The shaded portion of the illustration designates the area that must be free of refuge platforms, water columns, oil columns, block signals and cattle chutes.
Hand rails and water barrels	7 feet 6 inches
Fences of cattle guards	6 feet 9 inches

Illustration 3 - Minimum Side Clearances for Bridges, Tunnels and Related structures

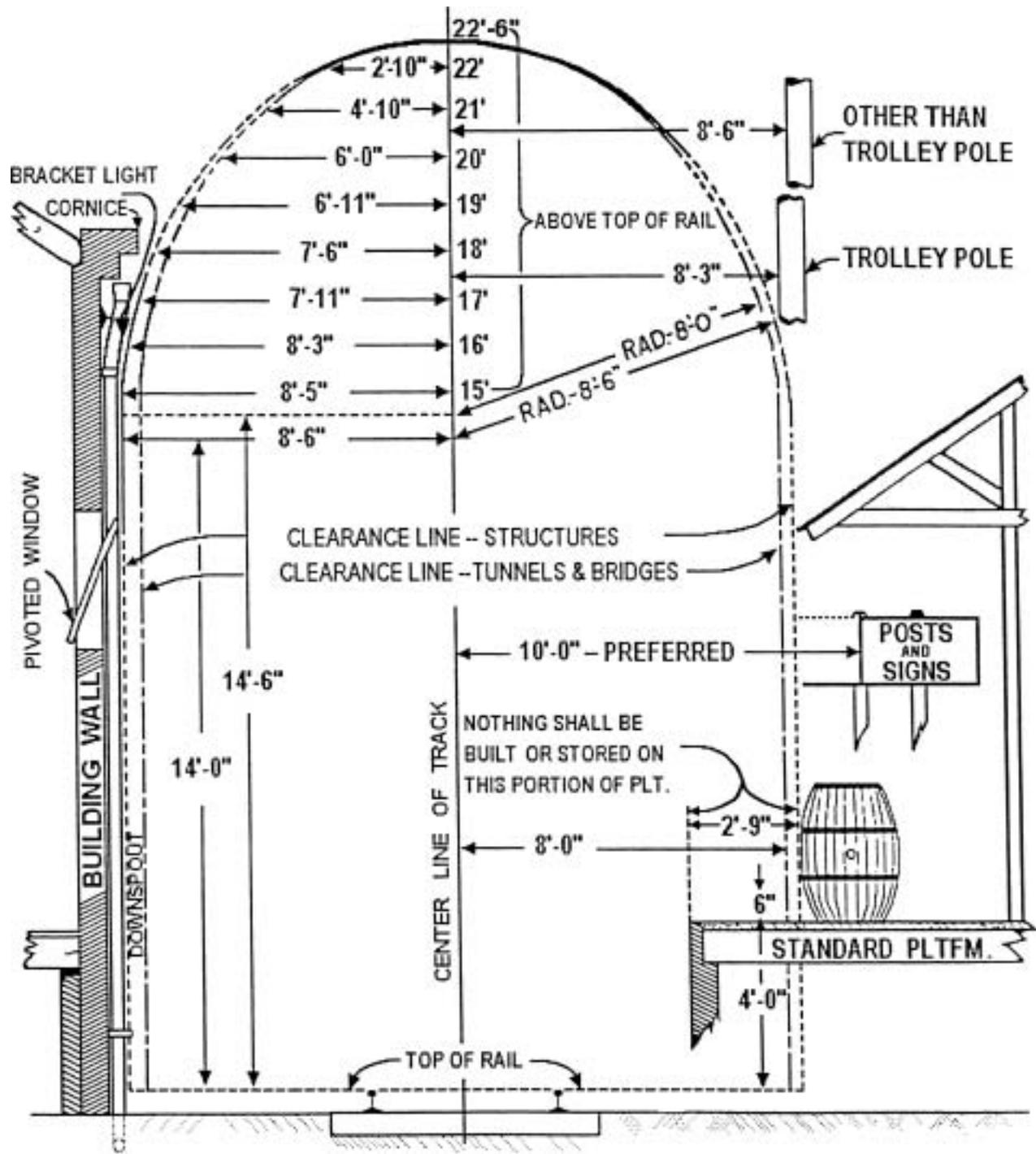


Illustration 3A - Minimum Side Clearance for Certain Structures in or on the Lower Sections of Bridges and Tunnels

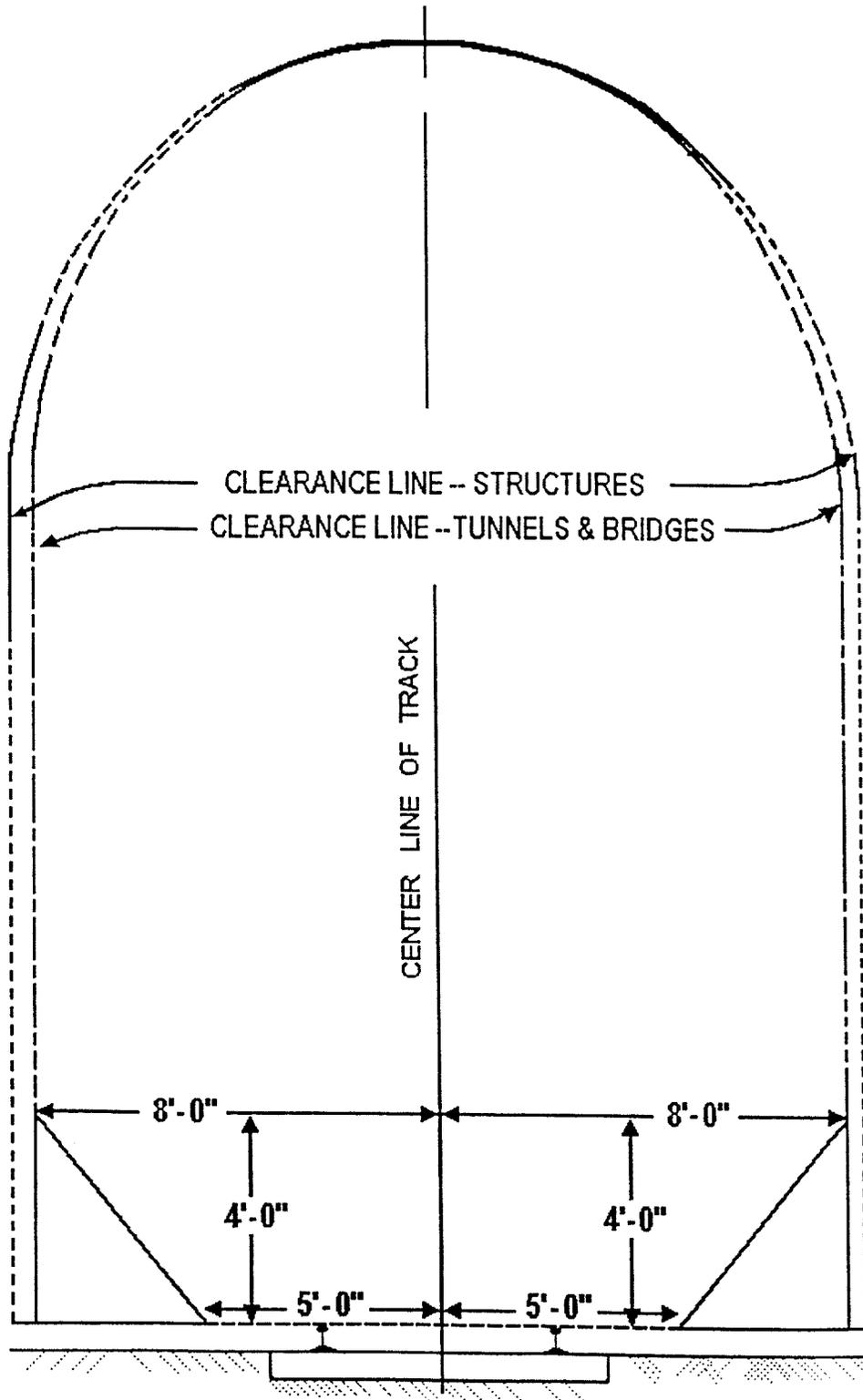


Table 4 - Other Minimum Side Clearance Requirements*

Note: ! The department must approve all minimum clearances for car pulling units and related structures.
! The requirements for filing a variance are located in the Safety and health core rules((:)) and chapter ((296-350)) 296-900 WAC, ((and the WISHA appeals, penalties and other procedural)) Administrative rules.

If your side clearance requirement involves:	Then the minimum side clearance requirements from the track centerline are:
Type A Engine house and car repair shop doors.	7 feet 6 inches
Type B Interlocking mechanism, switch boxes, and other similar devices projecting no more than 4 feet above the top of the rail.	3 feet
Type C Poles supporting trolley contact.	8 feet 3 inches
Type D Signals and switch stands no more than 3 feet high and located between tracks where it is not possible to allow other clearances required in this chapter.	6 feet
Type E Signals and switch stands other than those described in Type B and Type D.	8 feet
Type F Material, merchandise, inventory, storage bins or equipment stacked or stored on ground or platforms adjacent to tracks.	8 feet 6 inches Note: This requirement does not apply to: ! Railroad maintenance operations ! Emergency situations ! Local conditions that make compliance impossible.
Type G Space adjacent to curved track.	Increased to equal tangent track clearances. As a general rule, side clearances on curved track should be increased 1-1/2" for each degree of curvature.

*Table 4 does not have an accompanying illustration.

AMENDATORY SECTION (Amending WSR 04-19-051, filed 9/14/04, effective 2/1/05)

WAC 296-863-20025 Provide fall protection on order pickers.

You must:

- ! Make sure order pickers have either:
 - Standard guardrails on all open sides;

OR

- A safety harness and lanyard that are connected to a tie off point that has been approved by the PIT manufacturer.

! Make sure personal fall arrest equipment meets the requirements of WAC ((~~296-24-87035~~)) 296-24-88050, Appendix C-- Personal fall arrest systems.

AMENDATORY SECTION (Amending WSR 04-19-051, filed 9/14/04, effective 2/1/05)

WAC 296-863-30020 Maintain your PITs properly.

You must:

! Maintain PITs according to this chapter and the ((~~manufacturer's~~)) manufacturer's instructions.

! Keep PITs:

- Clean.
- Free of excess lint, oil, and grease.

! Take appropriate precautions to protect employees from the hazards associated with the cleaning agents or solvents used.

- Precautions could include methods such as ventilation.

! Make sure solvents used for cleaning PITs have a flash point of 100° Fahrenheit or more.

AMENDATORY SECTION (Amending WSR 04-19-051, filed 9/14/04, effective 2/1/05)

WAC 296-863-50005 Use the appropriate PITs in hazardous (classified) locations.

You must:

! Make sure PITS are used in hazardous (classified) locations as follows:

- PITS authorized to be used in Class 1 locations are shown in Table 1, Approved PIT Use in Class 1 Locations.

- PITS authorized to be used in Class 2 locations are shown in Table 2, Approved PIT Use in Class 2 Locations.

- PITS authorized to be used in Class 3 locations are shown in Table 3, Approved PIT Use in Class 3 Locations.

! PITS authorized to be used in unclassified locations are:

- Approved PITS designated as Type D, E, G, or LP;

AND

- PITs that meet the requirements of a Type D, E, G, or LP PIT.

Definitions:

! An unclassified location is an area that is not designated as a Class 1, 2, or 3 location.

! 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.

Note:

! Tables 1, 2, and 3 show the type of approved PITs that can be used in the appropriate divisions and groups.

! PITS cannot be used in divisions and groups that do not have a PIT designation listed.

! Approved PITs will be marked or labeled with the designation of the PIT. See WAC 296-863-20010, Make sure PITs are properly labeled.

Table 1
Approved PIT Use in Class 1 Locations

Class 1							
Locations in which flammable gases or vapors are, or may be, present in the air in quantities sufficient to produce explosive or ignitable mixtures.							
Division 1				Division 2			
Conditions exist continuously, intermittently, or periodically under normal operating conditions.				Conditions may occur ((due to)) accidentally, for example, due to a puncture of a storage drum.			
<u>Group A</u>	<u>Group B</u>	<u>Group C</u>	<u>Group D</u>	<u>Group A</u>	<u>Group B</u>	<u>Group C</u>	<u>Group D</u>
Acetylene	Hydrogen	Ethyl ether	Acetone Alcohols Benzene Gasoline Lacquer solvent	Acetylene	Hydrogen	Ethyl ether	Acetone Alcohols Benzene Gasoline Lacquer solvent
No PIT type can be used	No PIT type can be used	No PIT type can be used	Use this PIT type: EX	No PIT type can be used	No PIT type can be used	No PIT type can be used	Use this PIT type: DS DY ES EE EX GS LPS

Table 2
Approved PIT Use in Class 2 Locations

Class 2					
Locations which are hazardous because of the presence of combustibile dust.					
Division 1			Division 2		
Explosive mixture may be present under normal operating conditions, or where failure of equipment may cause the condition to exist simultaneously with arcing or sparking of electrical equipment, or where dusts of an electrically conducting nature may be present.			Explosive mixture not normally present, but where deposits of dust may cause heat rise in electrical equipment, or where such deposits may be ignited by arcs or sparks from electrical equipment.		
<u>Group E</u>	<u>Group F</u>	<u>Group G</u>	<u>Group E</u>	<u>Group F</u>	<u>Group G</u>
Metal dust	Carbon black Coal dust Coke dust	Grain dust Flour dust Starch dust Organic dust	Metal dust	Carbon black Coal dust Coke dust	Grain dust Flour dust Starch dust Organic dust
No PIT type can be used	Use this PIT type: EX	Use this PIT type: EX	No PIT type can be used	Use this PIT type: EX DY EE	Use this PIT type: DS DY ES EE EX GS LPS

Table 3

Approved PIT Use in Class 3 Locations

Class 3	
Locations where easily ignitable fibers or flyings are present but not likely to be in suspension in quantities sufficient to produce ignitable mixtures.	
Division 1	Division 2
Locations in which easily ignitable fibers or materials producing combustible flyings are handled, manufactured, or used.	Locations in which easily ignitable fibers are stored or handled (except in the process of manufacture).
Use this PIT type: DY EE EX	Use this PIT type: DS DY E ES EE EX GS LPS

AMENDATORY SECTION (Amending WSR 04-19-051, filed 9/14/04, effective 2/1/05)

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 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 ignitable fibers are suspended in the air but are not in large enough quantities to produce ignitable 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 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.

Flashpoint means the minimum temperature at which a liquid gives off enough vapor to ignite.

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 (~~reporting~~) 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.

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.

NEW SECTION

The following section of the Washington Administrative Code is decodified as follows:

Old WAC Number	New WAC Number
296-863-10005	296-863-100

AMENDATORY SECTION (Amending WSR 05-01-054, filed 12/7/04, effective 3/1/05)

WAC 296-874-20052 Provide fall protection for employees on scaffolds.

You must:

! Protect each employee on a scaffold more than ten feet (3.1 m) above a lower level, from falling to the lower level, by providing either:

- A personal fall ((~~arrest~~) restraint) system;
- OR
- Guardrails.

REFERENCE		
Fall protection requirements for employees:	Are located in the following chapters:	In the following sections:
On walkways within scaffolds	Chapter 296-874 WAC, Scaffolds	WAC 296-874-20056
Erecting or dismantling supported scaffolds	Chapter 296-874 WAC, Scaffolds	WAC 296-874-40010
Erecting or dismantling suspended scaffolds in general industry	Chapter 296-24 WAC, General safety and health standards	Part J-1 Working surfaces, guarding floors and wall openings, ladders AND Part J-3 Powered platforms
Erecting or dismantling suspended scaffolds in construction work	Chapter 296-155 WAC, Safety standards for construction work	Part C-1 Fall restraint and fall arrest AND Part K Floor openings, wall openings, and stairways

You must:

! Make sure employees erecting the scaffold install the guardrail system, if required, before the scaffold is used by any other employees.

AMENDATORY SECTION (Amending WSR 05-01-054, filed 12/7/04, effective 3/1/05)

WAC 296-874-40004 Prevent supported scaffolds from tipping.

You must:

! Make sure supported scaffolds with a height to least base

dimension ratio of greater than four to one are prevented from tipping by one or more of the following:

- Guying;
- Tying;
- Bracing;
- Other equivalent means.

Note: The least base dimension includes outriggers, if used.

You must:

! Install guys, ties, and braces where horizontal members support both the inner and outer legs of the scaffold.

! Install guys, ties, and braces:

- According to the scaffold manufacturer's recommendations;

OR

- At all points where the following horizontal and vertical planes meet:

First vertical level at a height equal to four times the least base dimension;

Subsequent vertical levels every:

◆ Twenty feet (6.1 m) or less for scaffolds having a width of three feet (0.91 m) or less;

◆ Twenty six feet (7.9 m) or less for scaffolds more than three feet (0.91 m) wide;

Horizontally at:

◆ Each end of the scaffold;

AND

◆ Intervals of thirty feet (9.1 m) or less.

Note: The thirty-foot horizontal intervals are measured from one end of the scaffold to the other.

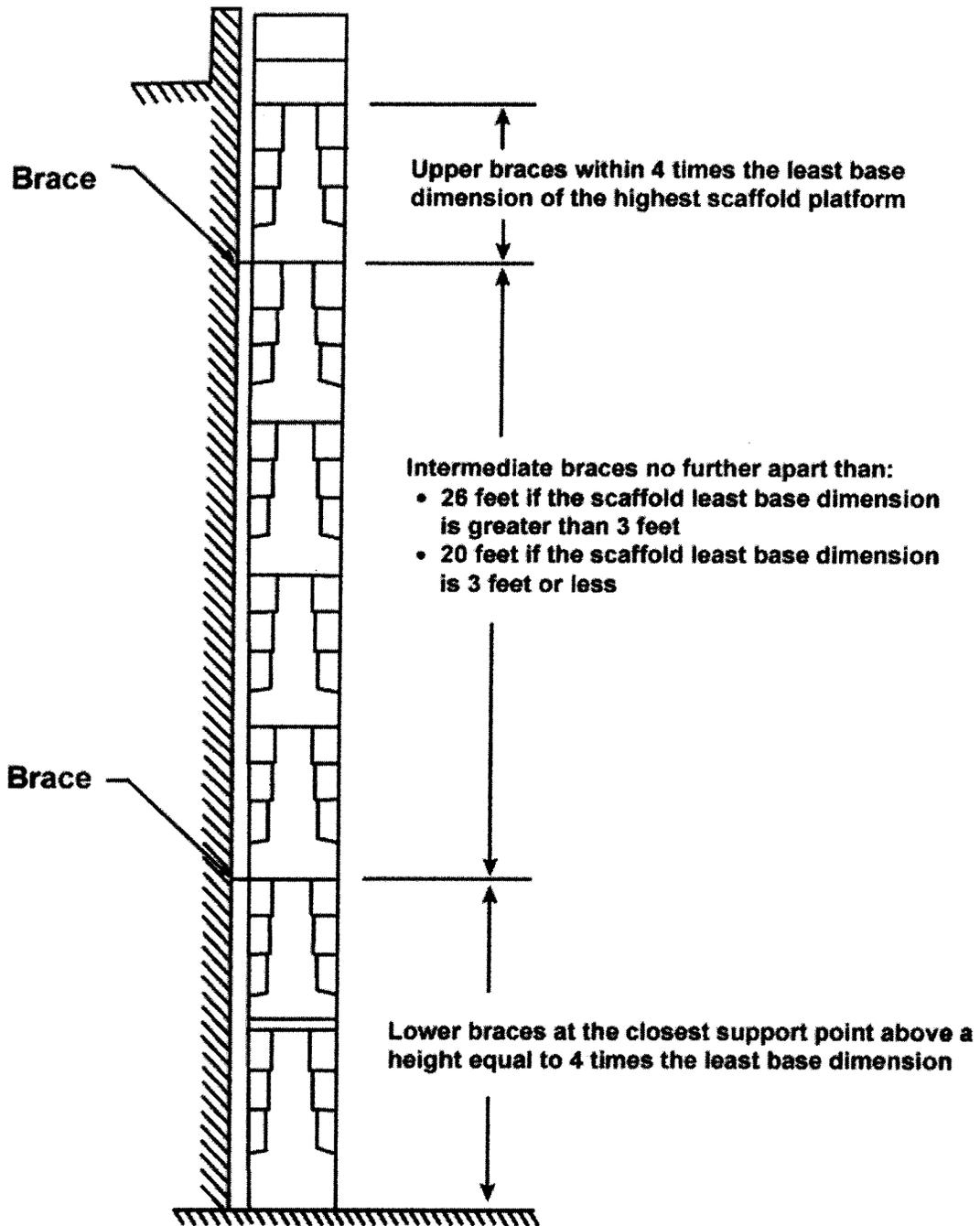
You must:

! Make sure the highest level of guys, ties, or braces is no further from the top of the scaffold than a distance equal to four times the least base dimension.

! Make sure scaffolds that have an eccentric load applied or transmitted to them, such as a cantilevered work platform, are prevented from tipping by one or more of the following:

- Guying;
- Tying;
- Bracing;
- Outriggers;
- Other equivalent means.

Bracing – Tube and Coupler Scaffold



WAC 296-874-40006 Make sure supported scaffolds are properly supported.

You must:

! Make sure supported scaffold poles, legs, posts, frames, and uprights are:

- Plumb;

AND

- Braced to prevent swaying or displacement.

! Make sure supported scaffold poles, legs, posts, frames, and uprights, bear on base plates that rest on:

- Mudsills;

OR

- Other firm foundations such as concrete or dry, compacted soil.

! Make sure foundations are all of the following:

- Level;
- Sound;
- Rigid;
- Capable of supporting the loaded scaffold without settling or displacement.

Note: The condition of the foundation may change due to weather or other factors. If changes occur, the foundation needs to be evaluated by a competent person to make sure it will safely support the scaffold.

! Make sure unstable objects are not used:

- To support scaffolds or platform units;

OR

- As working platforms.

! Make sure mobile scaffolds meet these additional requirements:

- Wheel and caster stems are pinned or otherwise secured in the scaffold legs or adjustment screws;
- Wheels and casters are locked, or equivalent means are used, to prevent movement when the scaffold is being used;
- Screw jacks or other equivalent means are used if it's necessary to level the work platform.

! Make sure front-end loaders and similar equipment used to support scaffold platforms have been specifically designed for such use by the manufacturer.

~~((Reference: For requirements about powered industrial trucks, including forklifts that are used to support scaffold platforms, go to Powered industrial trucks, chapter 296-863 WAC.))~~

AMENDATORY SECTION (Amending WSR 02-22-027, filed 10/28/02, effective 1/1/03)

WAC 296-878-10005 Summary.

Your responsibility:

Make sure workers clean windows safely, and properly use and maintain their window-cleaning equipment.

IMPORTANT:

Window-cleaning equipment includes window-cleaner's belts, boatswains' chairs, rope descent systems, ladders, supported scaffolds and the support equipment used to suspend employees cleaning windows.

You must:

Training

Train workers to use window-cleaning equipment

WAC 296-878-11005

Building surfaces and fixtures

Make sure building surfaces and fixtures are safe to use

WAC 296-878-12005

Inspection procedures

Inspect the area to be cleaned

WAC 296-878-13005

Inspect window-cleaning equipment before use

WAC 296-878-13010

Develop site-specific service and emergency plans

Develop a site-specific service and emergency recovery plan for window-cleaning operations

WAC 296-878-14005

Equipment

Select and use appropriate equipment

WAC 296-878-15005

~~((Other window-cleaning equipment~~

~~WAC 296-878-15010))~~

Select appropriate rope for suspended equipment

WAC 296-878-15015

Select appropriate carabiners

WAC 296-878-15020

Use fall protection equipment

WAC 296-878-15025

Warning signs and barricades

Provide warning signs and barricades when suspended equipment is used

WAC 296-878-16005

Power line clearances

Maintain clearance between window cleaners and power lines

WAC 296-878-17005

Window-cleaners' belts and anchors

Select appropriate window-cleaners' belts and anchors

WAC 296-878-18005

Inspect the anchors you plan to use for window cleaning

WAC 296-878-18010

Use window-cleaners' belts safely

WAC 296-878-18015

Move safely on the outside of buildings

WAC 296-878-18020

Boatswains' chairs

Select appropriate boatswains' chairs

WAC 296-878-19005

Safely use boatswains' chairs rigged with a block and tackle

WAC 296-878-19010

Rope descent systems

Select appropriate rope descent systems

WAC 296-878-20005

Safely use rope descent systems

WAC 296-878-20010

Safely use rope descent devices

WAC 296-878-20015

Equipment prohibited

Prohibit equipment from use

WAC 296-878-21005

Definitions

WAC 296-878-220.

AMENDATORY SECTION (Amending WSR 06-06-020, filed 2/21/06, effective 6/1/06)

WAC 296-900-130 Citation and notice.

Summary:

Employer responsibility:

To notify employees when a citation and notice is received:

Citation and notice

WAC 296-900-13005.

Copies of (~~inspection results~~) future citations and notices

WAC 296-900-13010.

Posting citation and notices

WAC 296-900-13015.

AMENDATORY SECTION (Amending WSR 06-06-020, filed 2/21/06, effective 6/1/06)

WAC 296-900-14020 Increases to adjusted base penalties.

! WISHA may increase an adjusted base penalty in certain circumstances. Table 6, Increases to Adjusted Base Penalties, describes circumstances where an increase may be applied to an adjusted base penalty.

**Table 6
Increases to Adjusted Base Penalties**

For this circumstance:	The adjusted base penalty may be increased as follows:
Repeat violation When the employer has been previously cited for a substantially similar hazard, with a final order for the previous violation dated no more than 3 years prior to the employer committing the violation being cited.	! Multiplied by the total number of citations with violations involving similar hazards, including the current inspection. Note: The maximum penalty can't exceed seventy thousand dollars for each violation.
Willful violation	! Multiplied by ten with at least the statutory minimum penalty of five thousand dollars

For this circumstance:	The adjusted base penalty may be increased as follows:
An act committed with the intentional, knowing, or voluntary disregard for the WISHA requirements or with plain indifference to employee safety.	Note: The maximum penalty can't exceed \$70,000 for each violation.
<p>Egregious violation</p> <p>If the violation was willful and at least one of the following:</p> <ul style="list-style-type: none"> ! The violations resulted in worker fatalities, a worksite catastrophe, or a large number of injuries or illnesses. ! The violations resulted in persistently high rates of worker injuries or illnesses. ! The employer has an extensive history of prior violations. ! The employer has intentionally disregarded its safety and health responsibilities. ! The employer's conduct taken as a whole amounts to clear bad faith in the performance of his/her duties. ! The employer has committed a large number of violations so as to undermine significantly the effectiveness of any safety and health program that might be in place. 	! With a separate penalty issued for each instance the employer fails to follow a specific requirement.
<p>Failure to abate (FTA)</p> <p>Failure to correct a cited WISHA violation on time.</p> <p>Reference: For how to certify corrected violations, go to Certifying violation corrections, WAC ((296-900-6005)) <u>296-900-15005</u> through ((296-900-6035)) <u>296-900-15030</u>.</p>	<p>! Based on the facts at the time of reinspection, will be multiplied by:</p> <ul style="list-style-type: none"> – At least five, but up to ten, based on the employer's effort to comply.

For this circumstance:	The adjusted base penalty may be increased as follows:
	<ul style="list-style-type: none"> - The number of calendar days past the correction date, with a minimum of five days. <p>Note: The maximum penalty can't exceed seven thousand dollars per day for every day the violation is not corrected.</p>

AMENDATORY SECTION (Amending WSR 06-06-020, filed 2/21/06, effective 6/1/06)

WAC 296-900-150 Certifying violation corrections.

Summary:

Employer responsibility:

! To certify that violations to safety and health requirements have been corrected.

! To submit, if required:

- Additional information.
- Correction action plans.
- Progress reports.

! To comply with correction due dates.

! To tag cited moveable equipment to warn employees of a hazard.

! To inform affected employees that each violation was corrected.

((Certify)) Certifying violation correction

WAC 296-900-15005.

Violation correction action plans

WAC 296-900-15010.

Progress reports

WAC 296-900-15015.

Timeliness of violation correction documents

WAC 296-900-15020.

Inform employees about violation correction

WAC 296-900-15025.

Tag moveable equipment

WAC 296-900-15030.

REPEALER

The following section of the Washington Administrative Code
is repealed:

WAC 296-62-051

Ergonomics.

REPEALER

The following section of the Washington Administrative Code is repealed:

WAC 296-24-217

Servicing multipiece and single-piece rim wheels.