

Chapter 296-307 WAC
Safety Standards for Agriculture
(Form Number F414-030-000)

This book contains rules for Safety Standards for agriculture, as adopted under the Washington Industrial Safety and Health Act of 1973 (Chapter 49.17 RCW).

The rules in this book are effective November 2023. A brief promulgation history, set within brackets at the end of this chapter, gives statutory authority, administrative order of promulgation, and date of adoption of filing.

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[Table of Contents](#) i-v

[Nationally Recognized Standards found in Chapter 296-307 WAC](#) i-vi

Table of Contents

Field Operations and General Requirements

[General and Educational Requirements](#)

[Part A](#)

WAC 296-307-003 through WAC 296-307-024

- Navigating this chapter.
- Applying for a variance.

[Accident Prevention Program; First-aid Requirements; Safe Place Standard](#)

[Part B](#)

WAC 296-307-030 through WAC 296-307-045

- Required elements of an accident prevention program.
- Requirements for safe place standard.

[Hand Tools](#)

[Part C](#)

WAC 296-307-050

- Requirements that apply to hand tools.

[Ladders, Bulk Storage, Pits, and Trenches](#)

[Part D](#)

WAC 296-307-055 through WAC 296-307-061

- Ladders.
- Requirements that apply to working around bins, bunkers, hoppers, tanks, pits, and trenches.

[Vehicles and Farm Field Equipment](#)

[Part E](#)

WAC 296-307-065 through WAC 296-307-076

- Identification of slow-moving vehicles.
- Guarding farm field equipment.

[Rollover Protective Structures \(ROPS\) for Tractors](#)

[Part F](#)

WAC 296-307-080 through WAC 297-307-090

- Rollover protective structures (ROPS) for tractors.
- Requirements that apply to overhead protection for operators of agricultural and industrial tractors.

[Field Sanitation](#)

[Part G](#)

WAC 296-307-095 through WAC 296-307-09518

- Field sanitation.
- Toilet facilities.

[Outdoor heat exposure](#)

[Part G-1](#)

WAC 296-307-097 through WAC 296-307-09760

- Outdoor heat exposure.
- Information and training.

Table of Contents

<u>Personal Protective Equipment (PPE)</u>	<u>Part H</u>
WAC 296-307-100 through WAC 296-307-10025	
<ul style="list-style-type: none"> • Personal protective equipment. • Training for personal protective equipment. 	
<u>Worker Protection Standard</u>	<u>Part I</u>
WAC 296-307-108 through WAC 296-307-11420	
<ul style="list-style-type: none"> • General Provisions. • Exceptions to personal protective equipment requirements specified on pesticide product labeling-40 C.F.R., Sec. 170.607. 	
<u>Pesticides Recordkeeping</u>	<u>Part J</u>
WAC 296-307-145 through WAC 296-307-14510	
<ul style="list-style-type: none"> • Pesticides recordkeeping. • Sample pesticide storage record. 	
<u>Cholinesterase Monitoring</u>	<u>Part J-1</u>
WAC 296-307-148 through WAC 296-307-14845	
<ul style="list-style-type: none"> • Scope and summary. • Implementation plan. 	
<u>Working Near Overhead Lines</u>	<u>Part K</u>
WAC 296-307-150 through WAC 296-307-15012	
<ul style="list-style-type: none"> • Employees working near overhead lines. • The employer must notify the utility when employees are working near overhead lines. 	
<u>Temporary Worker Housing (TWH)</u>	<u>Part L</u>
WAC 296-307-161 through WAC 296-307-16190	
<ul style="list-style-type: none"> • Temporary worker housing and cherry harvest camps. • Disease prevention and control. 	
Indoor Operations	
<u>Guarding Tools and Equipment, Farm Shops, Materials Handling</u>	<u>Part M</u>
WAC 296-307-18005 through WAC 296-307-232	
<ul style="list-style-type: none"> • Guarding fan blades. • Conveyors. 	
<u>Sanitation for Indoor Workplaces</u>	<u>Part N</u>
WAC 296-307-240 through WAC 296-307-24036	
<ul style="list-style-type: none"> • Sanitation for fixed, indoor workplaces. • Employer vermin control programs. 	
<u>Walking Working Surfaces; Fixed Industrial Stairs; Aerial Manlifts</u>	<u>Part O</u>
WAC 296-307-250 through WAC 296-307-27010	
<ul style="list-style-type: none"> • Walking working surfaces, elevated walkways, and platforms. • Requirements that apply to using aerial manlift equipment. 	

Table of Contents

<u>Guarding Power Transmission Machinery</u>	<u>Part P</u>
WAC 296-307-280 through WAC 296-307-30021	
<ul style="list-style-type: none"> • Guarding power transmission machinery. • Additional guarding requirements that apply to farmstead equipment. 	
<u>Control of Hazardous Energy (Lockout-Tagout)</u>	<u>Part Q</u>
WAC 296-307-320 through WAC 296-307-32041	
<ul style="list-style-type: none"> • Control of hazardous energy (lockout-tagout). • Lockout/tagout during shift changes. 	
<u>Safety Color Coding; Accident Prevention Signs and Tags</u>	<u>Part R</u>
WAC 296-307-330 through WAC 296-307-33011	
<ul style="list-style-type: none"> • Safety color coding; accident prevention signs and tags. • Proper uses of accident prevention tags. 	
<u>Fire Protection and Ignition Sources; Exit Routes</u>	<u>Part S</u>
WAC 296-307-340 through WAC 296-307-35018	
<ul style="list-style-type: none"> • Portable fire extinguishers. • Fire prevention plan. 	
<u>Electrical</u>	<u>Part T</u>
WAC 296-307-360 through WAC 296-307-38018	
<ul style="list-style-type: none"> • Electrical. • Use and maintenance of electrical protective devices. 	
Specialized Operations	
<u>Hazardous Materials-Anhydrous Ammonia</u>	<u>Part U-1</u>
WAC 296-307-400 through WAC 296-307-40039	
<ul style="list-style-type: none"> • Anhydrous ammonia. • Electrical equipment and wiring. 	
<u>Hazardous Materials-Liquefied Petroleum Gas</u>	<u>Part U-2</u>
WAC 296-307-410 through WAC 296-307-44025	
<ul style="list-style-type: none"> • Storage and handling of liquefied petroleum gases. • Fire protection at LP-gas service stations. 	
<u>Other Hazardous Materials-Dipping and Coating Operations (Dip Tanks)</u>	<u>Part U-3</u>
WAC 296-307-445 through WAC 296-307-465	
<ul style="list-style-type: none"> • Scope. • Definitions. 	
<u>Welding</u>	<u>Part V</u>
WAC 296-307-475 through WAC 296-307-50029	
<ul style="list-style-type: none"> • Welding, cutting, and brazing. • Welding mercury. 	

Table of Contents

<u>Powered Industrial Trucks (Forklifts)</u>	<u>Part W</u>
WAC 296-307-520 through WAC 296-307-52047	
<ul style="list-style-type: none"> • Powered industrial trucks (forklifts). • Maintaining powered industrial trucks. 	
<u>Rim Wheel Servicing</u>	<u>Part X</u>
WAC 296-307-530 through WAC 296-307-53017	
<ul style="list-style-type: none"> • • • Rim wheel servicing. • Ordering the OSHA charts. 	
<u>Employer Chemical Hazard Communication</u>	<u>Part Y-1</u>
WAC 296-307 550 through WAC 296-307-55060	
<ul style="list-style-type: none"> • Has been repealed. 	
<u>Material safety data sheets and label preparation</u>	<u>Part Y-2</u>
WAC 296-307-560 through 296-307-59050	
<ul style="list-style-type: none"> • Has been repealed 	
<u>Lighting</u>	<u>Part Y-3</u>
WAC 296-307-570 through WAC 296-307-57005	
<ul style="list-style-type: none"> • Lighting rule. • Provide and maintain adequate lighting. 	
<u>Environmental Tobacco Smoke in the Office</u>	<u>Part Y-4</u>
WAC 296-307-590 through WAC 296-307-59005	
<ul style="list-style-type: none"> • Environmental tobacco smoke in the office—Summary. • Prohibit tobacco smoke in the office work environment. 	
<u>Respirators</u>	<u>Part Y-5</u>
WAC 296-307-594 through WAC 296-307-622	
<ul style="list-style-type: none"> • Scope. • Definitions. 	
<u>Respiratory Hazards</u>	<u>Part Y-6</u>
WAC 296-307-624 through WAC 296-307-628	
<ul style="list-style-type: none"> • Scope. • Definitions. 	
	<u>Part Y-7</u>
<u>Hearing Loss Prevention (Noise)</u>	
WAC 296-307-630 through WAC 296-307-640	
<ul style="list-style-type: none"> • Scope. • Noise definitions. 	
<u>Confined Spaces</u>	<u>Part Y-8</u>

Table of Contents

WAC 296-307-642 through WAC 296-307-656

- Scope.
- Definitions.

Emergency Response

Part Y-10

WAC 296-307-704 through WAC 296-307-70480

- Scope.
- Definitions.

Safety Standards for Agriculture

Nationally Recognized Standards found in Chapter 296-307 WAC	
ACGIH's "Industrial Ventilation: A Manual of Recommended Practice (22 nd ed., 1995)	307-45010
ANSI / SAE J800, April 1986	307-08012(2)
ANSI A10.2-1944, Safety Code for Building Construction	307-33003(5)
ANSI A11.1-1965 (R 1970), Practice for Industrial Lighting	307-52021(1)
ANSI A13.1-1956, Identification of Piping Systems	307-48039(2)
ANSI A92.2-1969, Section 4.9 Bursting Safety Factor	307-27005(6)
ANSI B 125.1-1970, American National Standard Specifications for Welded and Steamless Steel Pipe, for pipe	307-25027(5)
ANSI B 57.1-1965, Compressed Gas Cylinder Valve Outlet and Inlet Connections	307-48003(2)
ANSI B20.1-1957, conveyor construction, operation and maintenance	307-232
ANSI B31.1-1967, Section 2, Industrial Gas and Air Piping Systems, Code for Pressure Piping,	307-48033(1)
ANSI B31.5-1966 addenda B31.1a--1968, Refrigeration Piping Code	307-40021(3)
ANSI B56.1-1969, Powered Industrial Trucks	307-52005(2)
ANSI B7.1-1986 and 1970	307-19006(6) 307-22006(1)
ANSI C1-1971 and 1972, Article 310	307-360(3) 307-36418(2)
ANSI C33.2-1956, Underwriters' Laboratories, Safety Standard for Transformer-Type Arc-Welding Machines	307-49001
ANSI G41.5-1970, American National Specifications for Structural Steel	307-25027(5)
ANSI H23.1-1970 and ASTM B88-11969, Type K Specifications for Seamless Water Tube	307-41021(4) 307-41039(2)
ANSI H38.7-1969 (ASTM, B241-1969), Aluminum Alloy Pipe,	307-41021(1)
ANSI K61.1 for the Storage and Handling of Anhydrous Ammonia	307-40011(1)
ANSI S1.25-1991 American National Rule Specification for Personal Noise Dosimeters	307-63405
ANSI S1.4-1984 American National Standard Specification for Sound Level Meters	307-63405
ANSI S3.1-1999 American National Standard Maximum Permissible Ambient Noise Levels	307-63635

Safety Standards for Agriculture

Nationally Recognized Standards found in Chapter 296-307 WAC	
ANSI S3.6-1996 American National Standard Specification for Audiometers	307-63635
ANSI Z48.1-1954.-Methods of Marking Portable Compressed Gas Containers to Identify the Material Contained	307-41015(3)
ANSI Z49.1-1967, Safety in Welding and Cutting, published by the American Welding Society	307-50011(5)
ANSI Z87.1-1968-American National Standard Practice for Occupational and Educational Eye and Face Protection	307-10010 307- 50003(10)
ANSI/AIHA Z88.10.2001, American National Standard for Respirator Fit Testing Methods	307-60605
ANSI Z9.1.1971, Practices for Ventilation and Operation of Open-Surface Tanks	307-45010
ANSI Z9.2.1979, Fundamentals Governing the Design and Operation of Local Exhaust Systems	307-45010
ANSI Z358.1 – 1998, Emergency Eyewash and Shower Equipment	307-03930
API Standard 620, Recommended Rules for Design and Construction of Large Welded Low-Pressure Storage Tanks	307-40031(1)
API-ASME code, all editions 1050, 1952, 1956, 1959, 1962, 1965, 1968 and 1971 (Division 1)	307-41011(3) 307-41025(3) 307-41025(5) 307-42003 307-42505(1)
API-ASME, LP-gas installations	307-43521(5)
ASME code, 1949 edition: (Par. U-68, and U-69, 1949 and Par U-200, U-201) (Division 1)	307-42505(1) 307-44003
ASME, Construction of Unfired Pressure Vessels, Section VIII, Division 1, Boiler and Pressure Vessel Code, 1968 edition	307-43521(5)
ASME, Rules for Construction of Unfired Pressure Vessels, Section VIII, Division 1, Boiler and Pressure Vessel Code, 1968 edition	307-41011
ASME, Section VIII of the ASME Boiler Construction Code, Unfired Pressure Vessel Code, 1952, 1956, 1962, 1965, 1968 and 1971 editions	307-40013
ASTM A-53-1969, Schedule 40, Grade B Electric Resistance Welded and Electric Flash Welded Pipe	307-41021(3)
Code for Unfired Pressure Vessels for Petroleum Liquids and Gases, 1951 edition with 1954 Addenda	307-41011(3)

Safety Standards for Agriculture

Nationally Recognized Standards found in Chapter 296-307 WAC	
Compressed Gas Association and Rubber Manufacturers Association, Specification for Rubber Welding Hose, 1958	307-48051(1)
Compressed Gas Association Regulator Connection Standards, 1958	307-48049(4) 307-48053(1)
Compressed Gas Association, Standard Hose Connection Specifications, 1957	307-48049(5) 307-48051(4)
EPA's, National Interim-Primary Drinking Water Regulations	307-09512(9)
EPA Product Noise Labeling, 40 CFR, Part 211	307-63215
Federal Insecticide, Fungicide, and Rodenticide Act	307-11005
Fertilizer Institute for the Storage and Handling of Agricultural Anhydrous Ammonia, M-1	307-40011
FIFRA section 14 (b)(4)	307-11015(3)
Joint Code of the American Petroleum Institute and the American Society of Mechanical Engineers (API-ASME Code) 1951 edition	307-40013
Joint Rubber Manufacturers Association and the Fertilizer Institute Hose Specifications for Anhydrous Ammonia	307-40023(1)
National Highway Traffic Safety Administration (NHTSA) publications entitled Demounting and Mounting Procedures for Truck/Bus Tires and Multipiece Rim Matching Chart	307-53003
NEMA (National Electrical Manufacturers Association)EW-1-1962, Electric Arc-Welding Apparatus	307-49001
NFPA No. 10A-1970, pamphlet	307-34009(6)
NFPA No. 13, Automatic Sprinkler System	307-35009(6)
NFPA No. 30-1996, Flammable and Combustible Liquids Code	307-52019(1)
NFPA No. 34-1995, Standard for Dipping and Coating Processes Using Flammable or Combustible Liquids	307-45010
NFPA No. 51B, 1962, Standard for Fire Prevention in Use of Cutting and Welding Processes	307-49501
NFPA No. 58-1969, Storage and Handling of Liquefied Petroleum Gases	307-52019(2)
NFPA No. 70-1973, National Electrical Code	307-360(3) 307-36010(2) 307-36418(2) 307-37209(3)

Nationally Recognized Standards found in Chapter 296-307 WAC	
OSHA 29 CFR 173.34(e)(15)	307-34018(10)
OSHA CFR 1928.52 Protective Frames for Wheel Type Agricultural Tractors	307-08009 307-085(3)
OSHA Title 29 of the U.S. Code, section 653(b)(1)	307-11015(4)
Primary Drinking Water Regulations published in 40 CFR, Part 141, and 40 CFR 147.2400	307-24006
SAE Standard J167 (1971)	307-08009
SAE Standard J334 (July 1970), overhead protection for dozers and loaders	307-08009 307-090(3)
State of Washington motor vehicles laws	307-07011
U.S. Department of Agriculture Wood Handbook, No. 72, 1955 (No. 1 (S4S Southern Yellow Pine (Modulus of Rupture 7,400 psi) for wood	307-25027(5)
U.S. Department of Commerce, Commercial Standard CS202-56 (1956) Industrial Lifts and Hinged Loading Ramps	307-52025(3)

PART A
GENERAL AND EDUCATIONAL REQUIREMENTS

WAC		Page
296-307-003	Navigating this chapter.	1
296-307-006	Scope.	1
296-307-009	Definitions that apply to this chapter.	4
296-307-012	Equipment approved by a nonstate organization.	6
296-307-018	Employer responsibilities?	6
296-307-021	Employee’s responsibilities?	7
296-307-024	Applying for a variance.	8

- (iii) Carriers for transportation to market. Agricultural operations include, but are not limited to, all employers in one or more of the following industries:

Wheat;
Corn;
Cash grains not elsewhere classified, barley, peas, lentils, oats, etc.;
Sugar cane and sugar beets;
Irish potatoes - All potatoes except yams;
Field crops - Hay, hops, mint, etc.;
Vegetables and melons, all inclusive;
All berry crops;
Grapes;
Tree nuts;
Deciduous tree fruits;
Tree fruits or tree nuts not elsewhere classified;
Ornamental floriculture and nursery products;
Food crops grown under cover;
General farms, primarily crops;
Beef cattle feedlots;
Beef cattle except feedlots - Cattle ranches;
Hogs;
Sheep and goats;
General livestock except dairy and poultry;
Dairy farms;
Broiler, fryer, and roaster chickens;
Chicken eggs;
Turkeys and turkey eggs;
Poultry hatcheries;
Poultry and eggs not elsewhere classified;
Fur bearing animals and rabbits;
Horses;
Animal aquaculture;
Animal specialties not elsewhere classified;
General farms, primarily livestock and animal specialties;
Soil preparation services;
Crop planting, cultivating, and protecting;
Crop harvesting, primarily by machine;
Livestock services, except veterinary;
Farm labor contractors;
Timber tracts, Christmas tree growing, tree farms;
Forest nurseries;
Forestry services - Reforestation.

The term “agriculture” does not mean a farmer’s processing for sale or handling for sale a commodity or product grown or produced by a person other than the farmer or the farmer’s employees.

- (2) Chapter [296-24](#) WAC does not apply to agricultural operations.

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- (3) All agricultural operations are also covered by the requirements of chapter [296-62](#) WAC, general occupational health standards, and chapter [296-901](#) WAC, Globally harmonized system for hazard communication.
- (4) Occasionally, employees engaged in agricultural operations may also be covered by the safety standards of other industries. Following are excerpts from four industry standards that may help you determine if these other standards also apply:

Chapter [296-54](#) WAC Safety standards--Logging operations.

WAC [296-54-501](#) Scope and application.

This standard establishes safety practices, means, methods and operations for all types of logging, regardless of the end use of the wood. These types of activities include, but are not limited to, pulpwood and timber harvesting and the logging of sawlogs, veneer bolts, poles, pilings and other forest products. The requirements herein contained to not apply to log handling at sawmills, plywood mills, pulp mills, or other manufacturing operations governed by their own specific safety standards.

Chapter [296-99](#) WAC Safety standards for grain handling facilities.

WAC [296-99-015](#) What grain-handling operations does this chapter cover?

- (1) WAC [296-99-010](#) through [296-99-070](#) apply to:
- Dry grinding operations of soycake;
 - Dry corn mills;
 - Dust pelleting plants;
 - Feed mills;
 - Flour mills;
 - Flat storage structures;
 - Grain elevators;
 -
 - Rice mills; and

- Soybean flaking operations.
- (2) WAC [296-99-075](#), [296-99-080](#), and [296-99-085](#) apply only to grain elevators.
 - (3) Chapter [296-99](#) WAC does not apply to alfalfa storage or processing operations if they do not use grain products.

Chapter [296-78](#) WAC Safety standards for sawmills and woodworking operations.

WAC [296-78-500](#) Foreword.

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](#).

Chapter [296-155](#) WAC Safety standards for construction work.

WAC [296-155-005](#) Purpose and scope.

The standards included in this chapter apply throughout the state of Washington, to any and all work places subject to the Washington Industrial Safety and Health Act (chapter 49.17 RCW), where construction, alteration, demolition, related inspection, and/or maintenance and repair work, including painting and decorating, is performed. These standards are minimum safety requirements with which all industries must comply when engaged in the above listed types of work.

- (5) If rules in this chapter conflict with rules in another chapter of Title 296 WAC, this chapter prevails.

WAC 296-307-009 Definitions that apply to this chapter.

Approved. Approved by the director of the department of labor and industries, or by another organization designated by the department. Also means listed or approved by a nationally recognized testing laboratory.

Authorized person. Someone you have approved to perform specific duties or to be at a specific location on the job site.

Biological agents. Organisms or their by-products.

Chemical agents (airborne or contact). A chemical agent is any of the following:

- (a) Airborne chemical agent which is any of the following:
 - (i) Dust. Solid particles suspended in air, generated by handling, drilling, crushing, grinding, rapid impact, detonation, or decrepitation of organic or inorganic materials such as rock, ore, metal, coal, wood, grain, etc.

- (ii) Fume. Solid particles suspended in air, generated by condensation from the gaseous state, generally after volatilization from molten metals, etc., and often accompanied by a chemical reaction such as oxidation.
 - (iii) Gas. A normally formless fluid that can be changed to the liquid or solid state by the effect of increased pressure or decreased temperature or both.
 - (iv) Mist. Liquid droplets suspended in air, generated by condensation from the gaseous to the liquid state or by breaking up a liquid into a dispersed state, such as by splashing, foaming or atomizing.
 - (v) Vapor. The gaseous form of a substance that is normally in the solid or liquid state.
- (b) Contact chemical agent which is any of the following:
- (i) Corrosives. Substances that in contact with living tissue cause destruction of the tissue by chemical action.
 - (ii) Irritants. Substances that on immediate, prolonged, or repeated contact with normal living tissue will induce a local inflammatory reaction.
 - (iii) Toxicants. Substances that have an inherent capacity to produce personal injury or illness to individuals by absorption through any body surface.

Department. The department of labor and industries. When this chapter refers to “we” or “us,” it means labor and industries staff responsible for enforcing the Washington Industrial Safety and Health Act (WISHA).

Director. The director of the department of labor and industries, or a designated representative.

Employee. Someone providing personal labor in the business of the employer, including anyone providing personal labor under an independent contract.

Employee. Someone providing personal labor in the business of the employer, including anyone providing personal labor under an independent contract.

Employer. A business entity having one or more employees. Also, any person, partnership, or business entity with no employees but having industrial insurance coverage is both an employer and an employee.

Hazard. A condition that can cause injury, death, or occupational disease.

Listed. Listed by a nationally recognized testing laboratory.

Must. Mandatory.

Nationally recognized testing laboratory. See 29 CFR 1910.7 (federal OSHA requirements).

Pesticide:

- (a) Any substance intended to prevent, destroy, control, repel, or mitigate any insect, rodent, snail, slug, fungus, weed, and any other form of plant or animal life or virus, except virus on or in a living person or other animal which is normally considered to be a pest or which the director may declare to be a pest;

- (b) Any substance or mixture of substances intended to be used as a plant regulator, defoliant or desiccant; and
- (c) Any spray adjuvant, such as a wetting agent, spreading agent, deposit builder, adhesive, emulsifying agent, deflocculating agent, water modifier, or similar agent with or without toxic properties of its own, intended to be used with any pesticide as an aid to its application or effect, and sold in a package or container separate from that of the pesticide with which it is to be used.

Safety factor. The ratio of the ultimate breaking strength of a piece of material or equipment to the actual working stress or safe load when in use.

Should or may. Recommended.

Standard safeguard. A device designed and constructed to remove a hazard related to the machine, appliance, tool, building, or equipment to which it is attached.

Working day. For appeals and accident reporting, means a calendar day, except Saturdays, Sundays, and legal holidays as defined by RCW 1.16.050. To compute the time within which an act is to be completed, exclude the first working day and include the last.

You. When this chapter refers to “you,” it means the employer or a designated representative.

WAC 296-307-012 Equipment approved by a nonstate organization.

Whenever the department requires the employer to have equipment or processes approved by an organization such as the Underwriters Laboratories (UL), the Bureau of Mines (MSHA), or the National Institute for Occupational Safety and Health (NIOSH), the approval of that organization is considered evidence of your compliance.

WAC 296-307-018 Employer responsibilities.

- (1) The employer must provide a safe and healthful working environment.
- (2) The employer must ensure that employees do not use defective or unsafe tools and equipment, including tools and equipment that may be furnished by the employee.
- (3) The employer must implement a written accident prevention program as required by these standards.
- (4) The employer must implement a hazard communication program as required by WAC 296-307-550.
- (5) The employer must establish a system for complying with chapter [296-27](#) WAC for recording work-related injuries and illnesses and reporting to the department any work-related fatality, inpatient hospitalization, amputation, or loss of an eye. In addition, the employer must also report to the department within eight hours after any work-related incident that results in injury or illness from acute pesticide exposure.
- (6) The employer must follow the requirements for accident investigations in WAC [296-800-320](#).
- (7) The employer must provide safety education and training programs.

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- (8) The employer must implement the requirements of WAC [296-62-074](#) through [296-62-07451](#) to ensure the safety of employees who are exposed to cadmium in the workplace.
- (9) The employer must implement the requirements of WAC 296-307-642 through 296-307-656 to ensure the safety of employees who are exposed to confined spaces in the workplace.
- (10) The employer must control chemical agents.
- (a) The employer must control chemical agents in a manner that they will not present a hazard to workers; or
 - (b) The employer must protect workers from the hazard of contact with, or exposure to, chemical agents.

Reference: Pesticides are chemical agents and are covered by chapter 296-307 WAC Part I, Worker Protection Standard. Pesticides may also be covered by WAC 296-307-594, Respirators.

- (11) Protect employees from biological agents.

The employer must protect employees from exposure to hazardous concentrations of biological agents that may result from processing, handling or using materials or waste.

Note: Examples of biological agents include:

1. Animals or animal waste.
2. Body fluids.
3. Biological agents in a medical research lab.
4. Mold or mildew.

WAC 296-307-021 Employee responsibilities.

- (1) Employees must cooperate with the employer and other employees in efforts to eliminate accidents.
- (2) Employees must be informed of and observe all safe practices.
- (3) Employees must notify the employer of unsafe conditions of equipment or workplaces.
- (4) Employees must use all required safety devices and protective equipment.
- (5) Employees must not willfully damage personal protective equipment.
- (6) Each employee must promptly report any job-related injury or illness to his or her immediate supervisor, regardless of the degree of severity.
- (7) Employees must not engage in any activity unrelated to work that may cause injury to other employees during the course of performing work assignments.
- (8) Employees must attend any required training and/or orientation programs designed to increase their competency in occupational safety and health.

-
- (9) Employees must not report to work under the influence of alcohol or controlled substances. Alcohol or controlled substances must not be brought on the worksite.

WAC 296-307-024 Applying for a variance.

- (1) If the employer finds that it is impractical to comply with specific requirements of this standard, the department may permit a variation from the requirements. However, the employer must still provide equal protection by substitute means and comply with the requirements of chapter 49.17 RCW and chapter [296-350](#) WAC, variances.
- (2) On the variance application the employer must certify that a copy of the written application was posted in a place reasonably accessible to employees. The employer must also mail a copy of the application to any authorized employee representative. The notice must advise employees of their right to request the department to conduct a hearing on the variance application. The employer must notify employees before you apply.

Note: To request a permanent or temporary variance, write to: Department of Labor and Industries, WISHA Services, PO Box 44648, Olympia, WA 98504-4648. The department will mail an application form and instruction sheet. The department will also send a copy of chapter [296-350](#) WAC, Variances, if requested.

PART B
ACCIDENT PREVENTION PROGRAM, FIRST-AID REQUIREMENTS;
SAFE PLACE STANDARD

WAC		Page
296-307-030	Required elements of an accident prevention program.	1
296-307-033	Requirements for how often safety meetings must be held.....	1
296-307-036	Items to go on the safety bulletin board.	2
296-307-039	First-aid rule summary	2
206-307-03905	Make sure that first-aid trained personnel are available to provide quick and effective first aid.	3
296-307-03920	Make sure appropriate first-aid supplies are readily available.	3
296-307-03930	Make sure emergency washing facilities are functional and readily accessible.	5
296-307-03935	Inspect and activate emergency washing facilities.	6
296-307-03940	Make sure supplemental flushing equipment provides sufficient water...	7
296-307-03945	Definitions.	7
296-307-045	Requirements for safe place standard.....	8

WAC 296-307-030 Required elements of an accident prevention program.

- (1) The employer must instruct all employees in safe working practices at the beginning of employment. Instruction must be tailored to the types of hazards to which employees are exposed.
- (2) The employer must develop a written accident prevention program tailored to the needs of the employer's agricultural operation and to the types of hazards involved.
- (3) The employer's accident prevention program must contain at least the following elements:
 - (a) How, when, and where to report injuries and illnesses, and the location of first-aid facilities.
 - (b) How to report unsafe conditions and practices.
 - (c) The use and care of personal protective equipment.
 - (d) What to do in emergencies. See WAC 296-307-35015 for emergency action plan requirements.
 - (e) Identification of hazardous chemicals or materials and the instruction for their safe use.
 - (f) An on-the-job review of the practices necessary to perform job assignments in a safe and healthful manner.
- (4) At least once a month, the employer must conduct a walk-around safety inspection of active job sites, the materials and equipment involved, and operating procedures. A representative chosen by employees must be invited and allowed to accompany the employer.

Note: Additional requirements in Part G-1, WAC 296-307-097, Outdoor heat exposure, may apply. Employers may address their outdoor heat exposure safety program either in their written accident prevention program (APP) or as a stand-alone written document. See Part G-1.

WAC 296-307-033 Requirements for how often safety meetings must be held.

- (1) Foreman-crew safety meetings:
 - (a) Must be held at least monthly or;
 - (b) Whenever there are significant changes in job assignments;
 - (c) These meetings must be tailored to the particular operation or activity occurring at the time.

- (2) The meeting minutes must document subjects discussed and attendance.
- (3) Short-term operations that last less than one month, such as harvesting, do not require foreman-crew safety meetings but only require initial safety orientation for the operations.
- (4) The employer must maintain copies of the minutes of each foreman-crew safety meeting at the location where the majority of employees report to work each day.
- (5) The employer must retain minutes of foreman-crew safety meetings for one year and be able to show us copies if we ask to see them.

WAC 296-307-036 Items to go on the safety bulletin board.

- (1) The employer must provide a bulletin board or posting area large enough to display the required safety and health poster, "Job Safety and Health Protection" (F416-081-000), and other safety education material.
- (2) The bulletin board must be readily visible in a place where employees gather during some part of the work day. (For example, at the entrance to a field, a parking area, or in a farm building.)
- (3) If for any reason any employee is unable to read the notices posted on the bulletin board, the employer must ensure that the message of the required poster explaining employee rights is communicated to the employee in terms he or she understands. This same requirement applies to variance applications, denials or grants, and to any other notice affecting the employee's rights under WISHA.
- (4) Posting must be in the employee's language.

WAC 296-307-039 First-aid rule summary.

Employer's responsibility: Make sure first-aid trained personnel are available to provide quick and effective first aid.

The employer must meet the requirements...	in this section:
Make sure that first-aid trained personnel are available to provide quick and effective first aid.	WAC 296-307-03905
Make sure appropriate first-aid supplies are readily available.	WAC 296-307-03920

Notes:

1. Employers who require their employees to provide first aid must comply with the bloodborne pathogens rule, chapter [296-823](#) WAC.
2. Additional requirements relating to first aid are also located in the following sections:
 - a. WAC 296-307-07013(12), Rules that apply to vehicles used to transport employees.
 - b. WAC 296-307-16175, First-aid and safety.
 - c. WAC 296-307-16380, First-aid requirements for operators of cherry harvest camps.

Definitions:

First aid. The extent of treatment the employer would expect from a person trained in basic first aid, using supplies from a first-aid kit.

Emergency medical service. Medical treatment and care given at the scene of any medical emergency or while transporting any victim to a medical facility.

The employer can get copies of these rules by calling 1-800-4BE SAFE (1-800-423-7233), or by going to <http://www.lni.wa.gov>.

WAC 296-307-03905 Make sure that first-aid trained personnel are available to provide quick and effective first-aid.

The employer must comply with the first-aid training requirements of 29 CFR 1910.151(b) which states:

“In the absence of an infirmary, clinic, or hospital in near proximity to the workplace which is used for the treatment of all injured employees, a person or persons shall be adequately trained to render first aid. Adequate first-aid supplies shall be readily available.”

WAC 296-307-03920 Make sure appropriate first-aid supplies are readily available.

- (1) The employer must make sure first-aid supplies are readily available. (See first-aid kit table.)
- (2) The employer must make sure first-aid supplies in workplace are appropriate to:
 - (a) The employer’s occupational setting.
 - (b) The response time of the employer’s emergency medical services.

First-Aid Kit Table

Number of employees normally assigned to worksite	Minimum first-aid supplies required at worksite
1 - 15 Employees	1 First-aid kit
16 - 30 Employees	2 First-aid kits
31 - 50 Employees	3 First-aid kits

Notes:

1. First-aid kits from a local retailer or safety supplier should be adequate for most nonindustrial employers.
2. The following is a list of suggested items for the first-aid kit:
 - a. 1 absorbent compress, 4 x 8 inches.
 - b. 16 adhesive bandages, 1 x 3 inches.
 - c. 1 adhesive tape, 5 yards long.
 - d. 10 antiseptic single-use packages, 0.5 g application.
 - e. 6 burn treatment single-use packages, 0.5 g application.
 - f. 1 eye covering (for two eyes).
 - g. 1 eye wash, 1 fluid ounce.
 - h. 4 sterile pads, 3 x 3 inches.
 - i. 2 pair of medical exam gloves.
 - j. 1 triangular bandage, 39 x 39 x 55 inches.
3. Operational first-aid kit contents.
 - a. Bandage compresses, 2 x 2 inches, 3 x 3 inches and 5 x 5 inches.
 - b. Self-activating cold packs, 4 x 5 inches.
 - c. Roller bandages, 6 yards long.
 - d. Mouth-to-mouth barrier for CPR.
4. Kits should be checked at least weekly to ensure adequate number of needed items are available.
5. Kits may be carried in any motor vehicle that is used near the crew.

- (3) The employer must make sure that first-aid supplies are:
 - (a) Easily accessible to all employees.
 - (b) Stored in containers that protect them from damage, deterioration, or contamination. Containers must be clearly marked, not locked, and may be sealed.
 - (c) Able to be moved to the location of an injured or acutely ill worker.

WAC 296-307-03930 Make sure emergency washing facilities are functional and readily accessible.

- (1) The employer must provide an emergency shower:
 - (a) When there is potential for major portions of an employee's body to contact corrosives, strong irritants, or toxic chemicals
 - (b) That delivers water to cascade over the user's entire body at a minimum rate of 20 gallons (75 liters) per minute for 15 minutes or more.
- (2) The employer must provide an emergency eyewash:
 - (a) When there is potential for an employee's eyes to be exposed to corrosives, strong irritants, or toxic chemicals.
 - (b) That irrigates and flushes both eyes simultaneously while the user holds their eyes open.
 - (c) With an on-off valve that activates in one second or less and remains on without user assistance until intentionally turned off.
 - (d) That delivers at least 0.4 gallons (1.5 liters) of water per minute for 15 minutes or more.

Note: Chemicals that require emergency washing facilities.

1. The employer can determine whether chemicals in the workplace require emergency washing facilities by looking at the material safety data sheet (MSDS) or similar documents. The MSDS contains information about first-aid requirements and emergency flushing of skin or eyes.
2. For chemicals developed in the workplace, the following resources provide information about first-aid requirements:
 - a. NIOSH Pocket Guide to Chemical Hazard;
 - b. *DHHS (NIOSH) Publication No. 97-140;
 - c. *<https://www.cdc.gov/niosh/npg>;
 - d. Threshold Limit Values for Chemical Substances and Physical Agents American Conference of Governmental Industrial Hygienists (ACGIH).

- (3) The employer must make sure emergency washing facilities:
 - (a) Are located so that it takes no more than 10 seconds to reach;
 - (b) Are kept free of obstacles blocking their use;
 - (c) Function correctly; and
 - (d) Provide the quality and quantity of water that is satisfactory for emergency washing purposes.

Notes:

1. If water in emergency washing facilities is allowed to freeze, they will not function correctly. Precautions need to be taken to prevent this from happening.
2. The travel distance to an emergency washing facility should be no more than 50 feet (15.25 meters).
3. For further information on the design, installation, and maintenance of emergency washing facilities, see American National Standards Institute (ANSI) publication Z358.1 - 1998, Emergency Eyewash and Shower Equipment. Emergency washing facilities that are designed to meet ANSI Z358.1 - 1998 also meet the requirements of this standard. The ANSI standard can be obtained from the American National Standards Institute, 1430 Broadway, New York, New York 10018.

Reference: Training in the location and use of the employer's emergency washing facilities is required under the employer chemical hazard communication rule, WAC 296-307-550, and the accident prevention program rule, WAC 296-307-030.

WAC 296-307-03935 Inspect and activate emergency washing facilities.

- (1) The employer must make sure all plumbed emergency washing facilities are inspected once a year to make sure they function correctly.

Note: Inspections should include:

Examination of the piping;
Making sure that water is available at the appropriate temperature and quality;
Activation to check that the valves and other hardware work properly
Checking the water flow rate.

- (2) The employer must make sure plumbed emergency eyewashes and hand-held drench hoses are activated weekly to check the proper functioning of the valves, hardware, and availability of water.
- (3) The employer must make sure all self-contained eyewash equipment and personal eyewash units are inspected and maintained according to manufacturer instructions.
 - (a) Inspections to check proper operation must be done once a year.
 - (b) Sealed personal eyewashes must be replaced after the manufacturer's expiration date.

Note: Most manufacturers recommend replacing fluid in open self-contained eyewashes every 6 months. The period for sealed containers is typically two years.

WAC 296-307-03940 Make sure supplemental flushing equipment provides sufficient water.

Note: Supplemental flushing equipment cannot be used in place of required emergency showers or eyewashes.

- (1) The employer must make sure hand-held drench hoses deliver at least 3.0 gallons (11.4 liters) of water per minute for 15 minutes or more.

Note: Why use a drench hose? A drench hose is useful when:

1. The spill is small and does not require an emergency shower.
2. Used with a shower for local rinsing, particularly on the lower extremities.

- (2) The employer must make sure personal eyewash equipment delivers only clean water or other medically approved eye flushing solutions.

WAC 296-307-03945 Definitions.

Corrosive (as used in first aid, WAC 296-307-039). A substance that causes destruction of living tissue by chemical action, including acids with a pH of 2.5 or below or caustics with a pH of 11.0 or above.

Emergency washing facilities. Emergency washing facilities are emergency showers, eyewashes, eye/face washes, hand-held drench hoses, or other similar units.

Hand-held drench hoses. Hand-held drench hoses are single-headed emergency washing devices connected to a flexible hose that can be used to irrigate and flush the face or other body parts.

Personal eyewash units. Personal eyewash units are portable, supplementary units that support plumbed units or self-contained units, or both, by delivering immediate flushing for less than 15 minutes.

Strong irritant (as used in first aid, WAC 296-307-039). A chemical that is not corrosive, but causes a strong, temporary inflammatory effect on living tissue by chemical action at the site of contact.

Toxic chemical (as used in first aid, WAC 296-307-039). A chemical that produces serious injury or illness when absorbed through any body surface.

WAC 296-307-045 Requirements for safe place standard.

- (1) The employer must furnish to each employee a place of employment free from recognized controllable hazards likely to cause serious injury or death.

- (2) The employer must furnish and require employees to use any safety devices and safeguards that are needed to control recognized hazards. All agricultural methods, operations, and processes must be designed to promote the safety and health of employees.
- (3) The employer must not require an employee to engage in any duty or enter any place that is not safe.
- (4) The following are prohibited:
 - (a) Removing, displacing, damaging, destroying or carrying off any safety device, safeguard, notice or warning intended for use in any place of employment.
 - (b) Interfering in any way with the use of any safety device, method or process adopted for the protection of any employee.
- (5) Intoxicating beverages or narcotics in or around worksites. Employees under the influence of alcohol or narcotics are prohibited from the worksite.

Exception: This rule does not apply to anyone taking prescription drugs and/or narcotics as directed by a physician providing such use does not endanger the employee or others.
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PART C
HAND TOOLS

WAC		Page
296-307-050	Requirements that apply to hand tools.....	1

WAC 296-307-050 Requirements that apply to hand tools.

- (1) Using hoes with handles less than four feet long or any hand tool used for weeding or thinning crops in a stooped position, is prohibited.
- (2) The employer must ensure that hand tools are in good condition. Using defective hand tools is prohibited.
- (3) The employer must ensure that hand tools are stored safely when not in use.

PART D
LADDERS, BULK STORAGE, PITS, AND TRENCHES

WAC		Page
296-307-055	Ladders.....	1
296-307-05501	Ladder care and maintenance.	1
296-307-05503	Instructing employees on the use of ladders.	1
296-307-05505	Use of orchard ladders.....	2
296-307-05507	Ladder requirements.	2
296-307-060	Requirements that apply to job-made ladders.....	3
296-307-061	Requirements that apply to working around bins, bunkers, hoppers, tanks, pits, and trenches.	3

WAC 296-307-055 Ladders.

WAC 296-307-05501 Ladders care and maintenance.

- (1) Ladders must be checked for defects before use, and thoroughly inspected periodically. Ladders must be inspected immediately in the following situations:
 - (a) If a ladder tips over, inspect for side rails dents or bends, or excessively dented rungs; check all rung-to-side-rail connections; check hardware connections; check rivets for shear.
 - (b) If a ladder is exposed to excessive heat, inspect visually for damage and test for deflection and strength characteristics. If the employer is unsure about the ladder's condition, seek help from the manufacturer.
- (2) Ladders must be maintained in good condition at all times. Joints between steps and side rails must be tight. All hardware and fittings must be securely attached, and the moveable parts must operate freely without binding or with too much play.
- (3) Defective ladders must be withdrawn from service for repair or destruction and tagged as "Dangerous-Do not use."
- (4) Ladders with broken or missing steps, rungs, or cleats, broken side rails, or other faulty equipment must not be used; improvised repairs must not be made.
- (5) Ladders must be handled with care. Avoid unnecessary dropping, jarring, or misuse.
- (6) Ladder storage must:
 - (a) Protect the ladder when not in use;
 - (b) Provide sufficient support to prevent excessive sagging;
 - (c) Provide ease of access or inspection; and
 - (d) Prevent danger of accidents when withdrawing a ladder for use.

WAC 296-307-05503 Instructing employees on the use of ladders.

- (1) At the beginning of employment, the employer must provide employees with orientation and training on the proper use of ladders, including how to set a ladder and properly dismount with a full load.
- (2) To prevent ladder upset, the employer must instruct employees to avoid overreaching while standing on the ladder.
- (3) The employer must instruct employees that before climbing ladders; rungs, shoes, and boots must be clean of substances that would make them hazardous.
- (4) Employees must not climb up or down ladders while carrying tools or materials that interfere with the free use of both hands.
- (5) Ladders must not be placed on boxes, barrels, or other unstable bases to obtain additional height.

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- (6) Stepladders must not be used as single ladders.
 - (7) When working from a ladder over twenty-five feet from the ground or floor, the ladder must be secured at both top and bottom. When work on a ladder over twenty-five feet from the ground or floor requires the use of both hands, a safety belt must be worn and the safety lanyard secured to the ladder.
 - (8) Portable ladders must be placed so that the side rails have a secure footing. The top rest for portable rung and cleat ladders must be reasonably rigid and strong enough to support the applied load. The top of the ladder must be placed with the two rails supported, unless equipped with a single support attachment. Such an attachment should be substantial and large enough to support the ladder under load.
 - (9) Ladders carried on vehicles should be adequately supported to avoid sagging and securely fastened in position to minimize chafing and the effects of road shocks.

WAC 296-307-05505 Use of orchard ladders.

- (1) Orchard ladders longer than sixteen feet are prohibited.
- (2) Standing on the top two steps of the orchard ladder is prohibited.
- (3) Employers must instruct employees to not stand on the top two steps (the top cap and the next step down) of orchard ladders.
- (4) Employers must instruct employees to not step off the ladder onto branches of trees except onto the main crotch.

WAC 296-307-05507 Ladder requirements.

- (1) Ladders made by fastening cleats across a single rail are prohibited.
- (2) Wood ladders, when not in use, should be stored where they will not be exposed to the elements, but where there is good ventilation. They must be stored away from radiators, stoves, steam pipes, or other excessive heat or dampness.
- (3) Wooden ladders should be kept coated with a suitable protective material. Painted ladders are acceptable if the ladders are carefully inspected prior to painting by competent and experienced inspectors acting for, and responsible to, the purchaser, and if the ladders are not for resale.
- (4) A ladder must have feet that are appropriate for the surface on which it will be used.
For example: A ladder used on a slippery surface must have steel points or other nonslip material on its feet.
- (5) Ladders must not be placed in front of doors opening toward the ladder unless the door is blocked open, locked, or guarded.
- (6) Ladder safety devices may be used on tower, water tank and chimney ladders over twenty feet long in place of cage protection. No landing platform is required in these cases. All ladder safety devices such as lifebelts, friction brakes, and sliding attachments must meet the design requirements of the ladders that they serve.
- (7) See chapter 296-307 WAC Part K for requirements related to working near overhead lines.

WAC 296-307-060 Requirements that apply to job-made ladders.

Job-made ladder. A ladder that the employer or employees build.

Job-made ladders must meet the following requirements:

- (1) All cleats must be made of one-by-four-inch nominal lumber, or stronger.
- (2) Cleats must be inset into the edges of side rails to a depth of one-half inch, or filler blocks must be used on the rails between the cleats.
- (3) Each cleat must be fastened to each rail with three 8d common wire nails or other fasteners of equal strength.
- (4) Cleats must be uniformly spaced approximately 12 inches from the top of one cleat to the top of the next.
- (5) Side rails must be continuous, unless splices develop the full strength of a continuous rail of equal length.

WAC 296-307-061 Requirements that apply to working around bins, bunkers, hoppers, tanks, pits, and trenches.

- (1) Employees must be prohibited from entering any bin, bunker, hopper, or similar area when loose materials (such as chips, sand, grain, gravel, sawdust, etc.) may collapse, unless the employee wears a safety belt with a lifeline attached and is attended by a helper.

Note: Silage pits are exempt from this section.

Reference: For requirements relating to confined spaces, see WAC 296-307-642 through 296-307-656.

- (2) When employees are required to work in a trench or a pit 4 feet deep or more, the trench or the pit must be shored or sloped according to the following table:

Soil or Rock Type	Maximum allowable slopes (H:V) ¹ for excavations less than 20 feet deep ²
Stable rock	vertical (90°)
Type A	3/4:1 (53°)
Type B	1:1 (45°)
Type C	1 1/2:1 (34°)

Soil or Rock Type	Maximum allowable slopes (H:V) ¹ for excavations less than 20 feet deep ²
<p>¹Numbers in parentheses next to maximum allowable slopes are angles in degrees from the horizontal. Angles have been rounded off.</p> <p>²Sloping or benching for excavations greater than 20 feet deep must be designed by a registered professional engineer.</p>	

- (3) Each soil and rock deposit must be classified by a competent person as Stable Rock, Type A, B, or C according to the definitions in WAC [296-155-66401](#).

Competent person. Someone who is able to identify working conditions that are hazardous to employees, and has authority to take prompt action to eliminate the hazards.

- (4) Classification of the deposits must be based on the results of at least one visual and at least one manual analysis. The analyses must be conducted by a competent person using tests in recognized methods of soil classification and testing such as those adopted by the American Society for Testing Materials, or the U.S. Department of Agriculture textural classification system.

PART E

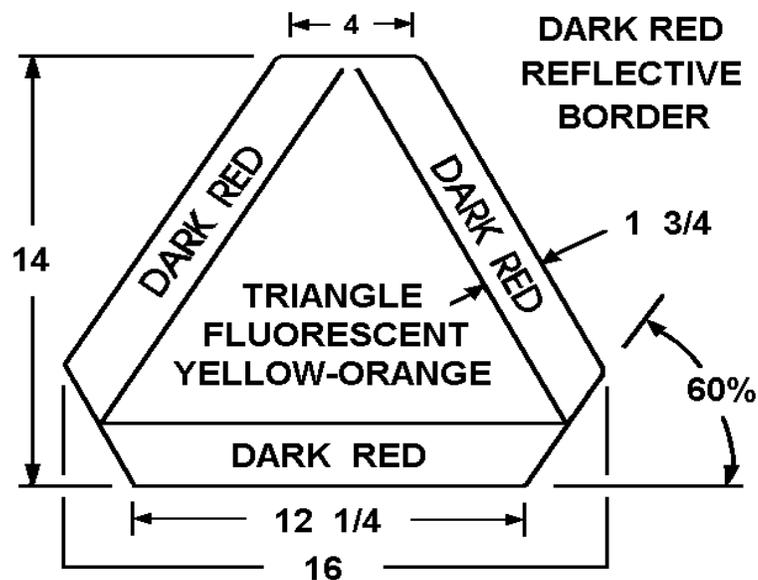
VEHICLES AND FARM FIELD EQUIPMENT

WAC		Page
296-307-065	Identification of slow-moving vehicles.....	1
296-307-070	Motor vehicle.	1
296-307-07001	Motor vehicle maintenance.....	1
296-307-07003	Motor vehicle operation.....	2
296-307-07005	Qualifications to operate motor vehicle.....	2
296-307-07007	Requirements that apply to motor vehicle brakes.....	2
296-307-07009	Loading and unloading motor vehicles.....	2
296-307-07011	Required safety equipment for motor vehicles.....	2
296-307-07013	Rules that apply to vehicles used to transport employees.	2
296-307-073	Requirements that apply to changing and charging, and storage of batteries.	4
296-307-076	Guarding farm field equipment.	4

WAC 296-307-065 Identification of slow-moving vehicles.

- (1) The employer must ensure that all farm tractors and other slow-moving farm vehicles and equipment used on public roads have lamps, reflectors, and a slow-moving vehicle emblem. From one-half hour after sunset to one-half hour before sunrise, slow-moving vehicles must have lights and reflectors.
- (2) The slow-moving vehicle emblem is a fluorescent yellow-orange triangle with a dark red reflective border. (See figure.) The emblem must be used on public roads only by vehicles designed to move slowly (25 M.P.H. or less).

WAC 296-307-070 Motor vehicle.



WAC 296-307-07001 Motor vehicle maintenance.

- (1) The employer must maintain all motor vehicles and their parts in good repair and safe condition.
- (2) The employer must not use tires that are worn beyond the point of safety.
- (3) Employees must report to the employer any motor vehicle or other farm equipment that is in unsafe operating condition. The employer must ensure that the vehicle or equipment is removed from service and repaired before use.
- (4) Before an employee performs service or repair work under hydraulic or mechanical raised dump truck beds, blades, discs, or other equipment, the raised portion of the equipment must be manually pinned or blocked to prevent falling.

WAC 296-307-07003 Motor vehicle operation.

- (1) Vehicles must be driven at safe operating speed.
- (2) Truck drivers must operate equipment at a safe speed for roadway conditions.

- (3) When an employee backing a truck has obstructed vision, the employee must be assisted by a signaler. The signaler must have a clear view of the rear of the truck and the operator of the truck.
- (4) Truck drivers must sound their horn before starting to back, and intermittently while backing.
- (5) Shut off motors before refueling. Take care to prevent fuel from spilling on hot parts.

WAC 296-307-07005 Qualifications to operate motor vehicle.

Only qualified drivers may operate motor vehicles and must have a current motor vehicle operator's license.

WAC 296-307-07007 Requirements that apply to motor vehicle brakes.

- (1) The employer must ensure that motor vehicles have brakes that will safely hold the maximum load on maximum grades.
- (2) Trucks parked on an incline must have the steered wheels turned into the curb and must have at least one "driver" wheel chocked on each side, independent of the braking system.

Exception: If the truck has a functioning secondary braking system, the turned wheels and chock are not required.
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- (3) The employer must ensure that trailers have working air brakes, or another approved type. Air must be cut into the trailer brake system at the time that the trailer is coupled to the truck.
- (4) The driver must test truck and trailer brakes before driving down a steep grade.

WAC 296-307-07009 Loading and unloading motor vehicles.

- (1) The employer must ensure that employees load and unload motor vehicles safely.
- (2) All loads transported on trucks or truck and trailer combinations must be properly secured and distributed. Loads must not exceed the safe operating load for the roadway condition and the capacity of the bridges, trestles, and other structures.

WAC 296-307-07011 Required safety equipment for motor vehicles.

All motor vehicles must have standard lights, horn, flags, flares, and other safety equipment that conforms to the state of Washington motor vehicles laws.

WAC 296-307-07013 Rules that apply to vehicles used to transport employees.

The employer must ensure that motor vehicles used regularly to transport employees meet the following requirements:

- (1) The vehicles are well equipped, covered against the weather, and maintained in good mechanical condition at all times.

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- (2) A sufficient number of properly secured seats are provided in each vehicle to accommodate the number of employees transported. When emergency conditions make it necessary to transport more employees than the seating capacity can accommodate, all employees must ride within the vehicle. No employee may ride on fenders or running boards of the vehicle.
 - (3) No employees may ride in or on any vehicle with their legs hanging over the end or sides. All trucks without tail gates should have safety bars.
 - (4) The vehicles have storage strong enough to retain sharp tools that could present a hazard to employees being transported.
 - (5) All dump-trucks used to transport employees have an adequate safety chain or locking device to ensure that the body of the truck is not raised while employees are riding in it.
 - (6) Explosives or highly inflammable materials are not carried in or on the vehicle while it is used to transport employees.
 - (7) Exhaust systems are installed and maintained in proper condition, and are designed to eliminate the employee exposure to exhaust gases and fumes.
 - (8) Within the cab, crew trucks must carry only the number of passengers for which they are designed. In any seating arrangement, the driver must be able to maintain full freedom of motion. The driver's normal vision must be free from obstruction by passengers or the seating arrangement.
 - (9) All enclosed crew trucks have an emergency exit in addition to the regular entrance.
 - (10) Trucks used for hauling gravel may be used as crew trucks if they meet the following requirements:
 - (a) Steps in proper places;
 - (b) Wooden floors;
 - (c) Securely fastened seats;
 - (d) Truck is properly covered; and
 - (e) Compliance with all other general regulations covering crew trucks.
 - (11) Half-ton vehicles must haul no more than six persons including driver. Three-quarter-ton vehicles must haul no more than eight persons including driver.
 - (12) The vehicle is equipped with the first-aid supplies required by WAC 296-307-03920, two blankets, and a fire extinguisher.

<p>Note: Additional requirements relating to first aid are located in WAC 296-307-039.</p>

- (13) Heating units with open fires are not used in vehicles transporting crews.

WAC 296-307-073 Requirements that apply to changing and charging, and storage of batteries.

- (1) Battery changing installations must be located in areas designated for that purpose.
- (2) Facilities must be provided for:
 - (a) Flushing and neutralizing spilled electrolyte;
 - (b) Fire protection;
 - (c) Protecting charging apparatus from damage by trucks; and
 - (d) Adequate ventilation of fumes from gassing batteries.
- (3) Racks used to support batteries should be made of or covered with materials that will not create sparks.
- (4) A conveyor, overhead hoist, or equivalent material handling equipment must be provided for handling batteries.
- (5) Reinstalled batteries must be properly positioned and secured in the vehicle.
- (6) A carboy tilter or siphon must be provided for handling electrolyte.
- (7) When mixing water and acid for charging batteries, pour acid into water; do not pour water into acid.
- (8) Vehicles must be properly positioned and the brake applied before attempting to change or charge batteries.
- (9) When charging batteries, the vent caps should be kept in place to avoid electrolyte spray. The employer must ensure that vent caps function. The battery (or compartment) cover(s) must be open for cooling.
- (10) Precautions must be taken to prevent open flames, sparks, or electric arcs in battery charging areas.
- (11) Tools and other metallic objects must be kept away from the tops of uncovered batteries.

WAC 296-307-076 Guarding farm field equipment.

Farm field equipment. Tractors or implements, including self-propelled implements, used in agricultural operations.

- (1) All power transmission components must be guarded according to WAC 296-307-280.
- (2) The manufacturer's instruction manual, if published by the manufacturer and currently available, must be the source of information for the safe operation and maintenance of field equipment.
- (3) The employer must ensure that all power takeoff shafts, including rear, mid-mounted or side-mounted shafts, are guarded by a master shield, as follows:

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- (a) The rear power takeoff has a master shield. The master shield is strong enough to prevent permanent deformation of the shield when a 250-pound operator mounts or dismounts the tractor using the shield as a step.
 - (b) Power takeoff driven equipment is guarded to prevent employee contact with rotating members of the power drive system. When the tractor master shield must be removed to use specific power takeoff driven equipment, the equipment must provide protection from the part of the tractor power takeoff shaft that protrudes from the tractor.
 - (c) Signs are placed at prominent locations on the tractor and on power takeoff driven equipment requiring that safety shields are kept in place.
- (4) The following functional components must be shielded to a degree consistent with the intended function and operator's vision of the component:
- (a) Snapping or husking rolls;
 - (b) Straw spreaders and choppers;
 - (c) Cutterbars;
 - (d) Flail rotors;
 - (e) Rotary beaters;
 - (f) Mixing augers;
 - (g) Feed rolls;
 - (h) Conveying augers;
 - (i) Rotary tillers; and
 - (j) Similar units that must be exposed for proper function.
- (5) Where removing a guard or access door will expose an employee to any component that continues to rotate after the power is disengaged, the employer must provide, in the immediate area:
- (a) A safety sign warning the employee to look and listen for evidence of rotation and to wait until all components have stopped before removing the guard or access door.
 - (b) A readily visible or audible warning of rotation on equipment manufactured after October 25, 1976.
- (6) If the mounting steps or ladder and the handholds of the propelling vehicle are made inaccessible by installation of other equipment, other steps and handholds must be provided on the equipment.
- (7) The employer must ensure that the operator's steps and platform have a slip-resistant covering to minimize the possibility of slipping.
- (8) Powered machines not driven by an individual motor must have a clutch or other effective means of stopping.

- (9) All friction clutches must have sufficient clearance and be kept adjusted to prevent drag or creeping when disengaged.

PART F
ROLLOVER PROTECTIVE STRUCTURES
(ROPS) FOR TRACTORS

WAC		Page
296-307-080	Rollover protective structures (ROPS) for tractors.	1
296-307-08003	Agricultural tractors covered by this section.....	1
296-307-08006	Definitions that apply to rollover protective structures (ROPs) for agricultural tractors.	1
296-307-08009	Requirements that apply to the testing and performance of ROPS used on agricultural tractors.	1
296-307-08012	Requirements that apply to seatbelts used with ROPS on agricultural tractors.....	1
296-307-08015	ROPS requirements that apply to agricultural tractors.	2
296-307-08018	Required employee training that apply to ROPS used on agricultural tractors.....	2
296-307-08021	Requirements that apply to ROPS used on agricultural tractors.	3
296-307-085	Requirements for ROPS to be provided for material handling equipment.	4
296-307-090	Requirements that apply to overhead protection for operators of Agricultural and industrial tractors.	4

WAC 296-307-080 Rollover protective structures (ROPS) for tractors.**WAC 296-307-08003 Agricultural tractors covered by this section.**

All agricultural tractors manufactured after October 25, 1976, must meet the requirements of WAC 296-307-080. An agricultural tractor manufactured on or before October 25, 1976, must meet the requirements of WAC 296-307-080 if:

- (1) The tractor was built or sold with rollover protective structures (ROPS) as an optional accessory; or
- (2) According to the manufacturer, the tractor was designed to accommodate the addition of ROPS.

WAC 296-307-08006 Definitions that apply to rollover protective structures (ROPS) for agricultural tractors.

Agricultural tractor. A two-wheel-drive or four-wheel-drive vehicle, or a track vehicle of more than twenty net engine horsepower, designed to furnish the power to pull, carry, propel, or drive implements that are designed for agriculture. All human-powered implements are excluded.

Low profile tractor. A wheel or track-equipped vehicle with the following characteristics:

- (a) The front wheel spacing is equal to the rear wheel spacing, as measured between the centerlines of the wheels;
- (b) The clearance from the bottom of the tractor chassis to the ground is eighteen inches or less;
- (c) The highest point of the hood is sixty inches or less, and
- (d) The tractor is designed so that the operator straddles the transmission when seated.

WAC 296-307-08009 Requirements that apply to the testing and performance of ROPS used on agricultural tractors.

The employer must provide a rollover protective structure (ROPS) for each employee-operated tractor that is covered by WAC 296-307-080. ROPS used on wheel-type tractors must meet the test and performance requirements of OSHA 1928.51 CFR. Protective frames for wheel type agricultural tractors, and ROPS used on track-type tractors must meet the test and performance requirements of SAE Standard J334a (July 1970) and the portions of SAE Standard J167 (1971) pertaining to overhead protection requirements.

WAC 296-307-08012 Requirements that apply to seatbelts used with ROPS on agricultural tractors.

- (1) Where ROPS are required by WAC 296-307-080, the employer must:
 - (a) Provide each tractor with a seatbelt;
 - (b) Require that each employee use the seatbelt while the tractor is moving; and

- (c) Require that each employee tighten the seatbelt sufficiently to confine the employee to the ROPS protected area.
- (2) Each seatbelt and seatbelt anchorage must meet the requirements of ANSI/SAE J800 April 1986, Motor Vehicle Seat Belt Assemblies.
 - (a) Where a suspended seat is used, the seatbelt must be fastened to the movable portion of the seat.
 - (b) The seatbelt webbing material must be at least as resistant to acids, alkalis, mildew, aging, moisture and sunlight as untreated polyester fiber.

WAC 296-307-08015 ROPS requirements that apply to agricultural tractors.

ROPS are not required on agricultural tractors that are used as follows:

- (1) Low profile tractors used in orchards, vineyards or hop yards where the vertical clearance requirements would substantially interfere with normal operations, and for work related to these uses.
- (2) Low profile tractors while used inside a farm building or greenhouse in which the vertical clearance is insufficient to allow a ROPS equipped tractor to operate.
- (3) Tractors while used with mounted equipment that is incompatible with ROPS (for example, cornpickers, cotton strippers, vegetable pickers, and fruit harvesters).
- (4) Track-type agricultural tractors whose overall width (measured between the outside edges of the tracks) is at least three times the height of the rated center of gravity, and whose rated maximum speed in forward or reverse is not greater than seven miles per hour, when used only for tillage or harvesting operations, and which:
 - (a) Does not involve operating on slopes in excess of forty percent from horizontal; and
 - (b) Does not involve operating on piled crop products or residue (for example: Silage in stacks or pits); and
 - (c) Does not involve operating in close proximity to irrigation ditches, streams or other excavations more than two feet deep that contain slopes of more than forty percent from horizontal; and
 - (d) Does not involve construction-type operation, such as bulldozing, grading, or land clearing.

WAC 296-307-08018 Required employee training that apply to ROPS used on agricultural tractors.

- (1) The employer must ensure that every employee who operates an agricultural tractor is informed of the operating practices listed below and of any other practices dictated by the work environment. The employer must provide the information at the time of initial assignment and at least annually thereafter.

EXHIBIT A**EMPLOYEE OPERATING INSTRUCTIONS**

1. Securely fasten the seat belt if the tractor has a ROPS.
 2. Where possible, avoid operating the tractor near ditches, embankments and holes.
 3. Reduce speed when turning, crossing slopes and on rough, slick or muddy surfaces.
 4. Stay off slopes too steep for safe operation.
 5. Watch where going, especially at row ends, on roads and around trees.
 6. Passengers, other than persons required for instruction or machine operation, must not be permitted to ride on equipment unless a passenger seat or other protective device is provided.
 7. Operate the tractor smoothly-no jerky turns, starts, or stops.
 8. Hitch only to the drawbar and hitch points recommended by tractor manufacturers.
 9. When tractor is stopped, set brakes securely and use park lock if available.
- (2) The employer must ensure that every employee who operates an agriculture tractor is trained specifically in the operation of the tractor to be used. The training must include an orientation of the operator to the topographical features of the land where the tractor will be operated. Training must emphasize safe operating practices to avoid rollover.
- (3) The tractor training program must be described in the written accident prevention program required by WAC 296-307-030.

WAC 296-307-08021 Requirements that apply to ROPS used on agricultural tractors.

- (1) The employer must ensure that batteries, fuel tanks, oil reservoirs, and coolant systems are constructed and located or sealed to ensure that no spillage comes in contact with the operator in the event of an upset.
- (2) All sharp edges and corners at the operator's station must be designed to minimize operator injury in the event of an upset.
- (3) When ROPS are removed, they must be remounted to meet the requirements of WAC 296-307-080.
- (4) The employer must ensure that each ROPS has a label, permanently affixed to the structure, that states:
 - (a) Manufacturer's or fabricator's name and address;
 - (b) ROPS model number, if any;
 - (c) Tractor makes, models, or series numbers that the structure is designed to fit; and
 - (d) That the ROPS model was tested in accordance with the requirements of this section.

WAC 296-307-085 Requirements for ROPS to be provided for material handling equipment.

- (1) This section applies to the following types of material handling equipment: Rubber-tired, self-propelled scrapers; rubber-tired front-end loaders; rubber-tired dozers; wheel-type agricultural and industrial tractors; crawler tractors; crawler-type loaders; and motor graders, with or without attachments, that are used in agricultural work. This section does not apply to side-boom pipelaying tractors.
- (2) The employer must ensure that material handling equipment manufactured on or after October 25, 1976, is equipped with ROPS that meet the minimum performance standards of WAC 296-307-08009.
- (3) ROPS and supporting attachments must meet the minimum performance standards of OSHA 1928.52 CFR, Protective Frames for Wheel Type Agricultural Tractors-Test Procedures and Performance Requirements, or must be designed, fabricated, and installed in a manner that will support, based on the ultimate strength of the metal, at least two times the weight of the prime mover applied at the point of impact.
 - (a) The ROPS must be designed to minimize the likelihood of a complete overturn and to minimize the possibility of the operator being crushed in a rollover.
 - (b) The design must provide a vertical clearance of at least fifty-two inches from the work deck to the ROPS at the entrance.
- (4) When ROPS are removed, they must be remounted so as to meet the requirements of this section.
- (5) Each ROPS must have a label, permanently affixed to the structure that states:
 - (a) Manufacturer's or fabricator's name and address;
 - (b) ROPS model number, if any;
 - (c) Tractor makes, models, or series numbers that the structure is designed to fit; and
 - (d) That the ROPS model was tested in accordance with the requirements of this section.

WAC 296-307-090 Requirements that apply to overhead protection for operators of agricultural and industrial tractors.

This section applies to wheel-type agricultural tractors used in construction work and to wheel-type industrial tractors used in agriculture work.

- (1) If grid or mesh is used for overhead protection, the largest permissible opening is 1.5 in. (38 mm.) in diameter. The overhead protection must not be installed in such a way as to become a hazard in the case of upset.
- (2) All equipment used in site clearing operations must have rollover guards meeting the requirements of this chapter. The employer must ensure that rider-operated equipment is equipped with an overhead and rear canopy guard meeting the following requirements:

- (a) The overhead covering is at least eighth-inch steel plate or quarter-inch woven wire mesh with openings no greater than one inch, or equivalent.
 - (b) The opening in the rear of the canopy structure is covered with not less than quarter-inch woven wire mesh with openings no greater than one inch.
- (3) Overhead protection that meets the provisions of SAE Standard J334 (July 1970) for rubber-tired dozers and rubber-tired loaders also meets the requirements of this standard.

PART G
FIELD SANITATION

WAC		Page
296-307-095	Field sanitation.	1
296-307-09503	Scope.....	1
296-307-09506	Definitions that apply to this section.....	1
296-307-09509	Required field sanitation training.	1
296-307-09512	The employer must provide potable water sources.....	2
296-307-09515	Handwashing facilities.	3
296-307-09518	Toilet facilities.	3

WAC 296-307-095 Field sanitation.

WAC 296-307-09503 Scope.

WAC 296-307-095 applies to any agricultural employer with one or more employees engaged in any hand-labor operations in the field.

- Exception:** WAC 296-307-09515 (handwashing facilities) and 296-307-09518 (toilet facilities) do not apply if employees:
- (1) Are engaged in field activities for the production of grains, livestock, or livestock feed; or
 - (2) Use vehicles, machinery, or animals as part of their field activities and, when needed, can transport themselves to and from toilet and handwashing facilities.

WAC 296-307-09506 Definitions that apply to this section.

Accessible. A maximum of one-quarter mile or five minutes travel time from the worksite.

Hand-labor operations. Agricultural operations performed by hand or with hand tools.

For example: The hand cultivation, weeding, planting or harvesting of vegetables, nuts, fruit, seedlings or other crops, including mushrooms, and hand packing into containers.

- Exception:** Hand-labor does not include logging operations, the care or feeding of livestock, or hand-labor operations in permanent structures (e.g., canning facilities or packing houses).

Handwashing facility. A facility that meets the requirements of WAC 296-307-09515 and is approved by the local health authority.

Potable water. Water that is suitable for drinking by the public and meets the requirements of chapter 246-290 or 246-291.

Toilet. A fixed or portable facility designed for the purpose of adequate collection and containment of both defecation and urination. "Toilet" includes biological, chemical, flush, and combustion toilets, or sanitary outhouses.

WAC 296-307-09509 Required field sanitation training.

The employer must provide each employee with verbal orientation on field sanitation facilities. The orientation must be understandable to each employee and must include:

- (1) The location of potable water supplies and the importance of drinking water frequently, especially on hot days;
- (2) Identification of all nonpotable water at the worksite and prohibition of the use of nonpotable water for sanitation purposes with an explanation of the hazards associated with using nonpotable water;

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- (3) The location of handwashing facilities and the importance of handwashing:
 - (a) Before and after using the toilet; and
 - (b) Before eating and smoking; and
 - (4) The location of toilet facilities; an explanation that facilities are for employee convenience and health considerations; the necessity to keep them sanitary; and that using the fields, orchards, or forests is not an option.

WAC 296-307-09512 The employer must provide potable water sources.

The employer must provide potable water for employees engaged in hand-labor operations in the field, without cost to the employee. Potable water must meet the following requirements:

- (1) Potable water is in locations that are accessible to all employees.
- (2) Potable water containers are refilled daily or more often as necessary.
- (3) Potable water dispensers are designed, constructed, and serviced so that sanitary conditions are maintained. They are closeable and equipped with a tap.
- (4) Open containers such as barrels, pails, or tanks for drinking water from which water must be dipped or poured, whether or not they are fitted with a cover, are prohibited.
- (5) Any container used to distribute drinking water is clearly marked in English and with the appropriate international symbol describing its contents.
- (6) Any container used to distribute drinking water is only used for that purpose.
- (7) Potable water is suitably cool and provided in sufficient amounts, taking into account the air temperature, humidity, and the nature of the work performed, to meet employees' needs.

<p>Note: Suitably cool water should be sixty degrees Fahrenheit or less. During hot weather, employees may require up to three gallons of water per day. Additional requirements may be found in the outdoor heat exposure standard in Part G-1, WAC 296-307-09740 Drinking water, which applies between May 1st and September 30th of each year.</p>
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- (8) The use of common drinking cups or dippers is prohibited. Water is dispensed in single-use drinking cups, personal containers, or by water fountains.

Single-use drinking cups. Containers of any type or size, disposable or not, and including personal containers if the choice to use a personal container is made by the employee, not the employer.

- (9) Employees must be prohibited from drinking from irrigation ditches, creeks or rivers. Potable water must meet the quality standards for drinking purposes of the state or local authority, or must meet quality standards of the United States Environmental Protection Agency's National Interim-Primary Drinking Water Regulations, published in 40 CFR Part 141 and 40 CFR 147.2400.

WAC 296-307-09515 Handwashing facilities.

The employer must provide handwashing facilities for employees engaged in hand-labor operations in the field, without cost to the employee. Handwashing facilities must meet the following requirements:

- (1) One handwashing facility with a tap and an adequate supply of water, soap, single-use hand towels, and either a basin or other suitable container for washing is provided for each twenty employees or fraction of twenty.

Note: Nonpotable water must not be used for washing any part of a person, except as permitted by the local health authority.

- (2) Each facility has running water.
- (3) Each facility has a dispenser containing handsoap or a similar cleansing agent.
- (4) Each facility has individual single-use hand towels.
- (5) Facilities are maintained in a clean and sanitary condition according to appropriate public health sanitation practices.
- (6) Waste receptacles are provided. Disposal of wastes from the facilities does not create a hazard nor cause an unsanitary condition.
- (7) Employees are allowed reasonable time during the work period to use the facilities.
- (8) Handwashing facilities are near toilet facilities and within one-quarter mile of each employee's worksite in the field.

Exception: Where is not feasible to locate facilities as required above, the facilities must be located at the point of closest vehicular access.

WAC 296-307-09518 Toilet facilities.

The employer must provide toilet facilities for employees engaged in hand-labor operations in the field, without cost to the employee. Toilet facilities must meet the following requirements:

- (1) One toilet facility is provided for each twenty employees or fraction of twenty.
- (2) The employer must ensure, at the beginning of each day that the toilets are inspected. If any toilet facility fails to meet the requirements of this section, immediate corrective action is taken. Inspections are documented and the record maintained at the worksite for at least seventy-two hours.
- (3) Toilet facilities are adequately ventilated; appropriately screened, and have self-closing doors that can be closed and latched from the inside. Toilet facilities are constructed to ensure privacy.
- (4) Facilities are maintained in a clean, sanitary, and functional condition and according to appropriate public health sanitation practices.
- (5) Toilets are supplied with toilet paper.

- (6) Disposal of wastes from the facilities does not create a hazard or cause an unsanitary condition.
- (7) Employees are allowed reasonable time during the work period to use the facilities.
- (8) Facilities are near handwashing facilities and within one-quarter mile of each employee's worksite in the field.

<p>Exception: Where it is not feasible to locate facilities as required above, the facilities must be located at the point of closest vehicular access.</p>
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PART G-1
OUTDOOR HEAT EXPOSURE

WAC		Page
296-307-097	Outdoor heat exposure.	1
296-307-09710	Scope and purpose.	1
296-307-09720	Definitions.	1
296-307-09730	Employer and employee responsibility.	2
296-307-09735	Access to shade.	4
296-307-09740	Drinking water.	4
296-307-09745	Acclimatization.	4
296-307-09747	High heat procedures.	5
296-307-09750	Responding to signs and symptoms of heat-related illness.	6
296-307-09760	Information and training.	7

WAC 296-307-097 Outdoor Heat Exposure

WAC 296-307-09710 Scope and purpose.

WAC 296-307-09710 through 296-307-09760:

- (1) Applies to all employers with employees performing work in an outdoor environment.
- (2) Applies to outdoor work environments when employees are exposed to outdoor heat.
- (3) Does not apply to incidental exposure. Incidental exposure means an employee is not required to perform a work activity outdoors for more than 15 minutes in any 60-minute period. This exception may be applied every hour during the work shift.

WAC 296-307-09720 Definitions.

- (1) **Acclimatization.** The body's temporary adaptation to work in heat that occurs as a person is exposed to it over a period of seven to 14 days depending on the amount of recent work in the heat and individual factors. Acclimatization can be lost after seven consecutive days away from working in the heat.
- (2) **Buddy system.** A system where individuals are paired or teamed up into work groups so each employee can be observed by at least one other member of the group to monitor and report signs and symptoms of heat-related illness.
- (3) **Drinking water.** Potable water that is suitable to drink and suitably cool in temperature. Other acceptable beverages include drinking water packaged as a consumer product, and electrolyte-replenishing beverages (i.e., sports drinks) that do not contain high amounts of sugar, caffeine, or both such as energy drinks.
- (4) **Engineering controls.** The use of devices to reduce exposure and aid cooling, not to include wearable items. Examples of engineering controls include fans, misting stations, air-conditioning, etc.
- (5) **Heat-related illness.** A medical condition resulting from the body's inability to cope with a particular heat load, and includes, but is not limited to, heat cramps, heat rash, heat exhaustion, fainting, and heat stroke.
- (6) **Outdoor environment.** An environment where work activities are conducted outside. Work environments such as inside vehicle cabs, sheds, and tents or other structures may be considered an outdoor environment if the environmental factors affecting temperature are not managed by engineering controls.
- (7) **Risk factors for heat-related illness.** Conditions that increase susceptibility for heat-related illness including:
 - (a) Environmental factors such as air temperature, relative humidity, air movement, radiant heat from the sun and other sources, conductive heat sources such as the ground;

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- (b) Workload (light, moderate, or heavy) and work duration;
 - (c) Personal protective equipment and clothing worn by employees; and
 - (d) Personal factors such as age, medications, physical fitness, and pregnancy.
- (8) **Shade.** A blockage of direct sunlight. Shade may be provided by any natural or artificial means that does not expose employees to unsafe or unhealthy conditions and that does not deter or discourage access or use. One indicator that blockage is sufficient is when objects do not cast a shadow in the area of blocked sunlight. Shade is not adequate when heat in the area of shade defeats the purpose of shade, which is to allow the body to cool. For example, a car sitting in the sun does not provide acceptable shade to a person sitting in it, unless the car is running with air-conditioning.
- (9) **Vapor barrier clothing.** Clothing that significantly inhibits or completely prevents sweat produced by the body from evaporating into the outside air. Such clothing includes encapsulating suits, various forms of chemical resistant suits used for PPE, and other forms of nonbreathable clothing.

WAC 296-307-09730 Employer and employee responsibility.

- (1) Employers of employees exposed to temperatures at or above those listed in Table 1 of this section must:
- (a) Address their outdoor heat exposure safety program in their written accident prevention program (APP), in a language that employees understand;
 - (b) Ensure the outdoor heat exposure safety program contains, at a minimum, the following elements:
 - (i) Procedures for providing sufficiently cool drinking water;
 - (ii) Procedures for providing shade or other sufficient means to reduce body temperature, including the location of such means and how employees can access them;
 - (iii) Emergency response procedures for employees demonstrating signs or symptoms of heat-related illness;
 - (iv) Acclimatization methods and procedures;
 - (v) High heat procedures; and
 - (vi) The specific method used by the employer to closely observe employees for signs and symptoms of heat-related illness as required under WAC 296-307-09745 and 296-307-09747(2);
 - (c) Ensure a copy of the outdoor heat exposure safety program is made available to employees and their authorized representatives;

- (d) Encourage employees to frequently consume water or other acceptable beverages to ensure hydration; and
- (e) Encourage and allow employees to take a preventative cool-down rest period when they feel the need to do so to protect themselves from overheating using sufficient means to reduce body temperature such as shade or other equally or more effective means. The preventative cool-down rest period must be paid unless taken during a meal period that is not otherwise required to be compensated. If an employee is showing signs or symptoms of heat-related illness during the cool-down rest period, the employer must comply with the requirements under WAC 296-307-09750.

Table 1. To determine which temperature applies to each worksite, select the temperature associated with the general type of clothing or personal protective equipment (PPE) each employee is required to wear.

Table 1

Nonbreathable clothes including vapor barrier clothing or PPE such as chemical resistant suits	52°F
All other clothing	80°F

Note: There is no requirement to maintain temperature records. The temperatures records. The temperatures in Table 1 were developed based on Washington state data and are not applicable to other states.

- (2) Employees are responsible for monitoring their own personal factors for heat-related illness including consumption of water or other acceptable beverages to ensure hydration, and taking preventative cool-down rest periods when they feel the need to do so to prevent from overheating.

WAC 296-307-09735 Access to shade.

Employers of employees exposed at or above temperatures listed in Table 1 of WAC 296-307-09730 must:

- (1) Provide and maintain one or more areas with shade at all times while employees are present that are either open to the air or provided with ventilation or cooling, and not adjoining a radiant heat source such as machinery or a concrete structure. The shade must be located as close as practicable to the areas where employees are working.

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- (2) Ensure the amount of shade present is large enough to accommodate the number of employees on a meal or rest period, so they can sit in a normal posture fully in the shade.
 - (3) In lieu of shade, employers may use other means to reduce body temperature if they can demonstrate such means are equally or more effective than shade. Some alternatives to shade may include the provision of misting stations, cooling vests, or air-conditioned areas.

WAC 296-307-09740 Drinking water.

- (1) Keeping workers hydrated in a hot outdoor environment requires that more water be provided than at other times of the year. Federal OSHA and research indicate that employers should be prepared to supply at least one quart of drinking water per employee per hour. When employee exposure is at or above an applicable temperature listed in WAC 296-307-09730 Table 1:
 - (a) Employers must ensure that a sufficient quantity of suitably cool drinking water is readily accessible to employees at all times; and
 - (b) Employers must ensure that all employees have the opportunity to drink at least one quart of drinking water per hour.
- (2) Employers are not required to supply the entire quantity of drinking water needed to be supplied for all employees on a full shift at the beginning of the shift. Employers may begin the shift with smaller quantities of drinking water if effective procedures are established for replenishment during the shift.

WAC 296-307-09745 Acclimatization.

Employers must closely observe employees for signs and symptoms of heat-related illness by implementing one or more of the close observation options under WAC 296-307-09747(2).

- (1) For 14 days when employees:
 - (a) Are newly assigned to working at or above the applicable temperatures listed in Table 1 of WAC 296-307-09730;
 - (b) Return to work at the applicable temperatures listed in Table 1 of WAC 296-307-09730 after an absence of seven days or more;
- (2) During a heat wave. For purposes of this section only, "heat wave" means any day in which the predicted high temperature for the day will be at least the temperatures listed in Table 1 of WAC 296-307-09730 and at least 10 degrees Fahrenheit higher than the average high daily temperature in the preceding five days.

Note: Employers may also consider additional acclimatization procedures recommended by NIOSH:

- NIOSH Heat Stress: Acclimatization.
<https://www.cdc.gov/niosh/mining/userfiles/works/pdfs/2017-124.pdf>
- NIOSH Criteria for a Recommended Standard for Occupational Exposure to Heat and Hot Environments:
<https://www.cdc.gov/niosh/docs/2016-106/pdfs/2016-106.pdf?id=10.26616/NIOSH PUB2016106>

WAC 296-307-09747 High heat procedures.

The employer must implement the following high heat procedures when the temperature is at or above 90 degrees Fahrenheit, unless engineering or administrative controls (such as air-conditioning or scheduling work at cooler times of the day) are used to lower employees' exposure below 90 degrees Fahrenheit.

- (1) Ensure that employees take at a minimum the mandatory cool-down rest periods in Table 2. The cool-down rest period must be provided in the shade or using other equally or more effective means to reduce body temperature. The mandatory cool-down rest period may be provided concurrently with any meal or rest period required under WAC 296-131-020 and must be paid unless taken during a meal period that is not otherwise required to be compensated. Mandatory cool-down rest periods in Table 2 are not required during emergency response operations where rescue, evacuation, utilities, communications, transportation, law enforcement, and medical operations are directly aiding firefighting, protecting public health and safety, or actively protecting, restoring or maintaining the safe and reliable operation of critical infrastructure at risk.

Table 2

Air Temperature	Mandatory cool-down rest periods
At or above 90°F	10 minutes/2 hours
At or above 100°F	15 minutes/1 hour

Note:

- Employers may also consider implementing more additional protective rest periods per NIOSH or ACGIH methods:
 - NIOSH Criteria for a Recommended Standard for Occupational Exposure to Heat and Hot Environments:
<https://www.cdc.gov/niosh/docs/2016-106/pdfs/2016-106.pdf?id=10.26616/NIOSH PUB2016106>
 - American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) for Heat Stress and Strain:
<https://www.acgih.org/heat-stress-and-strain-2/>
- The department will review work-rest periods within three years after the outdoor heat exposure rule goes into effect. We will review applicable data including, but not limited to, heat-related illness claims, inspections, other national and state regulations, peer-reviewed publications, and nationally recognized standards.

- (2) Closely observe employees for signs and symptoms of heat-related illness by implementing one or more of the following:
 - (a) Regular communication with employees working alone, such as by radio or cellular phone;
 - (b) A mandatory buddy system; or
 - (c) Other effective means of observation.

WAC 296-307-09750 Responding to signs and symptoms of heat-related illness.

- (1) Employers must ensure that effective communication by voice, observation, or electronic means is maintained so that employees at the work site and their supervisor can contact each other to report signs and symptoms of heat-related illness and get medical attention when necessary. An electronic device, such as a cellular phone or text messaging device, may be used for this purpose only if reception in the area is reliable.
- (2) Employees showing signs or demonstrating symptoms of heat-related illness must be relieved from duty and provided with a sufficient means to reduce body temperature.
- (3) Employees showing signs or demonstrating symptoms of heat-related illness must be monitored to determine whether medical attention is necessary.

WAC 296-307-09760 Information and training.

- (1) All employees and supervisors must be trained as required by this section prior to outdoor work where occupational exposure to heat might occur and at least annually after the initial training. Training must be provided in a language and manner the employee or supervisor understands.
- (2) Employee training. Effective training on the following topics must be provided to all employees who may be exposed to outdoor heat:
 - (a) The environmental factors and other work conditions (i.e., workload, work duration, personal protective equipment, clothing) that contribute to the risk of heat-related illness;
 - (b) General awareness of personal factors that may increase susceptibility to heat-related illness including, but not limited to, an individual's age, physical fitness, degree of acclimatization, medical conditions, drinking water consumption, alcohol use, previous heat-related illness, pregnancy, and use of medications that affect the body's responses to heat. This information is for the employee's personal use;
 - (c) The importance of removing heat-retaining personal protective equipment such as nonbreathable chemical resistant clothing during all breaks;
 - (d) The importance of frequent consumption of small quantities of drinking water or other acceptable beverages;
 - (e) The importance of acclimatization requirements under WAC 296-307-09745, the concept of acclimatization, and the importance of the following considerations:
 - (i) Frequent cool-down rest periods;
 - (ii) Gradual increase of work duration in the heat; and
 - (iii) Employees are unable to build a tolerance to working in the heat during a heat wave;
 - (f) The importance of taking preventative cool-down rest periods when employees feel the need to do so in order to protect themselves from overheating;
 - (g) The mandatory cool-down rest periods under WAC 296-307-09747 when the outdoor temperature reaches or exceeds 90 degrees Fahrenheit;
 - (h) The employer's procedures for providing shade or other sufficient means to reduce body temperature, including the location of such means and how employees can access them;
 - (i) The different types of heat-related illness, the common signs and symptoms of heat-related illness;

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- (j) The importance of immediately reporting signs or symptoms of heat-related illness in either themselves or in co-workers to the person in charge and the procedures the employee must follow including appropriate first aid and emergency response procedures; and
 - (k) The employer's procedures for close observation of employees for signs and symptoms of heat-related illness.
- (3) Supervisor training. Prior to supervising employees working in outdoor environments with heat exposure at or above the temperature levels listed in WAC 296-307-09730(2) Table 1, supervisors must have training on the following topics:
- (a) The information required to be provided to employees listed in subsection (1) of this section;
 - (b) The procedures the supervisor must follow to implement the applicable provisions of WAC 296-307-097 through 296-307-09760;
 - (c) The importance of considering the use of engineering or administrative controls such as air-conditioning and scheduling work during the cooler hours of the day in order to reduce employees' exposure to heat;
 - (d) The procedures the supervisor must follow if an employee exhibits signs or symptoms consistent with possible heat-related illness, including appropriate first aid and emergency response procedures; and
 - (e) Procedures for moving or transporting an employee(s) to a place where the employee(s) can be reached by an emergency medical service provided, if necessary.
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PART H
PERSONAL PROTECTIVE EQUIPMENT (PPE)

WAC		Page
296-307-100	Personal protective equipment.	1
296-307-10005	Personal protective equipment.	1
296-307-10010	Requirements that apply to eye protection.	1
296-307-10015	Requirements for personal protective equipment.	1
296-307-10020	Preventing heat-related illnesses.	1
296-307-10025	Training for personal protective equipment.	2

WAC 296-307-100 Personal protective equipment.**WAC 296-307-10005 Personal protective equipment.**

- (1) The employer must ensure that employees are protected from injury or impairment of any bodily function that might occur through absorption, inhalation or physical contact of any substance, vapor, radiation, or physical hazard. Wherever appropriate, the employer must ensure that employees use protective clothing; respiratory devices; shields; barriers; and adequate protective equipment for eyes, face, head, and extremities.
- (2) The employer must provide personal protective equipment at no cost to employees, including replacement due to normal wear and tear. The equipment must be maintained in sanitary and reliable condition.

Exception: The employer may require employees to provide their own normal work clothing, including long-sleeved shirts, long-legged pants, and socks.
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- (3) If employees provide their own protective equipment, then the employer must ensure that the equipment is adequate, properly maintained, and sanitary.

WAC 296-307-10010 Requirements that apply to eye protection.

The employer must require eye protection wherever employees are exposed to flying objects, welding or cutting glare, injurious liquids, or injurious radiation. Eye protectors must meet the criteria of the American National Standard for Occupational and Educational Eye and Face Protection.

WAC 296-307-10015 Requirements for personal protective equipment.

- (1) The employer must ensure that employees use personal protective equipment according to the manufacturer's instructions.
- (2) The employer must ensure that, before each use, employees inspect all personal protective equipment for leaks, holes, tears, or worn places, and any damaged equipment is repaired or discarded.
- (3) The employee must use personal protective equipment according to instructions and training received.
- (4) The employee shall notify the employer of any defects in personal protective equipment or when the equipment becomes contaminated.

WAC 296-307-10020 Preventing heat-related illnesses.

The employer must take appropriate measures to prevent heat-related illness that may be caused by employees wearing any required personal protective equipment.

WAC 296-307-10025 Training for personal protective equipment.

The employer must instruct each employee in the proper use of personal protective equipment. The instruction must include any special limitations or precautions indicated by the manufacturer.

PART I
WORKER PROTECTION STANDARD

WAC		Page
296-307-108	General provisions.	1
296-307-10805	Federal worker protection standard-Washington state department of labor and industries.	1
296-307-10810	Scope and purpose-40 C.F.R., Sec. 170.301.....	1
296-307-10815	Applicability-40 C.F.R., Sec. 170.303.....	1
296-307-10820	Definitions-40 C.F.R., Sec. 170.305.....	2
296-307-10825	Agricultural employer duties- 40 C.F.R., Sec. 170.309.....	6
296-307-10830	Display requirements for pesticide safety information and pesticide application and hazard information. 40 C.F.R., Sec. 170.311.....	8
296-307-10835	Commercial pesticide handler employer duties.-40 C.F.R., Sec. 170.313.12	
296-307-10840	Prohibited actions-40 C.F.R., Sec. 170.315.....	14
296-307-10845	Violations of this part-40 C.F.R., Sec. 170.317.....	14
296-307-109	Requirements for protection of agricultural workers.	15
296-307-10905	Training requirements for workers-40 C.F.R., Sec. 170.403.....	15
296-307-10910	Establishment-specific information for workers-40 C.F.R., Sec. 170.403. 19	
296-307-10915	Entry restrictions associated with pesticide applications-40 C.F.R., Sec. 170.405.....	20
296-307-10920	Worker entry restrictions after pesticide applications-40 C.F.R., Sec. 170.407.	22
296-307-10925	Oral and posted notification or worker entry restrictions-40 C.F.R., Sec. 170.409.....	24
296-307-10930	Decontamination supplies for workers-40 C.F.R., Sec. 170.411.....	28
296-307-112	Requirements for protection of agricultural pesticide handlers.....	30
296-307-11205	Training requirements for handlers-40 C.F.R., Sec. 170.501.....	30
296-307-11210	Knowledge of labeling, application-specific, and establishment-specific information for handlers-40 C.F.R., Sec. 170.503.....	33
296-307-11215	Requirements during applications to protect handlers, workers, and other persons-40 C.F.R., Sec. 170.505.....	33
296-307-11220	Personal protective equipment-40 C.F.R., Sec. 170.507.	34
296-307-11225	Decontamination and eye flushing supplies for handlers-40 C.F.R., Sec. 170.509.....	39
296-307-114	Exemptions, exceptions, and equivalency.....	41
296-307-11405	Exemptions-40 C.F.R., Sec. 170.601.....	41
296-307-11410	Exceptions for entry by workers during restricted-entry intervals-40 C.F.R., Sec. 170.603.	42
296-307-11415	Agricultural employer responsibilities to protect workers entering treated areas during a restricted-entry interval-40 C.F.R., Sec. 170.605.....	46
296-307-11420	Exceptions to personal protective equipment requirements specified on pesticide product labeling-40 C.F.R., Sec. 170.607.....	47

WAC 296-307-108 General provisions.

WAC 296-307-10805 Federal worker protection standard—Washington state department of labor and industries.

This part contains the federal Environmental Protection Agency (EPA) worker protection standard as listed in 40 C.F.R., Part 170. Revisions to the federal language have been incorporated into this part in order to be consistent with other requirements of Washington state law. These rules are adopted in conjunction with rules adopted by the Washington state department of labor and industries in this chapter, Part I and the Washington state department of agriculture in chapter 16-233 WAC.

WAC 296-307-10810 Scope and purpose—40 C.F.R., Sec. 170.301.

This part contains standards designed to reduce the risks of illness or injury resulting from workers' and handlers' occupational exposures to pesticides used in the production of agricultural plants on agricultural establishments and also to reduce the accidental exposure of workers and other persons to such pesticides. It requires handlers to wear the label specified clothing and personal protective equipment when performing handler activities, and to take measures to protect workers and other persons during pesticide applications. It also requires workplace practices designed to reduce or eliminate exposure to pesticides and establishes procedures for responding to exposure-related emergencies.

WAC 296-307-10815 Applicability—40 C.F.R., Sec. 170.303.

- (1) This regulation applies whenever a pesticide product bearing a label requiring compliance with this part is used in the production of agricultural plants on an agricultural establishment, except as provided in subsections (2) and (3) of this section.
- (2) This regulation does not apply when a pesticide product bearing a label requiring compliance with this part is used on an agricultural establishment in any of the following circumstances:
 - (a) As part of government-sponsored public pest control programs over which the owner, agricultural employer and handler employer have no control, such as mosquito abatement and Mediterranean fruit fly eradication programs.
 - (b) On plants other than agricultural plants, which may include plants in home fruit and vegetable gardens and home greenhouses, and permanent plantings for ornamental purposes, such as plants that are in ornamental gardens, parks, public or private landscaping, lawns or other grounds that are intended only for aesthetic purposes or climatic modification.
 - (c) For control of vertebrate pests, unless directly related to the production of an agricultural plant.
 - (d) As attractants or repellents in traps.
 - (e) On the harvested portions of agricultural plants or on harvested timber.

- (f) For research uses of unregistered pesticides.
 - (g) On pasture and rangeland where the forage will not be harvested for hay.
 - (h) In a manner not directly related to the production of agricultural plants including, but not limited to, structural pest control and control of vegetation in noncrop areas.
- (3) Where a pesticide product's labeling-specific directions for use or other labeling requirements are inconsistent with requirements of this chapter, users must comply with the pesticide product labeling, except as provided for in WAC 296-307-11405, 296-307-11410, and 296-307-11420.

WAC 296-307-10820 Definitions—40 C.F.R., Sec. 170.305.

Terms used in this part have the same meanings they have in the Federal Insecticide, Fungicide, and Rodenticide Act, as amended. In addition, the following terms, when used in this part, have the following meanings:

Agricultural emergency. For agricultural emergencies see WAC 296-307-11410 (3)(a).

Agricultural employer. Any person who is an owner of, or is responsible for the management or condition of, an agricultural establishment, and who employs any worker or handler.

Agricultural establishment. Any farm, forest operation, or nursery engaged in the outdoor or enclosed space production of agricultural plants. An establishment that is not primarily agricultural is an agricultural establishment if it produces agricultural plants for transplant or use (in part or their entirety) in another location instead of purchasing the agricultural plants.

Agricultural plant. Any plant, or part thereof, grown, maintained, or otherwise produced for commercial purposes, including growing, maintaining or otherwise producing plants for sale or trade, for research or experimental purposes, or for use in part or their entirety in another location. Agricultural plant includes, but is not limited to, grains; fruits and vegetables; wood fiber or timber products; flowering and foliage plants and trees; seedlings and transplants; and turf grass produced for sod. Agricultural plant does not include pasture or rangeland used for grazing.

Application exclusion zone. The area surrounding the application equipment that must be free of all persons other than appropriately trained and equipped handlers during pesticide applications.

Chemigation. The application of pesticides through irrigation systems.

Closed system. An engineering control used while removing pesticide contents from its original container, preventing the pesticide from contacting handlers. It is used to protect handlers or other persons from pesticide exposure hazards when mixing and loading pesticides. When used properly and as intended, water-soluble packaging may qualify as a type of closed system.

Commercial pesticide handler employer. Any person, other than an agricultural employer, who employs any handler to perform handler activities on an agricultural establishment. A labor contractor who does not provide pesticide application services or supervise the performance of handler activities, but merely employs laborers who perform handler activities at the direction of an agricultural or handler employer, is not a commercial pesticide handler employer.

Commercial pesticide handling establishment. Any enterprise, other than an agricultural establishment, that provides pesticide handler or crop advising services to agricultural establishments.

Crop advisor. Any person who is assessing pest numbers, damage, pesticide distribution, or the status or requirements of agricultural plants and who holds a current Washington state department of agriculture commercial consultant license in the agricultural areas in which they are advising. The term does not include any person who is performing hand labor tasks.

Designated representative. Any persons designated in writing by a worker or handler to exercise a right of access on behalf of the worker or handler to request and obtain a copy of the pesticide application and hazard information required by WAC 296-307-10825(8) in accordance with WAC 296-307-10830(2).

Early entry. Entry by a worker into a treated area on the agricultural establishment after a pesticide application is complete, but before any restricted-entry interval for the pesticide has expired.

Employ. To obtain, directly or through a labor contractor, the services of a person in exchange for any type of compensation including a salary, wages, or piece-rate wages, without regard to who may pay or who may receive the salary or wages. It includes obtaining the services of a self-employed person, an independent contractor, or a person compensated by a third party, except that it does not include an agricultural employer obtaining the services of a handler through a commercial pesticide handler employer or a commercial pesticide handling establishment.

Enclosed cab. A cab with a nonporous barrier that totally surrounds the occupant(s) of the cab and prevents contact with pesticides that are being applied outside of the cab. Refer to WAC 296-307-11420(5).

Enclosed space production. Production of an agricultural plant indoors or in a structure or space that is covered in whole or in part by any nonporous covering or that is covered and enclosed in a way that would obstruct natural air flow, and that is large enough to permit a person to enter. Structures, with a covering that do not have any walls, such as shade houses made of fencing or fabric to provide shade on plants that do not obstruct airflow are not considered enclosed spaces.

Fumigant. Any pesticide product that is a vapor or gas, or forms a vapor or gas upon application, and whose pesticidal action is achieved through the gaseous or vapor state.

Hand labor. Any agricultural activity performed by hand or with hand tools that causes a worker to have substantial contact with surfaces (such as plants, plant parts, or soil) and other surfaces that may contain pesticide residues. These activities include, but are not limited to, harvesting, detasseling, thinning, weeding, topping, planting, sucker removal, pruning, disbudding, rouging, and packing produce into containers in the field. Hand labor does not include performing crop advisor tasks or operating, moving, or repairing irrigation or watering equipment. For irrigation or watering equipment used during chemigation see handler activities.

Handler. Any person, including a self-employed person, who is employed by an agricultural employer or commercial pesticide handler employer and performs any of the following activities:

- (a) Mixing, loading, or applying pesticides.
- (b) Disposing of pesticides.
- (c) Handling opened containers of pesticides, emptying, triple-rinsing, or cleaning pesticide containers according to pesticide product labeling instructions, or disposing of pesticide containers that have not been cleaned. The term does not include any person who is only handling unopened pesticide containers or pesticide containers that have been emptied or cleaned according to pesticide product labeling instructions.
- (d) Acting as a flagger.
- (e) Cleaning, adjusting, handling, or repairing the parts of mixing, loading, or application equipment that may contain pesticide residues, including irrigation equipment used for chemigation.
- (f) Assisting with the application of pesticides.
- (g) Entering an enclosed space after the application of a pesticide and before the inhalation exposure level listed in the labeling has been reached or one of the ventilation criteria established in WAC 296-307-10915 (2)(c) or the labeling has been met to operate ventilation equipment, monitor air levels, or adjust or remove coverings used in fumigation.
- (h) Entering a treated area outdoors after application of any soil fumigant during the labeling-specified entry-restricted period to adjust or remove coverings used in fumigation.
- (i) Performing tasks as a crop advisor during any pesticide application or restricted-entry interval, or before the inhalation exposure level listed in the pesticide product labeling has been reached or one of the ventilation criteria established in WAC 296-307-10915 (2)(c) or the pesticide product labeling has been met, and either inhalation exposure levels are below PELs in WAC 296-307-624, Part Y-6 Respiratory hazards, or respiratory protection is provided and worn according to requirements in WAC 296-307-594, Part Y-5.

Handler employer. Any person who is self-employed as a handler or who employs any handler.

Immediate family. Includes only spouse, children, stepchildren, foster children, parents, stepparents, foster parents, brothers, and sisters.

Labor contractor. A person, other than a commercial pesticide handler employer, who employs workers or handlers to perform tasks on an agricultural establishment for an agricultural employer or a commercial pesticide handler employer.

Outdoor production. Production of an agricultural plant in an outside area that is not enclosed or covered in any way by nonporous material. This includes shade houses without sides.

Owner. Any person who has a present possessory interest (e.g., fee, leasehold, rental, or other) in an agricultural establishment. A person who has both leased such agricultural establishment to another person and granted that same person the right and full authority to manage and govern the use of such agricultural establishment is not an owner for purposes of this chapter.

Personal protective equipment. Devices, appliances or apparel that are worn or used to protect the body from exposure to safety and health hazards. PPE that protects against chemical hazards such as pesticides or pesticide residues including, but not limited to: Coveralls, chemical-resistant suits, chemical-resistant gloves, chemical-resistant footwear, respirators, chemical-resistant aprons, chemical-resistant headgear, and protective eyewear.

Restricted-entry interval (REI). The time after the end of a pesticide application during which entry into the treated area is restricted.

Safety data sheet (SDS). Written or printed material concerning a hazardous chemical that is prepared in accordance with WAC 296-901-14014.

Treated area. Any area to which a pesticide is being directed or has been directed.

Use, to use a pesticide. Any of the following:

- (a) Preapplication activities including, but not limited to:
 - (i) Arranging for the application of the pesticide.
 - (ii) Mixing and loading the pesticide.
 - (iii) Making necessary preparations for the application of the pesticide, including responsibilities related to worker notification, training of workers or handlers, providing decontamination supplies, providing pesticide safety information and pesticide application and hazard information, use and care of personal protective equipment, providing emergency assistance, and heat stress management.

Note: Additional requirements in WAC 296-307-097 Outdoor heat exposure, may apply between May 1st and September 30th of each year. See Part G-1.

- (b) Application of the pesticide.

- (c) Postapplication activities intended to reduce the risks of illness and injury resulting from handlers' and workers' occupational exposures to pesticide residues during and after the restricted-entry interval, including responsibilities related to worker notification, training of workers or early entry workers, providing decontamination supplies, providing pesticide safety information and pesticide application and hazard information, use and care of personal protective equipment, providing emergency assistance, and heat stress management.
- (d) Other pesticide-related activities including, but not limited to, transporting or storing pesticides that have been opened, cleaning equipment, and disposing of excess pesticides, spray mix, equipment wash waters, pesticide containers, and other pesticide-containing materials.

Worker. Any person, including a self-employed person, who is employed and performs activities directly relating to the production of agricultural plants on an agricultural establishment.

Worker housing area. Any place or area of land on or near an agricultural establishment where housing or space for housing is provided for workers or handlers by an agricultural employer, owner, labor contractor, or any other person responsible for the recruitment or employment of agricultural workers.

WAC 296-307-10825 Agricultural employer duties—40 C.F.R., Sec. 170.309.

Agricultural employers must:

- (1) Ensure that any pesticide is used in a manner consistent with the pesticide product labeling, including the requirements of this part, when applied on the agricultural establishment.
- (2) Ensure that each worker and handler subject to this part receives the protections required by this part.
- (3) Ensure that any handler and any early entry worker is at least 18 years old.
- (4) Provide to each person, including labor contractors, who supervises any workers or handlers, information and directions sufficient to ensure that each worker and handler receives the protections required by this part. Such information and directions must specify the tasks for which the supervisor is responsible in order to comply with the provisions of this part.
- (5) Require each person, including labor contractors, who super-vises any workers or handlers, to provide sufficient information and directions to each worker and handler to ensure that they can comply with the provisions of this part.
- (6) Provide emergency assistance in accordance with this subsection. If there is reason to believe that a worker or handler has experienced a potential pesticide exposure during his or her employment on the agricultural establishment or shows symptoms similar to those associated with acute exposure to pesticides during or within 72 hours after his or her employment on the agricultural establishment, and needs emergency medical treatment, the agricultural employer must do all of the following promptly after learning of the possible poisoning or injury:

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- (a) Make available to that person prompt transportation from the agricultural establishment, including any worker housing area on the establishment, to an operating medical care facility capable of providing emergency medical treatment to a person exposed to pesticides.
 - (b) Provide all of the following information to the treating medical personnel, and upon request to the worker or handler:
 - (i) Copies of the applicable safety data sheet(s) (SDS) and the product name(s), EPA registration number(s) and active ingredient(s) for each pesticide product to which the person may have been exposed.
 - (ii) The circumstances of application or use of the pesticide on the agricultural establishment.
 - (iii) The circumstances that could have resulted in exposure to the pesticide.
 - (iv) Antidote, first aid and other medical information from the product labeling.
 - (7) Ensure that workers or other persons employed or supervised by the agricultural establishment do not clean, repair, or adjust pesticide application equipment, unless trained as a handler under WAC 296-307-11205. Before allowing any person not directly employed or supervised by the agricultural establishment to clean, repair, or adjust equipment that has been used to mix, load, transfer, or apply pesticides, the agricultural employer must assure that pesticide residues have been removed from the equipment if feasible and must provide all of the following information to such person:
 - (a) Pesticide application equipment may be contaminated with pesticides.
 - (b) The potentially harmful effects of exposure to pesticides.
 - (c) Procedures for handling pesticide application equipment and for limiting exposure to pesticide residues.
 - (d) Personal hygiene practices and decontamination procedures for preventing pesticide exposures and removing pesticide residues.
 - (8) Display, maintain, and provide access to pesticide safety information and pesticide application and hazard information that is legible and in accordance with WAC 296-307-10830. If workers or handlers are on the establishment and within the last 30 days a pesticide product has been used or a restricted-entry interval for such pesticide has been in effect on the establishment.
 - (9) Ensure that before a handler uses any equipment for mixing, loading, transferring, or applying pesticides, the handler is instructed in the safe operation of such equipment.
 - (10) Ensure that before each day of use, equipment used for mixing, loading, transferring, or applying pesticides is inspected for leaks, clogging, and worn or damaged parts, and any damaged equipment is repaired or replaced.
 - (11) The agricultural employer must notify a commercial pesticide handler employer (CPHER) of any specific locations and descriptions of those treated areas and any restrictions on entering the treated areas with restricted-entry intervals (REIs) in effect whenever:

- (a) A handler employed by a CHER will be on the agricultural establishment; and
 - (b) The CHER handler may be in or walk within a quarter mile of any pesticide treated area with restricted-entry interval (REI) in effect.
- (12) Ensure that workers do not enter any area on the agricultural establishment where a pesticide has been applied until the applicable pesticide application and hazard information for each pesticide product applied to that area is displayed in accordance with WAC 296-307-10830(2) and until after the restricted-entry interval has expired and all treated area warning signs have been removed or covered, except for entry permitted by WAC 296-307-11410.
- (13) Provide any records or other information required by this section for inspection and copying upon request by an employee of EPA, or any duly authorized representatives of the Washington state department of agriculture or department of labor and industries.
- (14) Pesticide safety, application, and hazard information must remain legible at all times when the information is required to be displayed. This information must be in accordance with WAC 296-307-10830.

WAC 296-307-10830 Display requirements for pesticide safety information and pesticide application and hazard information—40 C.F.R., Sec. 170.311.

(1) Display of pesticide safety information.

Whenever pesticide safety information and pesticide application and hazard information are required to be provided under WAC 296-307-10825(8), pesticide safety information must be legible and displayed in accordance with this subsection.

- (a) **General.** The pesticide safety information must be conveyed in a manner that workers and handlers can understand.
- (b) The pesticide safety information must include all of the following points:
 - (i) Avoid getting on the skin or into the body any pesticides that may be on or in plants, soil, irrigation water, tractors, and other equipment, on used personal protective equipment, or drifting from nearby applications.
 - (ii) Wash before eating, drinking, using chewing gum or tobacco, or using the toilet.

Note: Consider including other activities that could be a route of exposure such as using a phone or cell phone, or tablet, applying makeup, and getting into a personal vehicle.

- (iii) Wear work clothing that protects the body from pesticide residues (long-sleeved shirts, long pants, shoes and socks, and a hat or scarf).
- (iv) Wash or shower with soap and water, shampoo hair, and put on clean clothes after work.
- (v) Wash work clothes separately from other clothes before wearing them again.

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- (vi) If pesticides are spilled or sprayed on the body use decontamination supplies to wash immediately, or rinse off in the nearest clean water, including springs, streams, lakes or other sources if more readily available than decontamination supplies, and as soon as possible, wash or shower with soap and water, shampoo hair, and change into clean clothes.
 - (vii) Follow directions about keeping out of treated areas and application exclusion zones.
 - (viii) Instructions to employees to seek medical attention as soon as possible if they believe they have been poisoned, injured or made ill by pesticides.
 - (ix) The name, address, and telephone number of a nearby operating medical care facility capable of providing emergency medical treatment. This information must be clearly identified as emergency medical contact information on the display.
 - (x) The name, address, and telephone number of the Washington state department of agriculture and Washington state department of labor and industries, 1-800-4BE-SAFE (1-800-423-7233).
- (c) **Changes to pesticide safety information.** The agricultural employer must update the pesticide safety information display within 24 hours of notice of any changes to the information required in (b)(ix) of this subsection.
- (d) **Location.** The pesticide safety information must be displayed at each of the following sites on the agricultural establishment:
- (i) The site selected pursuant to subsection (2)(b) of this section for display of pesticide application and hazard information.
 - (ii) Anywhere that decontamination supplies must be provided on the agricultural establishment pursuant to WAC 296-307-10930, 296-307-11225 or 296-307-11415, but only when the decontamination supplies are located at permanent sites or being provided at locations and in quantities to meet the requirements for 11 or more workers or handlers.
- (e) **Accessibility.** When pesticide safety information is required to be displayed, workers and handlers must be allowed access to the pesticide safety information at all times during normal work hours.
- (2) **Keeping and displaying pesticide application and hazard information.**
- Whenever pesticide safety information and pesticide application and hazard information is required to be provided under WAC 296-307-10825(8), pesticide application and hazard information for any pesticides that are used on the agricultural establishment must be displayed in a legible manner, retained, and made accessible in accordance with this subsection.
- (a) **Content.** The pesticide application and hazard information must include all of the following information for each pesticide product applied:

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- (i) A copy of the safety data sheet (SDS).
 - (ii) The name, EPA registration number, and active ingredient(s) of the pesticide product.
 - (iii) The crop or site treated and the location and description of the treated area.
 - (vi) The date(s) and times the application started and ended.
 - (v) The duration of the applicable labeling-specified restricted-entry interval for that application.
- (b) **Location.** The pesticide application and hazard information must be displayed at a place on the agricultural establishment where workers and handlers are likely to pass by or congregate and where it can be readily seen and read.
- (c) **Accessibility.** When the pesticide application and hazard information is required to be displayed, workers and handlers must be allowed access to the location of the information at all times during normal work hours.
- (d) **Timing.** The pesticide application and hazard information for each pesticide product applied must be displayed no later than 24 hours after the end of the application of the pesticide. The pesticide application and hazard information must be displayed continuously from the beginning of the display period until at least 30 days after the end of the last applicable restricted-entry interval, or until workers or handlers are no longer on the establishment, whichever is earlier.
- (e) **Record retention.** Whenever pesticide safety information and pesticide application and hazard information is required to be displayed in accordance with this subsection, the agricultural employer must retain the pesticide application and hazard information described in (a) of this subsection on the agricultural establishment for seven years after the date of expiration of the restricted-entry interval applicable to the pesticide application conducted.
- (f) **Access to pesticide application and hazard information by a worker or handler.**
- (i) If a person is or was employed as a worker or handler by an establishment during the period that particular pesticide application and hazard information was required to be displayed and retained in accordance with (e) and (f) of this subsection, and the person requests a copy of such application and/or hazard information, or requests access to such application and/or hazard information after it is no longer required to be displayed, the agricultural employer must provide the worker or handler with a copy of or access to all of the requested information within 15 days of the receipt of any such request. The worker or handler may make the request orally or in writing.

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- (ii) Whenever a record has been previously provided without cost to a worker or handler or their designated representative, the agricultural employer may charge reasonable, nondiscriminatory administrative costs (i.e., search and copying expenses but not including overhead expenses) for a request by the worker or handler for additional copies of the record.
 - (g) **Access to pesticide application and hazard information by treating medical personnel.** Any treating medical personnel, or any person acting under the supervision of treating medical personnel, may request, orally or in writing, access to or a copy of any information required to be retained for seven years in (f) of this subsection in order to inform diagnosis or treatment of a worker or handler who was employed on the establishment during the period that the information was required to be displayed. The agricultural employer must promptly provide a copy of or access to all of the requested information applicable to the worker's or handler's time of employment on the establishment after receipt of the request.
 - (h) **Access to pesticide application and hazard information by a designated representative.**
 - (i) Any worker's or handler's designated representative may re-request access to or a copy of any information required to be retained for seven years in (f) of this subsection on behalf of a worker or handler employed on the establishment during the period that the information was required to be displayed. The agricultural employer must provide access to or a copy of the requested information applicable to the worker's or handler's time of employment on the establishment within 15 days after receiving any such request, provided the request meets the requirements specified in (h)(ii) of this subsection.
 - (ii) A request by a designated representative for access to or a copy of any pesticide application and/or hazard information must be in writing and must contain all of the following:
 - (A) The name of the worker or handler being represented.
 - (B) A description of the specific information being requested. The description should include the dates of employment of the worker or handler, the date or dates for which the records are requested, type of work conducted by the worker or handler (e.g., planting, harvesting, applying pesticides, mixing or loading pesticides) during the period for which the records are requested, and the specific application and/or hazard information requested.
 - (C) A written statement clearly designating the representative to request pesticide application and hazard information on the worker's or handler's behalf, bearing the worker's or handler's printed name and signature, the date of the designation, and the printed name and contact information for the designated representative.

- (D) If the worker or handler requests that the pesticide application and/or the hazard information be sent, direction for where to send the information (e.g., mailing address or email address).
- (iii) If the written request from a designated representative contains all of the necessary information specified in (h)(i) and (ii) of this subsection, the employer must provide a copy of or access to all of the requested information applicable to the worker's or handler's time of employment on the establishment to the designated representative within 15 days of receiving the request.
- (iv) Whenever a record has been previously provided without cost to a worker or handler or their designated representative, the agricultural employer may charge reasonable, nondiscriminatory administrative costs (i.e., search and copying expenses but not including overhead expenses) for a request by the designated representative for additional copies of the record.

WAC 296-307-10835 Commercial pesticide handler employer duties— 40 C.F.R., Sec. 170.313.

Commercial pesticide handler employers must:

- (1) Ensure that any pesticide is used in a manner consistent with the pesticide product labeling, including the requirements of this part, when applied on an agricultural establishment by a handler employed by the commercial pesticide handling establishment.
- (2) Ensure each handler employed by the commercial pesticide handling establishment and subject to this part receives the protections required by this part.
- (3) Ensure that any handler employed by the commercial pesticide handling establishment is at least eighteen years old.
- (4) Provide to each person, including labor contractors, who supervises any handlers employed by the commercial pesticide handling establishment, information and directions sufficient to ensure that each handler receives the protections required by this part. Such information and directions must specify the tasks for which the supervisor is responsible in order to comply with the provisions of this part.
- (5) Require each person, including labor contractors, who supervises any handlers employed by the commercial pesticide handling establishment, to provide sufficient information and directions to each handler to ensure that the handler can comply with the provisions of this part.
- (6) Ensure that before any handler employed by the commercial pesticide handling establishment uses any equipment for mixing, loading, transferring, or applying pesticides, the handler is instructed in the safe operation of such equipment.
- (7) Ensure that, before each day of use, equipment used by their employees for mixing, loading, transferring, or applying pesticides is inspected for leaks, obstructions, and worn or damaged parts, and any damaged equipment is repaired or is replaced.

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- (8) Ensure that whenever a handler who is employed by a commercial pesticide handling establishment will be on an agricultural establishment, the handler is provided information about, or is aware of, the specific location and description of any treated areas where a restricted-entry interval is in effect, and the restrictions on entering those areas.
 - (9) Provide the agricultural employer all of the following information before the application of any pesticide on an agricultural establishment:
 - (a) Specific location(s) and description of the area(s) to be treated.
 - (b) The date(s) and start and estimated end times of application.
 - (c) Product name, EPA registration number, and active ingredient(s).
 - (d) The labeling-specified restricted-entry interval applicable for the application.
 - (e) Whether posting, oral notification or both are required under WAC 296-307-10925.
 - (f) Any restrictions or use directions on the pesticide product labeling that must be followed for protection of workers, handlers, or other persons during or after application.
 - (10) If there are any changes to the information provided in sub-section (9)(a), (d), (e), and (f) of this section or if the start time for the application will be earlier than originally forecasted or scheduled, ensure that the agricultural employer is provided updated information prior to the application. If there are any changes to any other information provided pursuant to subsection (9) of this section, the commercial pesticide handler employer must provide updated information to the agricultural employer within two hours after completing the application. Changes to the estimated application end time of less than one hour need not be reported to the agricultural employer.
 - (11) Provide emergency assistance in accordance with this subsection. If there is reason to believe that a handler employed by the commercial pesticide handling establishment has experienced a potential pesticide exposure during his or her employment by the commercial pesticide handling establishment or shows symptoms similar to those associated with acute exposure to pesticides during or within seventy-two hours after his or her employment by the commercial pesticide handling establishment, and needs emergency medical treatment, the commercial pesticide handler employer must do all of the following promptly after learning of the possible poisoning or injury:
 - (a) Make available to that person prompt transportation from the commercial pesticide handling establishment, or any agricultural establishment on which that handler may be working on behalf of the commercial pesticide handling establishment, to an operating medical care facility capable of providing emergency medical treatment to a person exposed to pesticides.
 - (b) Provide all of the following information to the treating medical personnel:
 - (i) Copies of the applicable safety data sheet(s) (SDS) and the product name(s), EPA registration number(s) and active ingredient(s) for each pesticide product to which the person may have been exposed.

- (ii) The circumstances of application or use of the pesticide.
 - (iii) The circumstances that could have resulted in exposure to the pesticide.
 - (iv) Antidote, first aid and other medical information from the product labeling.
- (12) Ensure that persons directly employed by the commercial pesticide handling establishment do not clean, repair, or adjust pesticide application equipment, unless trained as a handler under WAC 296-307-11205. Before allowing any person not directly employed by the commercial pesticide handling establishment to clean, repair, or adjust equipment that has been used to mix, load, transfer, or apply pesticides, the commercial pesticide handler employer must assure that pesticide residues have been removed from the equipment if feasible and must provide all of the following information to such persons:
- (a) Notice that the pesticide application equipment may be contaminated with pesticides.
 - (b) The potentially harmful effects of exposure to pesticides.
 - (c) Procedures for handling pesticide application equipment and for limiting exposure to pesticide residues.
 - (d) Personal hygiene practices and decontamination procedures for preventing pesticide exposures and removing pesticide residues.
- (13) Provide any records or other information required by this part for inspection and copying upon request by an employee of EPA or any duly authorized representative of the Washington state department of agriculture or the department of labor and industries.

WAC 296-307-10840 Prohibited actions—40 C.F.R., Sec. 170.315.

No agricultural employer, commercial pesticide handler employer, or other person involved in the use of a pesticide to which this part applies, shall intimidate, threaten, coerce, or discriminate against any worker or handler for complying with or attempting to comply with this part, or because the worker or handler provided, caused to be provided or is about to provide information to the employer or the EPA or any duly authorized representative of the Washington state department of agriculture, or the department of labor and industries regarding conduct that the worker or handler reasonably believes violates this part, has made a complaint, testified, assisted, or participated in any manner in an investigation, proceeding, or hearing concerning compliance with this part, or has objected to, or refused to participate in, any activity, policy, practice, or assigned task that the worker or handler reasonably believed to be in violation of this part. Any such intimidation, threat, coercion, or discrimination violates the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), Section 12(a)(2)(G), 7 U.S.C. 136j(a)(2)(G).

WAC 296-307-10845 Violations of this part—40 C.F.R., Sec. 170.317.

- (1) RCW 15.58.150 (2)(c) provides that it is unlawful for any person “...to use or cause to be used any pesticide contrary to label directions....” When 40 C.F.R., Part 170 is referenced on a label, users must comply with all of its requirements, except those that are inconsistent with product-specific instructions on the pesticide product labeling, except as provided for in WAC 296-307-11405, 296-307-11410, and 296-307-11420.

- (2) A person who has a duty under this part, as referenced on the pesticide product labeling, and who fails to perform that duty, violates RCW 15.58.330 and 17.21.315, FIFRA Section 12(a)(2)(G), and is subject to civil penalties under RCW 15.58.335, 15.58.260, and 17.21.315.
- (3) FIFRA Section 14(b)(4) provides that a person is liable for a penalty under FIFRA if another person employed by or acting for that person violates any provision of FIFRA. The term “acting for” includes both employment and contractual relationships including, but not limited to, labor contractors.
- (4) The requirements of this part including the decontamination requirements, must not, for the purposes of Title 29 U.S.C. Sec. 653(b)(1), be deemed to be the exercise of statutory authority to prescribe or enforce standards or regulations affecting the general sanitary hazards addressed by the WISHA Field Sanitation Standard, WAC 296-307-095, OSHA Field Sanitation Standard, 29 C.F.R. Sec. 1928.110, or other agricultural nonpesticide hazards.

WAC 296-307-109 Requirements for protection of agricultural workers.

WAC 296-307-10905 Training requirements for workers—40 C.F.R., Sec. 170.401.

- (1) General requirement. Before any worker performs any task in a treated area on an agricultural establishment where within the last 30 days a pesticide product has been used or a restricted-entry interval for such pesticide has been in effect, the agricultural employer must ensure that each worker has been trained in accordance with this section within the last 12 months, except as provided in subsection (2) of this section.

Note: In addition to the training required by this section, the agricultural employer must assure without exception, that all employees are trained in accordance with chapter [296-901](#) WAC, Globally harmonized system for hazard communication.

- (2) **Exceptions.** The following workers need not be trained under this section:
 - (a) A worker who is currently certified as an applicator of restricted use pesticides under chapter 17.21 RCW.
 - (b) A worker who has satisfied the handler training requirements in WAC 296-307-11205.
 - (c) A worker who is certified or licensed as a crop advisor by the Washington state department of agriculture under RCW 15.58.230, provided, that a requirement for such certification or licensing is pesticide safety training that includes all the topics in WAC 296-307-11205 (3)(b) or (c) as applicable depending on the date of training.

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- (3) Training programs.
- (a) Pesticide safety training must be presented to workers either orally from written materials or audio-visually, at a location that is reasonably free from distraction and conducive to training. All training materials must be EPA-approved. The training must be presented in a manner that the workers can understand, such as through a translator. The training must be conducted by a person who meets the worker trainer requirements of (d) of this subsection, and who must be present during the entire training program and must respond to workers' questions.
 - (b) The training must include, at a minimum, all of the following topics:
 - (i) Where and in what form pesticides may be encountered during work activities.
 - (ii) Hazards of pesticides resulting from toxicity and exposure, including acute and chronic effects, delayed effects, and sensitization.
 - (iii) Routes through which pesticides can enter the body.
 - (iv) Signs and symptoms of common types of pesticide poisoning.
 - (v) Emergency first aid for pesticide injuries or poisonings.
 - (vi) How to obtain emergency medical care.
 - (vii) Routine and emergency decontamination procedures, including emergency eye flushing techniques.
 - (viii) Hazards from chemigation and drift.
 - (ix) Hazards from pesticide residues on clothing.
 - (x) Warnings about taking pesticides or pesticide containers home.
 - (xi) Requirements of this section designed to reduce the risks of illness or injury resulting from workers' occupational exposure to pesticides, including application and entry restrictions, the design of the warning sign, posting of warning signs, oral warnings, the availability of specific information about applications, and the protection against retaliatory acts.
 - (c) EPA intends to make available to the public training materials that may be used to conduct training conforming to the requirements of this section. Within 181 days after a notice of availability of such training materials appears in the *Federal Register*, training programs required under this section must include, at a minimum, all of the topics listed in (c)(i) through (xxiii) of this subsection instead of the topics listed in (b)(i) through (xi) of this subsection.

- (i) The responsibility of agricultural employers to provide workers and handlers with information and protections designed to reduce work-related pesticide exposures and illnesses. This includes ensuring workers and handlers have been trained on pesticide safety, providing pesticide safety and application and hazard information, decontamination supplies and emergency medical assistance, and notifying workers of restrictions during applications and on entering pesticide treated areas. A worker or handler may designate in writing a representative to request access to pesticide application and hazard information.
- (ii) How to recognize and understand the meaning of the posted warning signs used for notifying workers of restrictions on entering pesticide treated areas on the establishment.
- (iii) How to follow directions and/or signs about keeping out of pesticide treated areas subject to a restricted-entry interval and application exclusion zones.
- (iv) Where and in what forms pesticides may be encountered during work activities, and potential sources of pesticide exposure on the agricultural establishment. This includes exposure to pesticide residues that may be on or in plants, soil, tractors, application and chemigation equipment, or used personal protective equipment, and that pesticides may drift through the air from nearby applications or be in irrigation water.
- (v) Potential hazards from toxicity and exposure that pesticides present to workers and their families, including acute and chronic effects, delayed effects, and sensitization.
- (vi) Routes through which pesticides can enter the body.
- (vii) Signs and symptoms of common types of pesticide poisonings.
- (viii) Emergency first aid for pesticide injuries or poisonings.
- (ix) Routine and emergency decontamination procedures, including emergency eye flushing techniques, and if pesticides are spilled or sprayed on the body to use decontamination supplies to wash immediately or rinse off in the nearest clean water, including springs, streams, lakes or other sources if more readily available than decontamination supplies, and as soon as possible, wash or shower with soap and water, shampoo hair, and change into clean clothes.
- (x) How and when to obtain emergency medical care.
- (xi) When working in pesticide treated areas, wear work clothing that protects the body from pesticide residues and wash hands before eating, drinking, using chewing gum or tobacco, or using the toilet.

Note: Consider including other activities that could be a route of exposure such as using a phone or cell phone, or tablet, applying makeup, and getting into a personal vehicle.

- (xii) Wash or shower with soap and water, shampoo hair, and change into clean clothes as soon as possible after working in pesticide treated areas.

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- (xiii) Potential hazards from pesticide residues on clothing.
 - (xiv) Wash work clothes before wearing them again and wash them separately from other clothes.
 - (xv) Do not take pesticides or pesticide containers used at work home.
 - (xvi) Safety data sheets (SDSs) provide hazard, emergency medical treatment and other information about the pesticides used on the establishment they may come in contact with. The responsibility of agricultural employers to do all of the following:
 - (A) Display safety data sheets (SDSs) for all pesticides used on the establishment.
 - (B) Provide workers and handlers information about the location of the safety data sheets (SDSs) on the establishment.
 - (C) Provide workers and handlers unimpeded access to safety data sheets (SDSs) during normal work hours.
 - (xvii) This section prohibits agricultural employers from allowing or directing any worker to mix, load or apply pesticides or assist in the application of pesticides unless the worker has been trained as a handler.
 - (xviii) The responsibility of agricultural employers to provide specific information to workers before directing them to perform early entry activities. Workers must be 18 years old to perform early entry activities.
 - (xix) Potential hazards to children and pregnant women from pesticide exposure.
 - (xx) Keep children and nonworking family members away from pesticide treated areas.
 - (xxi) After working in pesticide treated areas, remove work boots or shoes before entering your home, and remove work clothes and wash or shower before physical contact with children or family members.
 - (xxii) How to report suspected pesticide use violations to the Washington state department of agriculture.
 - (xxiii) This section prohibits agricultural employers from intimidating, threatening, coercing, or discriminating against any worker or handler for complying with or attempting to comply with the requirements of this chapter part, or because the worker or handler provided, caused to be provided or is about to provide information to the employer, the EPA or its agents, or any duly authorized representative of the Washington state department of agriculture regarding conduct that the employee reasonably believes violates this chapter part, and/or made a complaint, testified, assisted, or participated in any manner in an investigation, proceeding, or hearing concerning compliance with this chapter part.

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- (d) The person who conducts the training must meet one of the following criteria:
- (i) Be currently designated as a trainer of certified applicators or pesticide handlers by the Washington state department of agriculture in accordance with chapters 15.58 and 17.21 RCW; or
 - (ii) Have completed an EPA-approved pesticide safety train-the-trainer program for trainers of workers; or
 - (iii) Be currently certified as an applicator of restricted use pesticides under chapter 17.21 RCW.
- (4) **Recordkeeping.**
- (a) For each worker required to be trained under subsection (1) of this section, the agricultural employer must maintain on the agricultural establishment, for two years from the date of the training, a record documenting each worker's training including all of the following:
- (i) The trained worker's printed name and signature.
 - (ii) The date of the training.
 - (iii) Information identifying which EPA-approved training materials were used.
 - (iv) The trainer's name and documentation showing that the trainer met the requirements of subsection (3)(d) of this section at the time of training.
 - (v) The agricultural employer's name.
- (b) An agricultural employer who provides, directly or indirectly, training required under subsection (1) of this section must provide to the worker upon request a copy of the record of the training that contains the information required under (a) of this subsection.

WAC 296-307-10910 Establishment-specific information for workers — 40 C.F.R., Sec. 170.403.

Before any worker performs any activity in a treated area on an agricultural establishment where within the last 30 days a pesticide product has been used, or a restricted-entry interval for such pesticide has been in effect, the agricultural employer must ensure that the worker has been informed of, in a manner the worker can understand, all of the following establishment-specific information:

- (1) The location of pesticide safety information required in WAC 296-307-10830(1).
- (2) The location of pesticide application and hazard information required in WAC 296-307-10830(2).
- (3) The location of decontamination supplies required in WAC 296-307-10930.

WAC 296-307-10915 Entry restrictions associated with pesticide applications—40 C.F.R., Sec. 170.405.

- (1) Outdoor production pesticide applications.
 - (a) During any outdoor production pesticide application, the agricultural employer must not allow or direct any worker or other person, other than an appropriately trained and equipped handler involved in the application, to enter or to remain in the treated area or an application exclusion zone (AEZ) that is within the boundaries of the establishment until the application is complete.
 - (b) A summary of outdoor production application exclusion zones (AEZ) can be found in Table 1 and is defined as follows:
 - (i) The application exclusion zone is the area that extends one hundred feet horizontally from the application equipment in all directions during application when the pesticide is applied by any of the following methods:
 - (A) Aerially.
 - (B) Air blast application.
 - (C) As a spray using a spray quality (droplet spectrum) of smaller than medium (volume median diameter of less than 294 microns).
 - (D) As a fumigant, smoke, mist, or fog.
 - (ii) The application exclusion zone is the area that extends twenty-five feet horizontally from the application equipment in all directions during application when the pesticide is applied not as in (a)(i)(A) through (D) of this subsection and is sprayed from a height of greater than twelve inches from the planting medium using a spray quality (droplet spectrum) of medium or larger (volume median diameter of 294 microns or greater).
 - (iii) There is no application exclusion zone when the pesticide is applied in a manner other than those covered in (a)(i) and (ii) of this subsection.
 - (c) During any outdoor production pesticide application, the agricultural employer must not allow or direct any worker or other person, other than an appropriately trained and equipped handler involved in the application, to enter or to remain in the treated area or an application exclusion zone that is within the boundaries of the establishment until the application is complete.
 - (d) After the application is complete, the area subject to the labeling-specified restricted-entry interval and the postapplication entry restrictions specified in WAC 296-307-10920 is the treated area.

Table 1 Entry Restrictions* - During Outdoor Production Pesticide Application (AEZ)

Note: This applies to the area within the boundaries of the establishment, outside establishment boundaries, the handler must suspend application long enough to ensure no contact with any persons within the AEZ (see WAC 296-307-11215 (1) and (2)). Subsection (1)(b) and (c) of this section. During pesticide application and after application is complete, pesticide labeling-specified restricted-entry intervals and postapplication restrictions apply to the treated area.

<p>*During pesticides being applied: (WAC 296-307-10915)</p>	<p>Prohibit workers and any persons, other than appropriately trained and equipped handlers, from being in the AEZ:</p>
<p>(A) Aerially (B) Air blast application (C) As a spray using a spray quality (droplet spectrum) of smaller than medium (volume median diameter of less than 294 microns) (D) As a fumigant, smoke, mist, fog, or aerosol</p>	<p>Area that extends 100 feet horizontally in all directions from the application equipment until after the application is complete.</p>
<p>Not applied as (A), (B), (C), or (D) above and:</p> <ul style="list-style-type: none"> - From a height of greater than 12 inches from the planting medium; and - As a spray using a medium or larger spray quality droplet spectrum of volume median diameter of 294 microns or greater. 	<p>Area that extends 25 feet horizontally in all directions from the application equipment until after the application is complete.</p>
<p>-Otherwise - No AEZ</p>	<p>Follow applicable label directions for restricted-entry intervals.</p>

(2) Enclosed space production pesticide applications.

- (a) During any enclosed space production pesticide application described in column 1 of Table 2 under (d) of this subsection, the agricultural employer must not allow or direct any worker or other person, other than an appropriately trained and equipped handler involved in the application, to enter or to remain in the application exclusion zone (AEZ) area specified in column 2 of Table 2 under (d) of this subsection during the application and until the time specified in column 3 of Table 2 under (d) of this subsection has expired.
- (b) After the time specified in column 3 of Table 2 under (d) of this subsection has expired, the area subject to the labeling-specified restricted-entry interval and the postapplication entry restrictions specified in WAC 296-307-10920 is the area specified in column 4 of Table 2 under (d) of this subsection.
- (c) When column 3 of Table 2 under (d) of this subsection specifies that ventilation criteria must be met, ventilation must continue until the air concentration is measured to be equal to or less than the inhalation exposure level required by the labeling. If no inhalation exposure level is listed on the labeling, ventilation must continue until after one of the following conditions is met:
- (i) Ten air exchanges are completed.
 - (ii) Two hours of ventilation using fans or other mechanical ventilating systems.
 - (iii) Four hours of ventilation using vents, windows, or other passive ventilation.
 - (iv) Eleven hours with no ventilation followed by one hour of mechanical ventilation.
 - (v) Eleven hours with no ventilation followed by two hours of passive ventilation.
 - (vi) Twenty-four hours with no ventilation.
- (d) The following table applies to (a), (b), and (c) of this subsection.

Table 2 Entry Restrictions During Enclosed Space Production Pesticide Applications

1. When a pesticide is applied:	2. Prohibit workers and any persons, other than appropriately trained and equipped handlers, from being in the AEZ:	3. Until:	4. After the expiration of time specified in column 3, the area subject to the restricted-entry interval is:
(a) As a fumigant.	Entire enclosed space plus any adjacent structure or area that cannot be sealed off from the treated area.	The ventilation criteria of subsection (2)(c) of this section are met.	No postapplication entry restrictions required by WAC 296-307-10920 after criteria in column 3 are met.

1. When a pesticide is applied:	2. Prohibit workers and any persons, other than appropriately trained and equipped handlers, from being in the AEZ:	3. Until:	4. After the expiration of time specified in column 3, the area subject to the restricted-entry interval is:
(b) As a: (i) Smoke; or (ii) Mist; or (iii) Fog; or (iv) Spray using a spray quality (droplet spectrum) of smaller than medium (volume median diameter of less than 294 microns).	Entire enclosed space.	The ventilation criteria of subsection (2)(c) of this section are met.	Entire enclosed space.
(c) Not as in (a) or (b) above, the pesticide product label requires a respirator during application.	Entire enclosed space.	The ventilation criteria of subsection (2)(c) of this section are met.	Treated area.
(d) Not as in (a), (b), or (c), above and: (i) From a height of greater than 12 inches from the planting medium; or (ii) As a spray using a spray quality (droplet spectrum) of medium or larger (volume median diameter of 294 microns or greater).	Treated area plus 25 feet in all directions of the treated area, but not outside the enclosed space.	Application is complete.	Treated area.

1. When a pesticide is applied:	2. Prohibit workers and any persons, other than appropriately trained and equipped handlers, from being in the AEZ:	3. Until:	4. After the expiration of time specified in column 3, the area subject to the restricted-entry interval is:
(e) Otherwise.	Treated area.	Follow any applicable label restrictions for reentry.	Otherwise no AEZ.

WAC 296-307-10920 Worker entry restrictions after pesticide applications—40 C.F.R., Sec. 170.407.

- (1) After the application of any pesticide to an area of outdoor production, the agricultural employer must not allow or direct any worker to enter or to remain in the treated area before the restricted-entry interval specified on the pesticide product labeling has expired and all treated area warning signs have been removed or covered, except for early entry activities permitted in WAC 296-307-11410.
- (2) After the application of any pesticide to an area of enclosed space production, the agricultural employer must not allow or direct any worker to enter or to remain in the areas specified in column 4 of the table in WAC 296-307-10915 (2)(d), before the restricted-entry interval specified on the pesticide product labeling has expired and all treated area warning signs have been removed or covered, except for early entry activities permitted in WAC 296-307-11410.
- (3) When two or more pesticides are applied to a treated area at the same time, the applicable restricted-entry interval is the longest of all applicable restricted-entry intervals.
- (4) When two or more pesticides are applied to a treated area at the same time, the employer must provide and ensure employees, workers and handlers wear the applicable PPE to protect against all of the pesticides as a mixture and combined product.

WAC 296-307-10925 Oral and posted notification of worker entry restrictions—40 C.F.R., Sec. 170.409.

- (1) General requirement. The agricultural employer must notify workers of all entry restrictions required in WAC 296-307-10915 and 296-307-10920 in accordance with this section.
 - (a) Type of notification required:
 - (i) Double notification. If the pesticide product labeling has a statement requiring both the posting of treated areas and oral notification to workers, the agricultural employer must post signs in accordance with subsection (2) of this section and must also provide oral notification of the application to workers in accordance with subsection (3) of this section.

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- (ii) Outdoor production areas subject to restricted-entry intervals greater than forty-eight hours. If a pesticide with product labeling that requires a restricted-entry interval greater than forty-eight hours is applied to an outdoor production area, the agricultural employer must notify workers of the application by posting warning signs in accordance with subsection (2) of this section.
 - (iii) Outdoor production areas subject to restricted-entry intervals equal to or less than forty-eight hours. If a pesticide with product labeling that requires a restricted-entry interval equal to or less than forty-eight hours is applied to an outdoor production area, the agricultural employer must notify workers of the application either by posting warning signs in accordance with subsection (2) of this section or by providing workers with an oral warning in accordance with subsection (3) of this section.
 - (iv) Enclosed space production areas subject to restricted-entry intervals greater than four hours. If a pesticide with product labeling that requires a restricted-entry interval greater than four hours is applied to an enclosed space production area, the agricultural employer must notify workers of the application by posting warning signs in accordance with subsection (2) of this section.
 - (v) Enclosed space production areas subject to restricted-entry intervals equal to or less than four hours. If a pesticide with product labeling that requires a restricted-entry interval equal to or less than four hours is applied to an enclosed space production area, the agricultural employer must notify workers of the application either by posting warning signs in accordance with subsection (2) of this section or by providing workers with an oral warning in accordance with subsection (3) of this section.
- (b) Exceptions. Notification does not need to be given to a worker if the agricultural employer can ensure that one of the following is met:
- (i) From the start of the application in an enclosed space production area until the end of any restricted-entry interval, the worker will not enter any part of the entire enclosed structure or space.
 - (ii) From the start of the application to an outdoor production area until the end of any restricted-entry interval, the worker will not enter, work in, remain in, or pass on foot through the treated area or any area within one-quarter mile of the treated area on the agricultural establishment.
 - (iii) The worker was involved in the application of the pesticide as a handler, and is aware of all information required in subsection (3)(a) of this section.

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- (2) Requirements for posted warning signs. If notification by posted warning signs is required pursuant to subsection (1) of this section, the agricultural employer must, unless otherwise prescribed by the label, ensure that all warning signs meet the requirements of this subsection. When several contiguous areas are to be treated with pesticides on a rotating or sequential basis, the entire area may be posted. Worker entry is prohibited for the entire area while the signs are posted, except for entry permitted in WAC 296-307-11410.
- (a) General. The warning signs must meet all of the following requirements:
- (i) Be one of the three sizes specified in (c) of this subsection and comply with the posting placement and spacing requirements applicable to that sign size.
 - (ii) Be posted prior to but no earlier than twenty-four hours before the scheduled application of the pesticide.
 - (iii) Remain posted throughout the application and any restricted-entry interval.
 - (iv) Be removed or covered within three days after the end of the application or any restricted-entry interval, whichever is later.
 - (v) Remain visible and legible during the time they are required to be posted.
- (b) Content.
- (i) The warning sign must have a white background. The words "DANGER" and "PELIGRO," plus "PESTICIDES" and "PESTICIDAS," must be at the top of the sign, and the words "KEEP OUT" and "NO ENTRE" must be at the bottom of the sign. Letters for all words must be clearly legible. A circle containing an upraised hand on the left and a stern face on the right must be near the center of the sign. The inside of the circle must be red, except that the hand and a large portion of the face must be in white. The length of the hand must be at least twice the height of the smallest letters. The length of the face must be only slightly smaller than the hand. Additional information such as the name of the pesticide and the date of application may appear on the warning sign if it does not detract from the size and appearance of the sign or change the meaning of the required information. An example of a warning sign meeting these requirements, other than the size and color requirements, follows:



- (ii) The agricultural employer may replace the Spanish language portion of the warning sign with equivalent terms in an alternative non-English language if that alternative language is the language read by the largest group of workers at that agricultural establishment who do not read English. The alternative language sign must be in the same format as the original sign and conform to all other requirements of (b)(i) of this subsection.
- (c) Size and posting.
 - (i) The standard sign must be at least fourteen inches by sixteen inches with letters at least one inch in height.
 - (ii) When posting an outdoor production area using the standard sign, the signs must be visible from all reasonably expected points of worker entry to the treated area, including at least each access road, each border with any worker housing area within one hundred feet of the treated area and each footpath and other walking route that enters the treated area. Where there are no reasonably expected points of worker entry, signs must be posted in the corners of the treated area or in any other location affording maximum visibility.
 - (iii) When posting an enclosed space production area using the standard sign and the entire structure or space is subject to the labeling-specified restricted-entry interval and the postapplication entry restrictions specified in WAC 296-307-10920, the signs must be posted so they are visible from all reasonably expected points of worker entry to the structure or space. When posting treated areas in enclosed space production using the standard sign and the treated area only comprises a subsection of the structure or space, the signs must be posted so they are visible from all reasonably expected points of worker entry to the treated area including each aisle or other walking route that enters the treated area. Where there are no reasonably expected points of worker entry to the treated area, signs must be posted in the corners of the treated area or in any other location affording maximum visibility.

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- (iv) If a smaller warning sign is used with “DANGER” and “PELIGRO” in letters at least seven-eighths inch in height and the remaining letters at least one-half inch in height and a red circle at least three inches in diameter containing an upraised hand and a stern face, the signs must be posted no farther than fifty feet apart around the perimeter of the treated area in addition to the locations specified in (c)(ii) or (iii) of this subsection.
 - (v) If a smaller sign is used with “DANGER” and “PELIGRO” in letters at least seven-sixteenths inch in height and the remaining letters at least one-quarter inch in height and a red circle at least one and one-half inches in diameter containing an upraised hand and a stern face, the signs must be posted no farther than twenty-five feet apart around the perimeter of the treated area in addition to the locations specified in (c)(ii) or (iii) of this subsection.
 - (vi) A sign with “DANGER” and “PELIGRO” in letters less than seven-sixteenths inch in height or with any words in letters less than one quarter inch in height or a red circle smaller than one and one-half inches in diameter containing an upraised hand and a stern face will not satisfy the requirements of this chapter part.
- (3) Oral warnings - Requirement. If oral notification is required pursuant to subsection (1) of this section, the agricultural employer must provide oral warnings to workers in a manner that the workers can understand. If a worker will be on the establishment when an application begins, the warning must be given before the application begins. If a worker arrives on the establishment while an application is taking place or a restricted-entry interval for a pesticide application is in effect, the warning must be given at the beginning of the worker's work period. The warning must include all of the following:
- (a) The location(s) and description of any treated area(s) subject to the entry restrictions during and after application specified in WAC 296-307-10915 and 296-307-10920.
 - (b) The dates and times during which entry is restricted in any treated area(s) subject to the entry restrictions during and after application specified in WAC 296-307-10915 and 296-307-10920.
 - (c) Instructions not to enter the treated area or an application exclusion zone during application, and that entry to the treated area is not allowed until the restricted-entry interval has expired and all treated area warning signs have been removed or covered, except for entry permitted by WAC 296-307-11410.

WAC 296-307-10930 Decontamination supplies for workers—40 C.F.R., Sec. 170.411.

- (1) Requirement. The agricultural employer must provide decontamination supplies for routine washing and emergency decontamination in accordance with this section for any worker on an agricultural establishment who is performing an activity in an area where a pesticide was applied and who contacts anything that has been treated with the pesticide including, but not limited to, soil, water, and plants.

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- (2) Materials and quantities. The decontamination supplies required in subsection (1) of this section must provide adequate water at a minimum to include at least one gallon of water per worker at the beginning of each worker's work period for routine washing and emergency decontamination, soap, and single-use towels. The supplies must meet all of the following requirements:
- (a) Water. At all times when this part requires agricultural employers to make water available to workers, the agricultural employer must ensure that it is of a quality and temperature that will not cause illness or injury when it contacts the skin or eyes or if it is swallowed. If a water source is used for mixing pesticides, it must not be used for decontamination, unless equipped with properly functioning valves or other mechanisms that prevent contamination of the water with pesticides, such as anti-backflow siphons, one-way or check valves, or an air gap sufficient to prevent contamination.
 - (b) Soap and single-use towels. The agricultural employer must provide soap and single-use towels for drying in quantities sufficient to meet the workers' reasonable needs. Hand sanitizing gels and liquids or wet towelettes do not meet the requirement for soap. Wet towelettes do not meet the requirement for single-use towels.
- (3) Timing.
- (a) If any pesticide with a restricted-entry interval greater than four hours was applied, the decontamination supplies must be provided from the time workers first enter the treated area until at least thirty days after the restricted-entry interval expires.
 - (b) If the only pesticides applied in the treated area are products with restricted-entry intervals of four hours or less, the decontamination supplies must be provided from the time workers first enter the treated area until at least seven days after the restricted-entry interval expires.
- (4) Location. The decontamination supplies must be located together outside any treated area or area subject to a restricted-entry interval, and must be reasonably accessible to the workers. The decontamination supplies must not be more than one-quarter mile from where workers are working, except that where workers are working more than one-quarter mile from the nearest place of vehicular access or more than one-quarter mile from any nontreated area, the decontamination supplies may be at the nearest place of vehicular access outside any treated area or area subject to a restricted-entry interval.

- (5) Decontamination after early entry activities. At the end of any exposure period for workers engaged in early entry activities permitted by WAC 296-307-11415 and involving contact with anything that has been treated with the pesticide to which the restricted-entry interval applies including, but not limited to, soil, water, air, or surfaces of plants, the agricultural employer must provide, at the site where the workers remove personal protective equipment, soap, clean towels, and an adequate amount of water so that the workers may wash thoroughly. At least ten gallons of water for one employee and twenty gallons of water for two or more employees must be provided at early entry sites that do not have running water.

WAC 296-307-112 Requirements for protection of agricultural pesticide handlers.

WAC 296-307-11205 Training requirements for handlers—40 C.F.R., Sec. 170.501.

- (1) General requirement. Before any handler performs any handler activity involving a pesticide product, the handler employer must ensure that the handler has been trained in accordance with this section within the last 12 months, except as provided in subsection (2) of this section.

Note: In addition to the training required by this section, the agricultural employer must assure without exception, that all employees are trained in accordance with chapter [296-901](#) WAC, Globally harmonized system for hazard communication.

- (2) Exceptions. The following handlers need not be trained under this section:
- (a) A handler who is currently certified as an applicator of restricted use pesticides under chapter 17.21 RCW.
 - (b) A handler who is certified or licensed as a crop advisor by the Washington state department of agriculture under RCW 15.58.230, provided that a requirement for such certification or licensing is pesticide safety training that includes all the topics set out in subsection (3)(b) or (c) of this section as applicable depending on the date of training.
- (3) Training programs.
- (a) Pesticide safety training must be presented to handlers either orally from written materials or audio-visually, at a location that is reasonably free from distraction and conducive to training. All training materials must be EPA-approved. The training must be presented in a manner that the handlers can understand, such as through a translator. The training must be conducted by a person who meets the handler trainer requirements of (d) of this subsection, and who must be present during the entire training program and must respond to handlers' questions.

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- (b) The pesticide safety training materials must include, at a minimum, all of the following topics:
- (i) Format and meaning of information contained on pesticide labels and in labeling, including safety information such as precautionary statements about human health hazards.
 - (ii) Hazards of pesticides resulting from toxicity and exposure, including acute and chronic effects, delayed effects, and sensitization.
 - (iii) Routes by which pesticides can enter the body.
 - (iv) Signs and symptoms of common types of pesticide poisoning.
 - (v) Emergency first aid for pesticide injuries or poisonings.
 - (vi) How to obtain emergency medical care.
 - (vii) Routine and emergency decontamination procedures.
 - (viii) Need for and appropriate use of personal protective equipment.
 - (ix) Prevention, recognition, and first-aid treatment of heat-related illness.
 - (x) Safety requirements for handling, transporting, storing, and disposing of pesticides, including general procedures for spill cleanup.
 - (xi) Environmental concerns such as drift, runoff, and wildlife hazards.
 - (xii) Warnings about taking pesticides or pesticide containers home.
 - (xiii) Requirements of this section that must be followed by handler employers for the protection of handlers and other persons, including the prohibition against applying pesticides in a manner that will cause contact with workers or other persons, the requirement to use personal protective equipment, the provisions for training and decontamination, and the protection against retaliatory acts.
- (c) EPA intends to make available to the public training materials that may be used to conduct training conforming to the requirements of this section. Within 180 days after a notice of availability of such training materials appears in the *Federal Register*, training programs required under this section must include, at a minimum, all of the topics listed in (c)(i) through (xiv) of this subsection instead of the points listed in (b)(i) through (xiii) of this subsection.
- (i) All the topics required in WAC 296-307-10905 (3)(c).
 - (ii) Information on proper application and use of pesticides.
 - (iii) Handlers must follow the portions of the labeling applicable to the safe use of the pesticide.
 - (iv) Format and meaning of information contained on pesticide labels and in labeling applicable to the safe use of the pesticide.
 - (v) Need for and appropriate use and removal of all personal protective equipment.

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- (vi) How to recognize, prevent, and provide first-aid treatment for heat-related illness.
 - (vii) Safety requirements for handling, transporting, storing, and disposing of pesticides, including general procedures for spill cleanup.
 - (viii) Environmental concerns, such as drift, runoff, and wild-life hazards.
 - (ix) Handlers must not apply pesticides in a manner that results in contact with workers or other persons.
 - (x) The responsibility of handler employers to provide handlers with information and protections designed to reduce work-related pesticide exposures and illnesses. This includes providing, cleaning, maintaining, storing, and ensuring proper use of all required personal protective equipment; providing decontamination supplies; and providing specific information about pesticide use and labeling information.
 - (xi) Handlers must suspend a pesticide application if workers or other persons are in the application exclusion zone.
 - (xii) Handlers must be at least 18 years old.
 - (xiii) The responsibility of handler employers to ensure handlers have received respirator fit-testing, training and medical evaluation if they are required to wear a respirator by the product labeling.
 - (xiv) The responsibility of agricultural employers to post treated areas as required by this part.
- (d) The person who conducts the training must have one of the following qualifications:
- (i) Be currently designated as a trainer of certified applicators or pesticide handlers by the Washington state department of agriculture under chapter 15.58 or 17.21 RCW; or
 - (ii) Have completed an EPA-approved pesticide safety train-the-trainer program for trainers of handlers; or
 - (iii) Be currently certified as an applicator of restricted use pesticides under chapter 17.21 RCW.
- (4) Recordkeeping.
- (a) Handler employers must maintain records of training for handlers employed by their establishment for two years after the date of the training. The records must be maintained on the establishment and must include all of the following information:
- (i) The trained handler's printed name and signature.
 - (ii) The date of the training.
 - (iii) Information identifying which EPA-approved training materials were used.
 - (iv) The trainer's name and documentation showing that the trainer met the requirements of subsection (3)(d) of this section at the time of training.

- (v) The handler employer's name.
- (b) The handler employer must, upon request by a handler trained on the establishment, provide to the handler a copy of the record of the training that contains the information required under (a) of this subsection.

WAC 296-307-11210 Knowledge of labeling, application-specific, and establishment-specific information for handlers—40 C.F.R., Sec. 170.503.

- (1) Knowledge of labeling and application-specific information.
 - (a) The handler employer must ensure that before any handler performs any handler activity involving a pesticide product, the handler either has read the portions of the labeling applicable to the safe use of the pesticide or has been informed in a manner the handler can understand of all labeling requirements and use directions applicable to the safe use of the pesticide.
 - (b) The handler employer must ensure that the handler has access to the applicable product labeling at all times during handler activities.
 - (c) The handler employer must ensure that the handler is aware of requirements for any entry restrictions, application exclusion zones and restricted-entry intervals as described in WAC 296-307-10915 and 296-307-10920 that may apply based on the handler's activity.
- (2) Knowledge of establishment-specific information. Before any handler performs any handler activity on an agricultural establishment where within the last 30 days a pesticide product has been used, or a restricted-entry interval for such pesticide has been in effect, the handler employer must ensure that the handler has been informed, in a manner the handler can understand, all of the following establishment-specific information:
 - (a) The location of pesticide safety information required in WAC 296-307-10830(1).
 - (b) The location of pesticide application and hazard information required in WAC 296-307-10830(2).
 - (c) The location of decontamination supplies required in WAC 296-307-11225.

WAC 296-307-11215 Requirements during applications to protect handlers, workers, and other persons—40 C.F.R., Sec. 170.505.

- (1) Prohibition from contacting workers and other persons with pesticides during application. The handler employer and the handler must ensure that no pesticide is applied so as to contact, directly or through drift, any worker or other person, other than an appropriately trained and equipped handler involved in the application.

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- (2) Suspending applications. The handler performing the application must immediately suspend a pesticide application if any worker or other person, other than an appropriately trained and equipped handler involved in the application, is in the application exclusion zone described in WAC 296-307-10915 (1)(a) or the area specified in column 2 of the table in WAC 296-307-10915 (2)(d).
 - (3) Handlers using highly toxic pesticides. The handler employer must ensure that any handler who is performing any handler activity with a pesticide product that has the skull-and-crossbones symbol on the front panel of the pesticide product label is monitored visually or by voice communication at least every two hours.
 - (4) Fumigant applications in enclosed space production. The handler employer must ensure all of the following:
 - (a) Any handler in an enclosed space production area during a fumigant application maintains continuous visual or voice contact with another handler stationed immediately outside of the enclosed space.
 - (b) The handler stationed outside the enclosed space has immediate access to and uses the personal protective equipment required by the fumigant labeling for applicators in the event that entry becomes necessary for rescue.

WAC 296-307-11220 Personal protective equipment—40 C.F.R., Sec. 170.507.

- (1) Handler responsibilities. Any person who performs handler activities involving a pesticide product must use the clothing and personal protective equipment specified on the pesticide product labeling for use of the product, except as provided in WAC 296-307-11420.
- (2) Employer responsibilities for providing personal protective equipment. The handler employer must provide to the handler the personal protective equipment required by the pesticide product labeling in accordance with this section. The handler employer must ensure that the personal protective equipment fits, is clean and in proper operating condition. When two or more pesticides are applied to a treated area at the same time, the employer must ensure employees, workers and handlers wear the applicable PPE that would protect against all of the pesticides as a mixture and combined product. For the purposes of this section, long-sleeved shirts, short-sleeved shirts, long pants, short pants, shoes, and socks are not considered personal protective equipment, although such work clothing must be worn if required by the pesticide product labeling.
 - (a) If the pesticide product labeling requires that “chemical-resistant” personal protective equipment be worn, it must be made of material that allows no measurable movement of the pesticide being used through the material during use.
 - (b) If the pesticide product labeling requires that “waterproof” personal protective equipment be worn, it must be made of material that allows no measurable movement of water or aqueous solutions through the material during use.

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- (c) If the pesticide product labeling requires that a “chemical-resistant suit” be worn, it must be a loose-fitting, one- or two-piece chemical-resistant garment that covers, at a minimum, the entire body except head, hands, and feet.
 - (d) If the pesticide product labeling requires that “coveralls” be worn, they must be loose-fitting, one- or two-piece garments that cover, at a minimum, the entire body except head, hands, and feet.
 - (e) Gloves must be the type specified on the pesticide product labeling.
 - (i) Gloves made of leather, cotton, or other absorbent materials may not be worn while performing handler activities unless gloves made of these materials are listed as acceptable for such use on the pesticide product labeling.
 - (ii) Separable glove liners may be worn beneath chemical-resistant gloves, unless the pesticide product labeling specifically prohibits their use. Separable glove liners are defined as separate glove like hand coverings, made of lightweight material, with or without fingers. Work gloves made from lightweight cotton or poly-type material are considered to be glove liners if worn beneath chemical-resistant gloves. Separable glove liners may not extend outside the chemical-resistant gloves under which they are worn. Chemical-resistant gloves with nonseparable absorbent lining materials are prohibited.
 - (iii) If used, separable glove liners must be discarded immediately after a total of no more than 10 hours of use or within 24 hours of when first put on, whichever comes first. The liners must be replaced immediately if directly contacted by pesticide. Used glove liners must not be reused. Contaminated liners must be disposed of in accordance with any federal, state, or local regulations.

Table 3
Chemical Resistance Category Selection Chart for Gloves

(For use when selecting glove types to be listed in the PPE section on pesticide label. Only select glove(s) that indicate a high level of chemical resistance.)

Note: This table below provides examples of categories of chemical resistant materials that can be used to protect against different kinds of pesticides.

Solvent Category (see Table 4)	Barrier Laminate	Butyl Rubber ≥ 14 mils	Nitrile Rubber ≥ 14 mils	Neoprene Rubber ≥ 14 mils	Natural Rubber *≥ 14 mils	Polyethylene	Polyvinyl Chloride (PVC) ≥ 14 mils	Viton ≥ 14 mils
A (dry and water-based formulations)	High	high	high	High	High	high	High	high
B	High	high	slight	Slight	None	slight	Slight	slight
C	High	high	high	High	moderate	moderate	High	high
D	High	high	moderate	Moderate	None	none	None	slight
E	High	slight	high	High	Slight	none	Moderate	high
F	High	high	high	Moderate	Slight	none	Slight	high
G	High	slight	slight	Slight	None	none	None	high
H	High	slight	slight	Slight	None	none	None	high

* Includes natural rubber blends and laminates.

HIGH: Highly chemical-resistant. Clean or replace PPE at end of each day's work period. Rinse off pesticides at rest breaks.

MODERATE: Moderately chemical-resistant. Clean or replace within an hour or two of contact.

SLIGHT: Slightly chemical-resistant. Clean or replace within 10 minutes of contact.

NONE: No chemical-resistance.

Table 4
Solvent List (PRN 93-7, Supplement 2)

Solvent (chemical name or Trade name)	Chemical Resistance Category	Solvent (chemical name or Trade name)	Chemical Resistance Category
Acetone	B	Isopar L	E
Amyl Acetate	D	Isopar M	E
Aromatic 100	F or G	Isopar V	E
Aromatic 150	F or G	Isophorone	B
Aromatic 200	F or G	Isopropanol	C
Aromatic Petroleum	F or G	Kerosene	E
Butoxypolypropylene glycol	C	Methanol	C
Butyl acetate	D	Methyl amyl ketone	B
Cyclohexanone	B	Methyl Carbitol	C
Diacetone alcohol	C	Methyl isobutyl ketone	B
Diethanolamine	C	Mineral oil	E
Diesel fuel	E	Mineral spirits	E
Dipropylene glycol monoethylether	C	Naphtha	E
Ethanol	C	N-methyl pyrrolidone	B
Ethylene glycol	C	Penreco 2251 oil	E
Exxon 589	E	Petroleum Distillate (aliphatic)	E
Heavy Aromatic Naphtha	F or G	Petroleum oil	E
Hexylene glycol	C	Propylene glycol	C
Isopar B	E	T 500-100	F or G
Isopar C	E	Tetrahydro-furfuryl alcohol	C
Isopar E	E	1,1,1-Trichloroethane	H
Isopar G	E	Water	A
Isopar H	E	Xylene	F or G
Isopar K	E	Xylene range solvents	F or G

- (f) If the pesticide product labeling requires that “chemical-resistant footwear” be worn, one of the following types of footwear must be worn:
- (i) Chemical-resistant shoes.
 - (ii) Chemical-resistant boots.
 - (iii) Chemical-resistant shoe coverings worn over shoes or boots.
- (g) If the pesticide product labeling requires that “protective eyewear” be worn, one of the following types of eyewear must be worn:
- (i) Goggles.

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- (ii) Face shield.
 - (iii) Safety glasses with front, brow, and temple protection.
 - (iv) Full-face respirator.
- (h) If the pesticide product labeling requires that a “chemical-resistant apron” be worn, a chemical-resistant apron that covers the front of the body from mid-chest to the knees must be worn.
- (i) If the pesticide product labeling requires that “chemical-resistant headgear” be worn, it must be either a chemical-resistant hood or a chemical-resistant hat with a wide brim.
- (j) The respirator specified by the pesticide product labeling must be used. If the label does not specify the type of respirator to be used, it must meet the requirements of Part Y-5 of this chapter. Whenever a respirator is required by the pesticide product labeling, the handler employer must ensure that the requirements of (j)(i) through (iii) of this subsection are met before the handler performs any handler activity where the respirator is required to be worn. The respiratory protection requirements of Part Y-5 of this chapter apply. The handler employer must maintain for two years, on the establishment, records documenting the completion of the requirements of (j)(i) through (iii) of this subsection.
- (i) The handler employer must assure that the respirator fits correctly by using the procedures consistent with Part Y-5 of this chapter.
 - (ii) Handler employers must provide handlers with training in the use of the respirator specified on the pesticide product labeling in a manner that conforms to the provisions of Part Y-5 of this chapter.
 - (iii) Handler employers must provide handlers with a medical evaluation by a physician or other licensed health care professional that conforms to the provisions of WAC 296-307-604 to ensure the handler's physical ability to safely wear the respirator specified on the pesticide product labeling.
- (3) Use of personal protective equipment.
- (a) The handler employer must ensure that personal protective equipment is used correctly for its intended purpose and is used according to the manufacturer's instructions.
 - (b) The handler employer must ensure that, before each day of use, all personal protective equipment is inspected for leaks, holes, tears, or worn places, and any damaged equipment is repaired or discarded.
- (4) Cleaning and maintenance.
- (a) The handler employer must ensure that all personal protective equipment is cleaned according to the manufacturer's instructions or pesticide product labeling instructions before each day of reuse. In the absence of any such instructions, it must be washed thoroughly in detergent and hot water.

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- (b) If any personal protective equipment cannot or will not be cleaned properly, the handler employer must ensure the contaminated personal protective equipment is made unusable as apparel or is made unavailable for further use by employees or third parties. The contaminated personal protective equipment must be disposed of in accordance with any applicable laws or regulations. Coveralls or other absorbent materials that have been drenched or heavily contaminated with a pesticide that has the signal word "DANGER" or "WARNING" on the label must not be reused and must be disposed of as specified in this subsection. Handler employers must ensure that any person who handles contaminated personal protective equipment described in this subsection wears the gloves specified on the pesticide product labeling for mixing and loading the product(s) comprising the contaminant(s) on the equipment. If two or more pesticides are included in the contaminants, the gloves worn must meet the requirements for mixing and loading all of the pesticide products.
 - (c) The handler employer must ensure that contaminated personal protective equipment is kept separate from noncontaminated personal protective equipment, other clothing or laundry and washed separately from any other clothing or laundry.
 - (d) The handler employer must ensure that all washed personal protective equipment is dried thoroughly before being stored or reused.
 - (e) The handler employer must ensure that all clean personal protective equipment is stored separately from personal clothing and apart from pesticide-contaminated areas.
 - (f) The handler employer must ensure that when respirators with particulate filtering elements are used, particulate filtering elements are replaced as soon as any one of the following conditions is met:
 - (i) When breathing resistance becomes excessive.
 - (ii) When the filter element has physical damage or tears.
 - (iii) According to manufacturer's recommendations or pesticide product labeling, whichever is more frequent.
 - (iv) In the absence of any other instructions or indications of service life, at the end of each day's work period.
 - (g) The handler employer must ensure that when gas- or vapor-re-moving respirators are used, the gas- or vapor-removing canisters or cartridges are replaced before further respirator use when one of the following conditions is met:
 - (i) At the first indication of odor, taste, or irritation.
 - (ii) When the maximum use time is reached as determined by a change schedule conforming to the provisions of Part Y-5 of this chapter.

- (iii) When breathing resistance becomes excessive.
 - (iv) When required according to manufacturer's recommendations or pesticide product labeling instructions, whichever is more frequent.
 - (v) In the absence of any other instructions or indications of service life, at the end of each day's work period.
- (h) The handler employer must inform any person who cleans or launders personal protective equipment of all the following:
- (i) That such equipment may be contaminated with pesticides and there are potentially harmful effects from exposure to pesticides.
 - (ii) The correct way(s) to clean personal protective equipment and how to protect themselves when handling such equipment.
 - (iii) Proper decontamination procedures that should be followed after handling contaminated personal protective equipment.
- (i) The handler employer must ensure that handlers have a place(s) away from pesticide storage and pesticide use areas where they may do all of the following:
- (i) Store personal clothing not worn during handling activities.
 - (ii) Put on personal protective equipment at the start of any exposure period.
 - (iii) Remove personal protective equipment at the end of any exposure period.
- (j) The handler employer must not allow or direct any handler to wear home or to take home employer-provided personal protective equipment contaminated with pesticides.
- (5) Heat-related illness. Where a pesticide's labeling requires the use of personal protective equipment for a handler activity, the handler employer must ensure that no handler is allowed or directed to wear personal protective equipment without implementing measures sufficient to prevent heat-related illness and that each handler is instructed in the prevention, recognition, and first-aid treatment of heat-related illness.

Note: Additional requirements in WAC 296-307-097 Outdoor heat exposure, may apply between May 1st and September 30th of each year. See Part G-1.

WAC 296-307-11225 Decontamination and eye flushing supplies for handlers—40 C.F.R., Sec. 170.509.

- (1) Requirement. The handler employer must provide decontamination and eye flushing supplies in accordance with this section for any handler that is performing any handler activity or removing personal protective equipment at the place for changing required in WAC 296-307-11220 (4)(i).

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- (2) General conditions. The decontamination supplies required in subsection (1) of this section must include: At the site where handlers remove personal protective equipment, soap, clean towels, and a sufficient amount of water so that the handlers may wash thoroughly. At least 10 gallons of water for one employee and 20 gallons of water for two or more employees must be provided at mixing and loading sites that do not have running water. The decontamination and eye flushing supplies required in subsection (1) of this section must meet all of the following requirements:
- (a) Water. At all times when this section requires handler employers to make water available to handlers for routine washing, emergency decontamination or eye flushing, the handler employer must ensure that it is of a quality and temperature that will not cause illness or injury when it contacts the skin or eyes or if it is swallowed. If a water source is used for mixing pesticides, it must not be used for decontamination or eye flushing supplies, unless equipped with properly functioning valves or other mechanisms that prevent contamination of the water with pesticides, such as anti-backflow siphons, one-way or check valves, or an air gap sufficient to prevent contamination.
 - (b) Soap and single-use towels. The handler employer must provide soap and single-use towels for drying in quantities sufficient to meet the handlers' needs. Hand sanitizing gels and liquids or wet towelettes do not meet the requirement for soap. Wet towelettes do not meet the requirement for single-use towels.
 - (c) Clean change of clothing. The handler employer must provide one clean change of clothing, such as coveralls, for use in an emergency.
- (3) Location. The decontamination supplies must be located together outside any treated area or area subject to a restricted-entry interval, and must be reasonably accessible to each handler during the handler activity. The decontamination supplies must not be more than one-quarter mile from the handler, except that where the handler activity is more than one-quarter mile from the nearest place of vehicular access or more than one-quarter mile from any nontreated area, the decontamination supplies may be at the nearest place of vehicular access outside any treated area or area subject to a restricted-entry interval.
- (a) Mixing sites. Decontamination supplies must be provided at any mixing site.
 - (b) Exception for pilots. Decontamination supplies for a pilot who is applying pesticides aerially must be in the aircraft or at the aircraft loading site.
 - (c) Exception for treated areas. The decontamination supplies must be outside any treated area or area subject to a restricted-entry interval, unless the soap, single-use towels, water and clean change of clothing are protected from pesticide contamination in closed containers.

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- (4) Emergency eye flushing.
- (a) Whenever a handler is mixing or loading a pesticide product whose labeling requires protective eyewear for handlers, or is mixing or loading any pesticide using a closed system operating under pressure, the handler employer must provide at each mixing and loading station and handler decontamination sites, immediately available to the handler, at least one plumbed or portable eye wash system that is capable of delivering gently running water at a rate of at least 0.4 gallons (1.5 liters) per minute for at least 15 minutes, at least six gallons of water. A plumbed or portable system meeting the above requirements must be provided at all permanent mixing and loading sites.
 - (b) Whenever a handler is applying a pesticide product whose labeling requires protective eyewear for handlers, the handler employer must provide at least one pint of water per handler in portable containers that are immediately available to each handler.

WAC 296-307-114 Exemptions, exceptions and equivalency.

WAC 296-307-11405 Exemptions—40 C.F.R., Sec. 170.601.

- (1) Exemption for owners of agricultural establishments and their immediate families.
- (a) On any agricultural establishment where a majority of the establishment is owned by one or more members of the same immediate family, the owner(s) of the establishment are not required to provide the protections of the following sections to themselves or members of their immediate family when they are performing handling activities or tasks related to the production of agricultural plants that would otherwise be covered by this part on their own agricultural establishment.
 - (i) WAC 296-307-10825 (6) through (10).
 - (ii) WAC 296-307-10830.
 - (iii) WAC 296-307-10905.
 - (iv) WAC 296-307-10910.
 - (v) WAC 296-307-10925.
 - (vi) WAC 296-307-10930 and 296-307-11225.
 - (vii) WAC 296-307-11205
 - (viii) WAC 296-307-11210.
 - (ix) WAC 296-307-11215 (2) and (3) or 296-307-11220(4).
 - (x) WAC 296-307-11220 (3) through (5).
 - (xi) WAC 296-307-11415 (1) through (3) and (5) through (10).

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- (b) The owners of agricultural establishments must provide all of the applicable protections required by this part for any employees or other persons on the establishment that are not members of their immediate family.
- (2) Exemption for certified crop advisors. Certified crop advisors may make their own determination for the appropriate personal protective equipment for entry into a treated area during a restricted-entry interval and substitute their self-determined set of personal protective equipment for the labeling-required personal protective equipment, and the requirements of WAC 296-307-10825 (5) and (6), 296-307-10835(11), 296-307-11225(1), 296-307-11210, and 296-307-11225 do not apply to certified crop advisors provided the application is complete and all of the following conditions are met:
- (a) The crop advisor is certified or licensed as a crop advisor by the Washington state department of agriculture.
 - (b) The certification or licensing program requires pesticide safety training that includes all the information in WAC 296-307-11205 (3)(b) or (c) as applicable depending on the date of training.
 - (c) The crop advisor who enters a treated area during a restricted-entry interval only performs crop advising tasks while in the treated area.

WAC 296-307-11410 Exceptions for entry by workers during restricted-entry intervals—40 C.F.R., Sec. 170.603.

An agricultural employer may direct workers to enter treated areas where a restricted entry interval is in effect to perform certain activities as provided in this section, provided that the agricultural employer ensures all of the applicable conditions of this section and WAC 296-307-11415 are met.

- (1) Exception for activities with no contact. A worker may enter a treated area during a restricted-entry interval if the agricultural employer ensures that all of the following conditions are met:
 - (a) The worker will have no contact with anything that has been treated with the pesticide to which the restricted-entry interval applies including, but not limited to, soil, water, air, or surfaces of plants. This exception does not allow workers to perform any activities that involve contact with treated surfaces even if workers are wearing personal protective equipment.
 - (b) No such entry is allowed until any inhalation exposure level listed in the pesticide product labeling has been reached or any ventilation criteria required in WAC 296-307-10915 (2)(c) or the pesticide product labeling have been met, and either inhalation exposure levels are below PELs in WAC 296-307-624, Part Y-6 Respiratory hazards, or respiratory protection is provided and worn according to requirements in WAC 296-307-594, Part Y-5.

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- (2) Exception for short-term activities. A worker may enter a treated area during a restricted-entry interval for short-term activities, if the agricultural employer ensures that all of the following requirements are met:
- (a) No hand labor activity is performed.
 - (b) The time in treated areas where a restricted-entry interval is in effect does not exceed one hour in any twenty-four-hour period for any worker.
 - (c) No such entry is allowed during the first four hours after the application ends.
 - (d) No such entry is allowed until any inhalation exposure level listed in the pesticide product labeling has been reached or any ventilation criteria required in WAC 296-307-10915 (2)(c) or the pesticide product labeling have been met, and either inhalation exposure levels are below PELs in WAC 296-307-624, Part Y-6 Respiratory hazards, or respiratory protection is provided and worn according to requirements in WAC 296-307-594, Part Y-5.
- (3) Exception for an agricultural emergency.
- (a) An agricultural emergency means a sudden occurrence or set of circumstances that the agricultural employer could not have anticipated and over which the agricultural employer has no control, that requires entry into a treated area during a restricted-entry interval, and when no alternative practices would prevent or mitigate a substantial economic loss. A substantial economic loss means a loss in profitability greater than that which would be expected based on the experience and fluctuations of crop yields in previous years. Only losses caused by the agricultural emergency specific to the affected site and geographic area are considered. Losses resulting from mismanagement cannot be included when determining whether a loss is substantial.
 - (b) A worker may enter a treated area where a restricted-entry interval is in effect in an agricultural emergency to perform tasks necessary to mitigate the effects of the agricultural emergency, including hand labor tasks, if the agricultural employer ensures that all the following criteria are met:
 - (i) The Washington state department of agriculture declares an agricultural emergency that applies to the treated area, or agricultural employer has determined that the circumstances within the treated area are the same as circumstances the Washington state department of agriculture has previously determined would constitute an agricultural emergency.
 - (ii) The agricultural employer determines that the agricultural establishment is subject to the circumstances that result in an agricultural emergency meeting the criteria of (a) of this subsection.

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- (iii) If the labeling of any pesticide product applied to the treated area requires workers to be notified of the location of treated areas by both posting and oral notification, then the agricultural employer must ensure that no individual worker spends more than four hours out of any twenty-four-hour period in treated areas where such a restricted-entry interval is in effect.
 - (iv) No such entry is allowed during the first four hours after the application ends.
 - (v) No such entry is allowed until any inhalation exposure level listed in the pesticide product labeling has been reached or any ventilation criteria required in WAC 296-307-10915 (2)(c) the pesticide product labeling have been met, and either inhalation exposure levels are below PELs in WAC 296-307-624, Part Y-6 Respiratory hazards, or respiratory protection is provided and worn according to requirements in WAC 296-307-594, Part Y-5.
 - (vi) A decontamination site has been provided in accordance with WISHA regulations.
- (4) Exceptions for limited contact and irrigation activities. A worker may enter a treated area during a restricted-entry interval for limited contact or irrigation activities, if the agricultural employer ensures that all of the following requirements are met:
- (a) No hand labor activity is performed.
 - (b) No worker is allowed in the treated area for more than eight hours in a twenty-four-hour period.
 - (c) No such entry is allowed during the first four hours after the application ends.
 - (d) No such entry is allowed until any inhalation exposure level listed in the pesticide product labeling has been reached or any ventilation criteria required in WAC 296-307-10915 (2)(c) or the pesticide product labeling have been met, and either inhalation exposure levels are below PELs in WAC 296-307-624, Part Y-6 Respiratory hazards, or respiratory protection is provided and worn according to requirements in WAC 296-307-594, Part Y-5.
 - (e) The task is one that, if not performed before the restricted-entry interval expires, would cause substantial economic loss, and there are no alternative tasks that would prevent substantial loss.
 - (f) With the exception of irrigation tasks, the need for the task could not have been foreseen.
 - (g) The worker has no contact with pesticide-treated surfaces other than minimal contact with feet, lower legs, hands, and forearms.
 - (h) The labeling of the pesticide product that was applied does not require that workers be notified of the location of treated areas by both posting and oral notification.

WAC 296-307-11415 Agricultural employer responsibilities to protect workers entering treated areas during a restricted-entry interval —40 C.F.R., Sec. 170.605.

If an agricultural employer directs a worker to perform activities in a treated area where a restricted-entry interval is in effect, all of the following requirements must be met:

- (1) The agricultural employer must ensure that the worker is at least 18 years old.
- (2) Prior to early entry, the agricultural employer must provide to each early entry worker the information described in (a) through (h) of this subsection. The information must be provided orally in a manner that the worker can understand.
 - (a) Location of early entry area where work activities are to be performed.
 - (b) Pesticide(s) applied.
 - (c) Dates and times that the restricted-entry interval begins and ends.
 - (d) Which exception in WAC 296-307-11410 is the basis for the early entry, and a description of tasks that may be performed under the exception.
 - (e) Whether contact with treated surfaces is permitted under the exception.
 - (f) Amount of time the worker is allowed to remain in the treated area.
 - (g) Personal protective equipment required by the pesticide product labeling for early entry.
 - (h) Location of the pesticide safety information required in WAC 296-307-10830(1) and the location of the decontamination supplies required in subsection (8) of this section.
- (3) Prior to early entry, the agricultural employer must ensure that each worker either has read the applicable pesticide product labeling or has been informed, in a manner that the worker can understand, of all labeling requirements and statements related to human hazards or precautions, first aid, and user safety.
- (4) The agricultural employer must ensure that each worker who enters a treated area during a restricted-entry interval is provided the personal protective equipment specified in the pesticide product labeling for early entry. The agricultural employer must ensure that the worker uses the personal protective equipment as intended according to manufacturer's instructions and follows any other applicable requirements on the pesticide product labeling. Personal protective equipment must conform to the standards in WAC 296-307-11220 (2)(a) through (i).
- (5) The agricultural employer must maintain the personal protective equipment in accordance with WAC 296-307-11220 (3) and (4).
- (6) The agricultural employer must ensure that no worker is allowed or directed to wear personal protective equipment without implementing measures sufficient to prevent heat-related illness and that each worker is instructed in the prevention, recognition, and first aid treatment of heat-related illness.

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- (7) (a) The agricultural employer must instruct each worker on the proper use and removal of the personal protective equipment, and as appropriate, on its cleaning, maintenance and disposal. The agricultural employer must not allow or direct any worker to wear home or to take home employer-provided personal protective equipment contaminated with pesticides.
- (b) Each worker is instructed in the prevention, recognition, and first-aid treatment of heat-related illness.

Note: Additional requirements in WAC 296-307-097 Outdoor heat exposure, may apply between May 1st and September 30th of each year. See Part G-1.

- (8) During any early entry activity, the agricultural employer must provide decontamination supplies in accordance with WAC 296-307-11225, except the decontamination supplies must be outside any area being treated with pesticides or subject to a restricted-entry interval, unless the decontamination supplies would otherwise not be reasonably accessible to workers performing early entry tasks.
- (9) If the pesticide product labeling of the product applied requires protective eyewear, the agricultural employer must provide at least one pint of water per worker in portable containers for eye flushing that is immediately available to each worker who is performing early entry activities.
- (10) At the end of any early entry activities the agricultural employer must provide, at the site where the workers remove personal protective equipment, soap, single-use towels and an adequate amount of water so that the workers may wash thoroughly. At least 10 gallons of water for one employee and 20 gallons of water for two or more employees must be provided at early entry sites that do not have running water.

WAC 296-307-11420 Exceptions to personal protective equipment requirements specified on pesticide product labeling—40 C.F.R., Sec. 170.607.

- (1) Body protection.
- (a) A chemical-resistant suit may be substituted for coveralls. If a chemical-resistant suit is substituted for coveralls, any labeling requirement for an additional layer of clothing beneath the coveralls is waived.
- (b) A chemical-resistant suit may be substituted for coveralls and a chemical-resistant apron.
- (2) Boots. If chemical-resistant footwear with sufficient durability and a tread appropriate for wear in rough terrain is not obtainable, then leather boots may be worn in such terrain.
- (3) Gloves. If chemical-resistant gloves with sufficient durability and suppleness are not obtainable, then during activities with plants with sharp thorns, leather gloves may be worn over chemical-resistant glove liners. However, once leather gloves are worn for this use, thereafter they must be worn only with chemical-resistant liners and they must not be worn for any other use.

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- (4) Closed systems.
- (a) When pesticides are being mixed or loaded using a closed system that meets all of the requirements in (b) of this subsection, and the handler employer meets the requirements in (c) of this subsection, the following exceptions to labeling-specified personal protective equipment are permitted:
 - (i) Handlers using a closed system to mix or load pesticides with a signal word of “DANGER” or “WARNING” may substitute a long-sleeved shirt, long pants, shoes and socks, chemical-resistant apron, protective eyewear, and any protective gloves specified on the labeling for handlers for the labeling-specified personal protective equipment.
 - (ii) Handlers using a closed system to mix or load pesticides other than those specified in (a)(i) of this subsection may substitute protective eyewear, long-sleeved shirt, long pants, and shoes and socks for the labeling-specified personal protective equipment.
 - (b) The exceptions in (a) of this subsection apply only in the following situations:
 - (i) Where the closed system removes the pesticide from its original container and transfers the pesticide product through connecting hoses, pipes and couplings that are sufficiently tight to prevent exposure of handlers to the pesticide product, except for the negligible escape associated with normal operation of the system.
 - (ii) When loading intact, sealed, water soluble packaging into a mixing tank or system. If the integrity of a water soluble packaging is compromised (for example, if the packaging is dissolved, broken, punctured, torn, or in any way allows its contents to escape), it is no longer a closed system and the labeling-specified personal protective equipment must be worn.
 - (c) The exceptions in (a) of this subsection apply only where the handler employer has satisfied the requirements in WAC 296-307-10835 and all of the following conditions:
 - (i) Each closed system must have written operating instructions that are clearly legible and include: Operating procedures for use, including the safe removal of a probe; maintenance, cleaning and repair; known restrictions or limitations relating to the system, such as incompatible pesticides, sizes (or types) of containers or closures that cannot be handled by the system; any limits on the ability to measure a pesticide; and special procedures or limitations regarding partially filled containers.
 - (ii) The written operating instructions for the closed system must be available at the mixing or loading site and must be made available to any handlers who use the system.
 - (iii) Any handler operating the closed system must be trained in its use and operate the closed system in accordance with its written operating instructions.

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- (iv) The closed system must be cleaned and maintained as specified in the written operating instructions and as needed to make sure the system functions properly.
 - (v) All personal protective equipment specified in the pesticide product labeling is immediately available to the handler for use in an emergency.
 - (vi) Protective eyewear must be worn when using closed systems operating under pressure.
- (5) Enclosed cabs.
- (a) If handling tasks are performed from inside a cab that has a nonporous barrier which totally surrounds the occupants of the cab and prevents contact with pesticides outside of the cab, exceptions to personal protective equipment specified on the product labeling for that handling activity are permitted as provided in (a) and (b) of this subsection.
 - (b) Persons occupying an enclosed cab must have all labeling-specified personal protective equipment immediately available and stored in a chemical-resistant container, such as a plastic bag. They must wear such personal protective equipment if it is necessary to exit the cab within a treated area during application or when a restricted-entry interval is in effect. Once personal protective equipment is worn in the treated area, it must be removed before reentering the cab to prevent contamination of the cab.
 - (c) Persons occupying such an enclosed cab may substitute a long-sleeved shirt, long pants, shoes, and socks for the labeling-specified personal protective equipment. If a respiratory protection device is specified on the pesticide product labeling for the handling activity, it must be worn.
 - (d) Persons occupying an enclosed cab that has a properly functioning ventilation system which is used and maintained in accordance with the manufacturer's written operating instructions and which is declared in writing by the manufacturer to provide respiratory protection equivalent to or greater than a dust/mist filtering respirator may substitute a long-sleeved shirt, long pants, shoes, and socks for the labeling-specified personal protective equipment. If a respiratory protection device other than a particulate/dust/mist filtering respirator is specified on the pesticide product labeling, it must be worn.
- (6) Aerial applications.
- (a) Use of gloves. The wearing of chemical-resistant gloves when entering or leaving an aircraft used to apply pesticides is optional, unless such gloves are required on the pesticide product labeling. If gloves are brought into the cockpit of an aircraft that has been used to apply pesticides, the gloves must be kept in an enclosed container to prevent contamination of the inside of the cockpit.

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- (b) Open cockpit. Handlers applying pesticides from an open cockpit aircraft must use the personal protective equipment specified in the pesticide product labeling for use during application, except that chemical-resistant footwear need not be worn. A helmet may be substituted for chemical-resistant headgear. A helmet with a face shield lowered to cover the face may be substituted for protective eyewear.
 - (c) Enclosed cockpit. Persons occupying an enclosed cockpit may substitute a long-sleeved shirt, long pants, shoes, and socks for labeling-specified personal protective equipment.
- (7) Crop advisors.
- (a) Provided the conditions in (b) through (d) of this subsection are met, crop advisors and their employees entering treated areas to perform crop advising tasks while a restricted-entry interval is in effect may substitute either of the following sets of personal protective equipment for the personal protective equipment specified on the pesticide labeling for handler activities:
 - (i) The personal protective equipment specified on the pesticide product labeling for early entry.
 - (ii) Coveralls, shoes plus socks and chemical-resistant gloves made of any waterproof material, and eye protection if the pesticide product labeling applied requires protective eyewear for handlers.
 - (b) The application has been complete for at least four hours.
 - (c) No such entry is allowed until any inhalation exposure level listed in the pesticide product labeling has been reached or any ventilation criteria required in WAC 296-307-10915 (2)(c) or the pesticide product labeling have been met, and either inhalation exposure levels are below PELs in WAC 296-307-624, Part Y-6 Respiratory hazards, or respiratory protection is provided and worn according to requirements in WAC 296-307-594, Part Y-5.
 - (d) The crop advisor or crop advisor employee who enters a treated area during a restricted-entry interval only performs crop advising tasks while in the treated area.

PART J
PESTICIDES RECORDKEEPING

WAC		Page
296-307-145	Pesticides recordkeeping.....	1
296-307-14505	Recordkeeping for pesticide applications.....	1
296-307-14510	Sample pesticide storage record.	4

WAC 296-307-145 Pesticides recordkeeping.**WAC 296-307-14505 Recordkeeping for pesticide applications.**

(1) If the employer applies pesticides, or has pesticides applied, related to the production of an agricultural crop, the employer must keep records for each application. The records must include the following:

(a) The address or exact location where the pesticide was applied or stored;

Note: If the employer applies pesticides to one acre or more, the location must be shown on the map on the required form for at least the first application.

(b) The year, month, day, and time the pesticide was applied or stored;

(c) The product name on the registered label and the United States Environmental Protection Agency registration number, if applicable, of the pesticide that was applied or stored;

(d) The crop or site to which the pesticide was applied (application crop or site);

(e) The amount of pesticide applied per acre, or other appropriate measure;

(f) The concentration of pesticide applied;

(g) The total area to which pesticide was applied;

(h) If applicable, the licensed applicator's name, address, and telephone number and the name of the individual(s) making the application;

(i) The direction and estimated velocity of the wind at the time the pesticide was applied;

Exception: Wind information does not have to be recorded for applications of baits in bait stations and pesticide applications within structures.

(j) Any other reasonable information required by the department.

(2) A commercial pesticide applicator must provide a copy of the pesticide application records to the owner or lessee of the lands to which the pesticide is applied. Pesticide application records may be provided on any form that includes all required information.

(3) The employer must update records on the same day that a pesticide is applied. The employer may use a copy as the record of the pesticide application. The employer must maintain the records for at least seven years after the date of the application.

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- (4) The employer must ensure that pesticide application records are readily accessible to employees and their designated representatives in a central location in the workplace. The records must be available beginning on the day the application is made and for at least thirty days after. The employee may view the pesticide application records and make their own record from that information.
 - (5) New or newly assigned employees must be made aware of the accessibility of the application records before working with pesticides or in an area containing pesticides.
 - (6) When storing pesticides, the employer must, at least once a year, perform an inventory of the pesticides stored in any work area.
 - (7) The pesticide inventory records must include the following information:
 - (a) The location where the pesticide is stored;
 - (b) The year, month, day, and time the pesticide was first stored;
 - (c) The product name used on the registered label and the United States Environmental Protection Agency Registration Number, if applicable, of the pesticide that is stored; and
 - (d) The amount of pesticide in storage at the time of the inventory.
 - (8) The employer must maintain a record of pesticide purchases made between the annual inventory dates.
 - (a) Instead of this purchase record, the employer may obtain from distributors from whom pesticides are purchased, a statement obligating the distributor to maintain the purchase records on the employer's behalf to meet the requirements of this section.
 - (b) The department may require the employer to submit all purchase records covering the purchases during a specified period of time or in a specified geographical area.
 - (9) When the employer ends all pesticide activities, the employer must file the records with the department. Anyone who succeeds or replaces the employer must retain the records required by this section, but that person is not liable for any violations the employer commits.
 - (10) The employer must ensure that the records required under this section are readily accessible to the department of labor and industries for inspection. The employer must also provide copies of the records on request, to:
 - (a) An employee or the employee's designated representative in the case of an industrial insurance claim filed under Title 51 RCW with the department of labor and industries;
 - (b) Treating health care personnel; or
 - (11) The designated representative or treating health care personnel are not required to identify the employee represented or treated.

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- (12) The department of labor industries will keep the name of any affected employee confidential according to RCW 49.17.080(1).
 - (13) When treating health care personnel request records under this section, and the record is required to determine treatment, the employer must provide copies of the record immediately. Information for treating health care personnel must be made immediately available by telephone, if requested, with a copy of the records provided within twenty-four hours. For all other requests, the employer must provide copies of the records within seventy-two hours.
 - (14) If requested, the employer must provide copies of records on a form provided by the department.
 - (15) If the employer suspects that an employee is ill or injured because of an exposure to one or more pesticides, the employer must immediately provide the employee with a copy of the relevant pesticide application records.
 - (16) If the employer refuses to provide a copy of a requested record, the requestor may notify the department of the request and the employer's refusal.
 - (a) Within seven working days, the department of labor and industries will request that the employer provide the department with all pertinent copies of the records, except that in a medical emergency the department will request within two working days.
 - (b) The employer must provide copies of the records to the department within twenty-four hours after we request.
 - (17) The department of labor and industries will inspect for the records required under this section as part of any on-site inspection of a workplace conducted under this chapter or chapter 49.17 RCW. The department will determine, during the inspection, whether the records are readily transferable to a form adopted by the department, and readily accessible to employees. However, the employer's records will not be inspected more than once in any calendar year, unless a previous inspection has found recordkeeping violations. If recordkeeping violations are found, the department may conduct reasonable multiple inspections, according to department rules. Nothing in this section limits the department's inspection of records pertaining to pesticide-related injuries, illnesses, fatalities, accidents, or complaints.
 - (18) If the employer fails to maintain the records, or provide access to or copies of the records required under this section, the employer will be subject to penalties authorized under RCW 49.17.180.
 - (19) The department of labor and industries and the department of agriculture will jointly adopt by rule, forms that satisfy the information requirements of this section and RCW 17.21.100. Pesticide application record forms can be found in chapter 16-228 WAC, General pesticide rules.

PART J-1
CHOLINESTERASE MONITORING

WAC		Page
296-307-148	Scope and summary.	1
296-307-14805	Maintain handling records for covered pesticides.	2
296-307-14810	Implement a medical monitoring program.	2
296-307-14815	Identify a physician or other licensed health care professional.	3
296-307-14820	Make cholinesterase testing available.	4
296-307-14825	Respond to depressed cholinesterase levels.	5
296-307-14830	Provide medical removal protection benefits.	7
296-307-14835	Maintain records.	7
296-307-14840	Provide training.	8
296-307-14845	Implementation plan.	8

WAC 296-307-148 Scope and summary.

Employer responsibility:

To implement a monitoring program for employees who, as part of their job duties, **handle** category I or II organophosphate or N-methyl-carbamate pesticides with the words “DANGER” or “WARNING” on the label.

Definition:

Handle and **handler**. Employees who are engaged in the job duties listed in the definition of “handler” contained in WAC 296-307-11005, Pesticides (worker protection standard).

Link: You will find a list of pesticide products covered by this section at the Washington State Department of Agriculture (www.agr.wa.gov).

Important:

Whenever there is reason to believe than an employee has been poisoned or injured by exposure to pesticides while on the job, the employer needs to provide the medical services required by WAC 296-307-13055.

The employer must meet the requirements...	in this section:
Maintain handling records for covered pesticides.	WAC 296-307-14805
Implement a medical monitoring program	WAC 296-307-14810
Identify a physician or licensed health care professional	WAC 296-307-14815
Make cholinesterase testing available	WAC 296-307-14820
Respond to depressed levels cholinesterase levels	WAC 296-307-14825
Provide medical removal protection benefits	WAC 296-307-14830
Maintain records	WAC 296-307-14835
Provide training	WAC 296-307-14840

The employer must meet the requirements...	in this section:
Implementation plan	WAC 296-307-14845

WAC 296-307-14805 Maintain handling records for covered pesticides.

- (1) The employer must maintain accurate records of all time that each employee spends handling category I or II organophosphate or N-methyl-carbamate pesticides (this includes employees who do not meet the handling hour thresholds in WAC 296-307-14810).
- (2) The employer must provide a completed CHOLINESTERASE MONITORING HANDLING HOURS REPORT (F413-065-000) to the physician or other licensed health care professional (LHCP) for each employee receiving a periodic cholinesterase blood test and make sure the report is submitted to the laboratory with each periodic cholinesterase test.
- (3) The employer must provide the employee with a copy of the CHOLINESTERASE MONITORING HANDLING HOURS REPORT upon request.
- (4) The employer must retain pesticide handling records for seven years.
- (5) The employer must make sure that pesticide-handling records are readily accessible to employees, their designated representatives, and treating health care professionals.

Helpful Tool: A form (Handler Hours Tracking) to assist you in counting handler hours can be found in the Resource section of this part.

WAC 296-307-14810 Implement a medical monitoring program.

The employer must implement a medical monitoring program for their employees who handle or will be expected to handle category I or II organophosphate or N-methyl-carbamate pesticides for thirty or more hours in any consecutive thirty-day period.

Notes:

1. The employer does not need to count time spent mixing and loading using closed systems (as defined in WAC 296-307-13045(4)(d)) in determining the need for periodic testing. Closed cabs are not “closed-systems.” Time using closed systems is still counted for purposes of establishing coverage under this rule and determining the need for obtaining baseline cholinesterase levels.
2. The first thirty consecutive day period begins on the first day of handling organophosphate or N-methyl-carbamate pesticides after obtaining the baseline cholinesterase test.
3. There is nothing in this rule that prohibits employers from providing cholinesterase monitoring to employees who handle organophosphate or N-methyl-carbamate pesticides for fewer than thirty hours in any consecutive thirty-day period.

WAC 296-307-14815 Identify a physician or other licensed health care professional.

- (1) The employer must identify a physician or other licensed health care professional (LHCP) who will:
 - (a) Provide baseline and periodic cholinesterase testing through the department of health public health laboratory or a laboratory approved by the department of labor and industries.
 - (b) Interpret cholinesterase tests.
 - (c) Provide the employer with a written recommendation for each employee's blood test and evaluation.
- (2) The employer must obtain the LHCP's written recommendation for each employee's blood test and evaluation (including baseline tests) and make sure that the employee receives a copy of the LHCP's written recommendation, either through the employer or directly through the LHCP, within five business days after the employer receives the employer the recommendation.
- (3) The employer must make sure the LHCP's written recommendation for each employee's blood test and evaluation is limited to the following information:
 - (a) The employee's cholinesterase status based on the LHCP's evaluation.
 - (b) Identification of changes in cholinesterase levels requiring a work practice evaluation for the employee.
 - (c) Identification of changes in cholinesterase levels requiring the employee to be removed from handling and other exposure to organophosphate and N-methyl-carbamate pesticides.
 - (d) Guidance on medical monitoring.
 - (e) Any other relevant information concerning an employee's workplace exposure to organophosphate and N-methyl-carbamate pesticides.

Note: All testing for an employee should be conducted through the same laboratory. This will allow for accurate comparison between baseline and periodic tests.

- (4) The employer must instruct the LHCP to **NOT** reveal in writing or in any other communication with the employer any other personally identifiable medical information.

Note: If the LHCP written recommendation contains specific findings or diagnoses unrelated to occupational exposure, the employer should send it back and obtain a revised version without the additional information.

- (5) The employer must make sure the LHCP is familiar with the requirements of this rule (for example, by providing a copy of the rule or by confirming that the provider has attended training on the rule).
- (6) The employer must post the name, address, and telephone number of the LHCP the employer has identified at the locations where employees usually start their work day.
- (7) The employer must make sure written recommendations from the LHCP are maintained for seven years.

Note: The employer may only obtain the employee's actual test results if the employee provides the LHCP with written consent to share these results with the employer.

WAC 296-307-14820 Make cholinesterase testing available.

- (1) The employer must make medical monitoring available to employees who will meet the handling hour threshold of thirty or more hours in any consecutive thirty-day period (WAC 296-307-14810) at no cost and at a reasonable time and place, as follows:
 - (a) Provide annual baseline red blood cell (RBC) and serum cholinesterase tests that are taken at least thirty days after the employee last handled organophosphate or N-methyl-carbamate pesticides.
 - (b) Provide periodic RBC and serum cholinesterase testing:
 - (i) Within three days after the end of each thirty-day period where the employee meets the handling hour threshold in WAC 296-307-14810; however, testing is not required more often than every thirty days; or
 - (ii) At least every thirty days for those employees who may meet the handling hour threshold in WAC 296-307-14810.
 - (c) Follow the recommendations of the LHCP regarding continued employee pesticide handling or removal from handling until a thirty-day exposure free baseline can be established.

Exemption: The employer does not need to provide baseline or periodic testing for those employees whose work exposure is limited to handling only N-methyl-carbamate pesticides.

Notes:

1. For employees who have had exposure to organophosphate or N-methyl-carbamate pesticides in the thirty days prior to the test obtain a working baseline. For example, a worker who initially declines cholinesterase testing and later chooses to participate in testing would obtain a "working baseline."
2. For new employees, the LHCP may accept previous baselines, if they are obtained according to this rule.

- (2) The employer must obtain a signed declination statement from the LHCP for each employee who declines cholinesterase testing.
 - (a) Employees may decline cholinesterase testing only after they receive training about cholinesterase inhibiting pesticides and discuss the risks and benefits of participation with the LHCP.
 - (b) An employee may change his or her mind and elect to participate or decline to continue participation in the testing program at any time.
- (3) The employer must make sure the employee receives a copy of the signed declination statement, either through the employer or directly through the LHCP, within five business days after the employer receives the declination statement.

Note: If employers discourage participation in cholinesterase monitoring, or in any way interfere with an employee's decision to continue with this program, this interference may represent unlawful discrimination under RCW 49.17.160, Discrimination against employee filing, instituting proceedings, or testifying prohibited--Procedure--Remedy.

Helpful Tool: A sample declination form can be found in the Resource section of this part.

WAC 296-307-14825 Respond to depressed cholinesterase levels.

The employer must respond to an employee's depressed cholinesterase levels by:

- (1) Taking the actions required in Table 1; and
- (2) Following any additional occupational health recommendations from the LHCP.

Table 1 Required Responses to an Employee's Depressed Cholinesterase Levels

When:	Action to be taken:	Methods:
An employee's RBC or serum cholinesterase levels fall more than twenty percent below the baseline	Evaluate the employee's workplace and work practices to identify and correct	Review: <ul style="list-style-type: none"> • Personal protective equipment (PPE) and its condition • Employees' PPE usage

When:	Action to be taken:	Methods:
	potential sources of pesticide exposure	<ul style="list-style-type: none"> • General sanitation and decontamination practices and availability of decontamination facilities required by WAC 296-307-13050 • Pesticide handling practices • Pesticide label requirements
<p>An employee's RBC cholinesterase level falls thirty percent or more from the baseline</p> <p>OR</p> <p>An employee's serum cholinesterase level falls forty percent or more from the baseline</p>	<p>Remove the employee from handling and other work exposures to organophosphate and N-methyl-carbamate pesticides such as thinning and harvesting in recently treated areas</p> <p>AND</p> <p>Evaluate the employee's work practices to identify and correct potential sources of pesticide exposure</p>	<ul style="list-style-type: none"> • When available; provide the employee with other duties that do not include handling and other work exposures to organophosphate and N-methyl-carbamate pesticides • Provide medical monitoring and cholinesterase testing as recommended by the LHCP • Provide salary and benefits as if employee was continuing pesticide application activities
A removed employee's cholinesterase levels return to twenty percent or less below baseline	The employee may return to handling class I and II organophosphate and N-methyl-carbamate pesticides	Continue periodic cholinesterase monitoring

Helpful Tool: To perform a work practice evaluation you may use the Worker Protection Standard checklist found in the Resource section of this part.

WAC 296-307-14830 Provide medical removal protection benefits.

- (1) The employer must provide medical removal protection benefits for a maximum of three months on each occasion:

- (a) An employee is temporarily removed from work due to depressed cholinesterase levels; or
 - (b) Assigned to other duties due to depressed cholinesterase levels.
- (2) The employer must provide medical removal protection benefits that include maintenance of the same pay, seniority and other employment rights and benefits of an employee as though the employee has not been removed from normal exposure to organophosphate or N-methyl-carbamate pesticides or otherwise limited.

Note: The following are examples of how a worker's pay could be maintained while medically removed from exposure to cholinesterase-inhibiting pesticides:

1. A removed worker is assigned to work eight hours a day but the employer's pesticide handlers are working ten hours a day. The removed worker would be paid for ten hours at the handler's rate.
2. The farmer pays workers two dollars more per hour when they are handling organophosphate or N-methyl-carbamate pesticides. The removed worker will be paid this premium when the pesticides are being handled on the farm; however, the worker will be paid at their usual rate when the pesticides are not being handled on the farm.

WAC 296-307-14835 Maintain records.

- (1) The employer must make sure that the following records are maintained:
- (a) The name, address, and telephone number of the physician or LHCP.
 - (b) Written recommendations and opinions received from the physician or LHCP.
 - (c) Findings of all work practice investigations.
 - (d) Dates when employees were medically removed from their duties and dates when employees are returned to duties that include handling organophosphate or N-methyl-carbamate pesticides.
 - (e) Signed declination statement.
- (2) The employer must maintain records for seven years.
- (3) The employer must make sure that all records are readily accessible to the employee and his or her designated representative.

WAC 296-307-14840 Provide training.

The employer make sure employees have received training before initial medical monitoring. The training must include at least the following:

- (1) The human health hazards and physical symptoms of overexposure to organophosphate and N-methyl-carbamate cholinesterase-inhibiting pesticides.

-
- (2) The purpose and requirements for medical monitoring.

Note: Training required by this rule may be combined with other pesticide handler training as required by WAC 296-307-13025, Pesticide safety training--Standards for pesticide handlers.

Helpful Tool: A sample worker training program can be found in the resource section of this part.

WAC 296-307-14845 Implementation plan.

The department will implement and complete an evaluation of this rule by doing the following:

- (1) Organize a scientific team to oversee collection and analysis of data collected during 2004 and 2005. L&I will select representatives of the University of Washington, Washington State University, as well as other interested members of the academic and scientific communities, to participate on the team. The team will provide an initial analysis of testing data and any appropriate recommendations directly to L&I and to the cholinesterase monitoring advisory committee by November 1, 2004, and a further analysis and any appropriate recommendations by November 1, 2005. A final report and recommendations will be completed by September 30, 2006.
- (2) Establish a cholinesterase stakeholder advisory committee to evaluate issues related to rule implementation and provide recommendations to the department regarding implementation of the rule and any possible modifications to it. L&I will invite representatives of growers, labor and affected state agencies to participate on the advisory committee. The committee will have an opportunity to comment on the analysis completed by the scientific team and to make any appropriate recommendations before December 1, 2004, and again before December 1, 2005. In addition, the committee will review the scientific committee's final report and recommendations and provide advice to L&I prior to December 1, 2006.
- (3) Review reports from the scientific team and stakeholder advisory committee, and other relevant information and make modifications to the rule as appropriate.
- (4) Make efforts to defray the costs of medical testing during 2004.
- (5) Prepare and distribute provider guidelines.
- (6) Develop and make available a model employee training program.
- (7) Publish a list of trained providers and certified laboratories on the internet.
- (8) Coordinate recordkeeping requirements with the department of agriculture.

Resource Section
Cholinesterase Monitoring WAC 296-307-148

	Page
Handler Hours Tracking Form	R-1
Cholinesterase Monitoring (blood test) Declination Form.....	R-3
Worker Protection Standard Checklist of Requirements	R-4
Sample Worker Training Program.....	R-12-

Handler Hours Tracking Form

Organophosphate and N-Methyl-Carbamate Pesticides

This form can help you track handler hours as required by WAC 296-307-14805

Full Name of Handler (see back of sheet):

		Total Hours from Previous Page =		
Time Information:	Full Name of Pesticide(s) used or in contact with:	Activity (see back of sheet for examples)	Total Hours - last 30 days	Comments:
Date: _____ Start time: _____ Stop time: _____ Less Lunch/break time: _____ Total time: _____				
Date: _____ Start time: _____ Stop time: _____ Less Lunch/break time: _____ Total time: _____				

		Total Hours from Previous Page =		
Time Information:	Full Name of Pesticide(s) used or in contact with:	Activity (see back of sheet for examples)	Total Hours - last 30 days	Comments:
Date: _____ Start time: _____ Stop time: _____ Less Lunch/break time: _____ Total time: _____				

Handler Hours Form

Organophosphates and N-Methyl-Carbamates

*“**Handler**” means a person, including a self-employed person.

- Who is employed for any type of compensation by an agricultural establishment or commercial pesticide handling establishment of which WAC 296-307-130 applies and who is:
 - Mixing, loading, transferring, or applying pesticides.
 - Disposing of pesticides or pesticide containers.
 - Handling opened containers of pesticides.
 - Acting as a flagger.
 - Cleaning, adjusting, handling, or repairing the parts of mixing, loading, or application equipment that may contain pesticide residues.
 - Assisting with the application of pesticides.
 - Entering a greenhouse or other enclosed area after the application and before the inhalation exposure level listed in the labeling has been reached or one of the ventilation criteria established by WAC 296-307-12015(3)(c) or in the labeling has been met:
 - To operate ventilation equipment.
 - To adjust or remove coverings used in fumigation.
 - To monitor air levels.
 - Entering a treated area outdoors after application of any soil fumigant to adjust or remove soil coverings such as tarpaulins.
 - Performing tasks as a crop advisor:
 - During any pesticide application.
 - Before the inhalation exposure level in the labeling has been reached or one of the ventilation criteria established by WAC 296-307-12015 (3)(c) or in the labeling has been met.
 - During any restricted-entry interval.

The term does not include any person who is only handling pesticide containers that have been emptied or cleaned according to pesticide product labeling instructions or, in the absence of such instructions, have been subjected to triple-rinsing or its equivalent.

NOTE: IF YOU ARE ROUNDING WHEN COUNTING: ALWAYS ROUND UP, such as, to the nearest quarter or half hour.

ALSO, SUBTRACT BREAKS AND LUNCH FROM THE COUNT!

Cholinesterase Monitoring (blood test) Declination Form

Employer: _____

I understand that because I work with certain dangerous pesticides*, I can get blood tests to tell if I have too much pesticide in my body. I also understand that I do not have to pay for these blood tests, my employer will provide the tests at no cost to me.

I have talked with a medical provider about the blood tests and the benefits and possible disadvantages of participating in the cholinesterase blood test program. I know that if the medical provider recommends that I stop handling these pesticides for a short period of time, the law says my employer must continue to provide my pay and benefits for up to 3 months or until I am allowed to return to work with these pesticides.

I have decided not to take the blood tests. I understand that if I change my mind and decide to have the blood tests, my employer will provide the tests at no cost to me.

Employee's Name (Print)

Medical Provider Signature (Witness)

Employee's Signature
Date

Date

*Organophosphate and N-methyl-carbamate pesticides with the words "Danger" or "Warning" on **the label.**

WORKER PROTECTION STANDARD
 CHECKLIST OF REQUIREMENTS
 Chapter 296-307 WAC, Parts I and J-1

Washington State
 Department of Agriculture
 Pesticide Management
 P.O. Box 42589, Olympia, WA 98504-2589
 (360)902-2040

NAME		DATE	TIME
ADDRESS			
CITY		STATE	ZIP
CORP OR CO-OP	NUMBER OF ACRES	NUMBER OF WORKERS	TYPE OF WORK (Seasonal, etc.)

CENTRAL NOTIFICATION

YES NO N/A

- | | | | | |
|--------------------------|--------------------------|--------------------------|----|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 1. | Is central notification displayed when handlers or workers are on the establishment during an application or when an REI has been in effect within the last 30 days? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 2. | Is an approved safety poster displayed? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 3. | Is emergency medical information displayed? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 4. | Is pesticide information displayed for each application? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | a. Location of area treated |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | b. Product name |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | c. Active ingredient |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | d. EPA registration number |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | e. Time and date of application |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | f. Restricted Entry interval |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 5. | Does the pesticide information remain for 30 days following the REI? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 6. | Is the site easily accessible to workers/handlers? |

Exception: No need to display central notification if only immediate family members work on the establishment.

TRAINING

- | | | | | |
|--------------------------|--------------------------|--------------------------|-----|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 1. | Are handlers WSDA Certified Pesticide Applicators or consultants or WPS trained handlers? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 2. | Do handlers receive training before performing a pesticide application or other handling activity? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 3. | Are handlers informed of labeling and have access to labels? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 4. | Are all workers Certified Pesticide Applicators or consultants WPS trained? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 5. | Do workers receive training before entry into treated areas? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 6. | Do early entry workers receive training before entry into treated areas? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 7. | Do trainers have proper qualifications to train (Certified Pesticide applicator, WPS handler, or attended WA approved trainer seminar)? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 8. | Is training repeated every 5 years? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 9. | Is training presented in a language the trainees can understand? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 10. | Is training presented orally or audio visually? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 11. | Does the trainer respond to trainee's questions? |

DECONTAMINATION FOR HANDLERS

- | | | | | |
|--------------------------|--------------------------|--------------------------|----|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 1. | Are handler decontamination sites supplied with clean water, soap, disposable towels and clean coveralls? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 2. | Does handler(s) have decontamination supplies at: |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | a. mix/load area |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | b. within ¼ mile or closest point of vehicular access of where performing handler task |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | c. where PPE is removed |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 3. | Is sufficient eye flush water immediately available to handlers and early-entry workers? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | a. <u>Early entry workers</u> -- 1 pint of immediately accessible eyewash when label requires protective eyewear. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | b. <u>Handlers</u> – 1 pint of immediately accessible eyewash when performing task when label requires protective eyewear. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 4. | 6 gallons additional eyewash required for handlers: |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | a. at decontamination sites when label requires protective eyewear for mixing, loading, or application |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | b. at all permanent mixing/loading stations |

DECONTAMINATION FOR WORKERS

- | YES | NO | N/A | | |
|--------------------------|--------------------------|--------------------------|----|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 1. | Are worker decontamination sites supplied with clean water (enough for routine cleaning and emergency eyewash), soap, and towels? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 2. | Are worker decontamination sites within ¼ mile of the work site or at the closest point of vehicular access? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 3. | Does decontamination site for early entry workers have at least 10 gallons of water for employees? |

DECONTAMINATION TIME PERIOD

- | | | | | |
|--------------------------|--------------------------|--------------------------|----|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 1. | Are decontamination sites provided for required periods of time after expiration of REI: 7 days for 4 hour REI, and 30 days for all other. |
|--------------------------|--------------------------|--------------------------|----|--|

NOTICE OF APPLICATIONS

- | | | | | |
|--------------------------|--------------------------|--------------------------|----|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 1. | When required on the label, are both oral and posted warnings given? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 2. | Are oral warnings given clearly and in a language the workers can understand and do they contain required information? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 3. | If posting: |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | a. | Is the appropriate sign being used? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | b. | Is the sign put up no more than 24 hours prior to application? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | c. | Does the sign come down within 3 days of the end of the REI? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | d. | Is the sign posted at normal worker points of entry to the treated area? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 4. | Are all greenhouse applications posted? |

Exceptions: Oral warning or signs are not needed for employees who will not be within ¼ mile of the treated area for the length of the REI; will not be in the greenhouse during the application and REI, or who perform the application.

ENTRY RESTRICTIONS

- | | | | | |
|--------------------------|--------------------------|--------------------------|----|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 1. | Are workers not allowed in area under REI (unless permissible early entry is allowed)? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 2. | Do early entry workers (with contact) remain in the treated area for no more than 1 hour per 24 hours? (there are two exceptions which allow early entry for up to eight hours for limited contact activities. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 3. | Has early entry during agricultural emergencies been approved by WSDA? |

INFORMATION EXCHANGE

- | | | | | |
|--------------------------|--------------------------|--------------------------|----|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 1. | Has your Custom applicator provided you with required information for your central notification prior to application? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 2. | Have you provided information to the Custom Applicator about REI's in effect on your property? |

PPE

- | | | | | |
|--------------------------|--------------------------|--------------------------|----|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 1. | Is required PPE provided to handlers and early entry workers? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 2. | Are persons instructed in the proper use of PPE? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 3. | Is PPE inspected before each day's use? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 4. | Are cleaning/maintenance requirements of PPE met? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 5. | Is a clean place provided for PPE storage? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 6. | Are appropriate measures taken to avoid heat related illness? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 7. | Have those cleaning PPE received special instruction? |

Exception: Some of the label required handler PPE may be omitted if using a closed system, enclosed cab or cockpit. (Generic PPE for new limited contact early entry exceptions)

EQUIPMENT SAFETY

- | | | | | |
|--------------------------|--------------------------|--------------------------|----|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 1. | Is equipment used for mixing, loading and applying pesticides inspected and repaired before each day of use? |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 2. | Have handlers been instructed in proper use of application equipment? |

EMERGENCY ASSISTANCE

1. Is transportation made available to any employee who becomes sick or is believed to be injured by pesticides?
2. Are provisions made to supply information about the pesticide to medical personnel?

APPLICATIONS RESTRICTIONS AND MONITORING OF HANDLERS

1. Are pesticides applied so that no one is contacted except appropriately trained and equipped handlers?
2. Is sight or voice contact made by a trained and equipped handler at least every 2 hours with a handler using a skull and crossbones pesticide?

CHOLINESTERASE MONITORING

N/A

1. Have you identified pesticide handlers likely to exceed the thresholds for work with Class I or Class II organophosphate or N-methyl carbamate pesticides?
(Note: the threshold in 2004 is 50 hours in 30 consecutive days, and in 2005: 30 hours in 30 consecutive days)
2. Have you identified a medical provider for cholinesterase testing of your handlers?
3. Have you provided all pesticide handlers identified in item 1 with the training in item 7 and an initial medical examination.
An **annual** baseline test, at least 30 days since the last exposure to the covered pesticide, will be included with the initial exam and employees will be given an opportunity to decline blood testing.
4. Have you determined which schedule to provide **periodic** testing you will use?
- At least every 30 days from the day of the first application of covered pesticides
- OR**
- Within 3 days of meeting the exposure threshold, but no more than once every 30 days (the "hours counting option")?

Exception: Hours spent mixing and loading using closed systems (Lock 'N Load, soluble packets or "solupak") will not be counted as exposure hours for periodic testing.

Exception: Employees who handle only N-methyl-carbamate pesticides will be exempt from the medical monitoring requirement.

5. Have you maintained the following records?
- Name of medical provider
 - Medical provider recommendations
 - Work practice evaluations
 - Medical removal dates
 - Declination forms

No: 7-year retention requirement for all records

6. Have you provided training to identified pesticide handlers that includes:
- The health hazards of organophosphate and N-methyl-carbamate pesticides
 - The purpose and requirements of cholinesterase monitoring

-
-
-
- a. Did you evaluate your Worker Protection Program to identify and correct potential exposures, for each handler with a reported cholinesterase depression?
 - Work practices
 - Clothes
 - Respirator
 - Sanitation

Corrective Actions Taken (use back of page if more space is required)

-
-
-
- a. Was the employee to be **temporarily removed from exposure** or shifted to other work after a recommendation from your medical provider? If so, what was the first day of removal? _____
If the employee was returned to handling specified pesticides, enter the date of return: _____

Sample Worker Training Program

The following program will help you meet the training requirements in WAC 296-307-14840, which requires that your employees be trained before initial medical monitoring.

WHAT IS CHOLINESTERASE?

1. Cholinesterase is a substance in the body that is necessary for proper functioning of the nervous system.
2. If the amount of available cholinesterase falls below a safe level, the nervous system can no longer control the messages it sends to muscles.

WHICH PESTICIDES AFFECT CHOLINESTERASE?

3. Two types of pesticides, the organophosphates and the carbamates, reduce available cholinesterase. (*Employer should give examples of commonly used organophosphates and carbamates*)
4. The most dangerous organophosphate and carbamate pesticides are those with the words "DANGER" or "WARNING" on the label.
5. Exposures to these pesticides may occur while mixing, loading, applying and other pesticide handling activities.

WHAT ARE THE SYMPTOMS OF EXPOSURE?

6. Symptoms of overexposure may occur from single large exposure, such as spilling the pesticide, or from small exposures over a period of time, such as applying these products over an entire growing season.
7. Symptoms of overexposure to these pesticides include headache, dizziness, blurred vision, stomachache, diarrhea, drooling, sweating more than usual, tightness of the chest, muscle twitching, pinpoint pupils, and difficulty breathing.

WHAT IS THE TREATMENT FOR OVEREXPOSURE?

8. Organophosphates and carbamates do not permanently reduce cholinesterase. New cholinesterase is made in the body.
9. The most common treatment for overexposure is to temporarily stop handling and other exposures to organophosphate and carbamate pesticides until cholinesterase returns to its usual level.

HOW DO YOU AVOID OVEREXPOSURE?

10. Follow the pesticide worker protection program and instructions on the pesticide label.
 - Always use personal protective equipment
 - Always wash skin and clean equipment as directed
 - Always respect restricted entry periods

CAN CHOLINESTERASE LEVELS BE MONITORED?

11. Yes, cholinesterase levels can be measured through simple blood tests.

12. Each person's usual cholinesterase level (baseline) is determined prior to handling organophosphate and carbamate pesticides.
13. Periodic tests taken throughout the application season are compared to the baseline to identify changes in cholinesterase levels.

WHY MONITOR CHOLINESTERASE LEVELS?

14. Benefits of cholinesterase monitoring include:
 - Prevention of overexposure
 - Safer workplace
 - Improved medical care

WHO SHOULD BE MONITORED?

15. Workers who handle the most dangerous organophosphate and carbamate pesticides for 50 or more hours in any consecutive 30-day period.
16. In 2005 this will change to handling for 30 or more hours in any consecutive 30 –day period.

HOW WILL CHOLINESTERASE MONITORING BE PROVIDED?

17. You will be sent to a physician or clinic to discuss your option to participate in a cholinesterase-monitoring program.
18. Cholinesterase monitoring will be provided to you at no cost.

WHAT WILL HAPPEN IF OVEREXPOSURE IS DETECTED?

19. (Your employer) may be directed to look at the worker protection program to try and eliminate the cause of your exposure.
20. You may be temporarily removed from exposure to organophosphate and carbamate pesticides until your cholinesterase levels return to close to baseline.
21. Your pay and benefits will be protected (for up to 3 months) if you are temporarily removed from handling organophosphate and carbamate pesticides.

QUESTIONS?

22. The physician or clinic can answer any question that you have about cholinesterase testing.
23. For questions about the Cholinesterase Monitoring Rule you can call the department of Labor & Industries at 1-800-4BE-SAFE (1-800-423-7233)

PART K
WORKING NEAR OVERHEAD LINES

WAC		Page
296-307-150	Employees working near overhead lines.....	1
296-307-15003	Scope.....	1
296-307-15006	Clearance and safeguards required to protect employees working near overhead lines.....	1
296-307-15009	Signs an employer must post to warn employees working near overhead lines.....	2
296-307-15012	The employer must notify the utility when employees are working near overhead lines.....	2

WAC 296-307-150 Employees working near overhead lines.

WAC 296-307-15003 Scope.

WAC 296-307-150 does not apply to the construction, reconstruction, operation, or maintenance of overhead electrical conductors (and their supporting structures and associated equipment) by authorized and qualified electrical employees. It also does not apply to authorized and qualified employees engaged in the construction, reconstruction, operations and maintenance of overhead electrical circuits or conductors (and their supporting structures and associated equipment) of rail transportation systems, or electrical generating, transmission, distribution, and communication systems.

WAC 296-307-15006 Clearance and safeguards required to protect employees working near overhead lines.

- (1) All exposed overhead conductors must be isolated from accidental contact by employees or equipment.
- (2) Irrigation pipe must not be stored within one hundred feet of overhead conductors.
- (3) Upending irrigation pipe within one hundred feet of overhead conductors is prohibited.
- (4) Water and irrigation systems, and other devices that discharge a conductive liquid, must be set up and operated so that the discharge from the system is directed more than ten feet away from overhead high-voltage lines, and avoids contact with any exposed electrical power conductor.
- (5) Employees are prohibited from entering or working in proximity to high-voltage lines, unless there are guards to prevent accidental contact.

<p>Note: Voltage 600V and higher is considered high voltage.</p>

- (6) The following are prohibited if it is possible to bring these objects within ten feet of high-voltage lines:
 - (a) Operating, erecting, or transporting tools, equipment, or a moving part;
 - (b) Handling, transporting, or storing materials; or
 - (c) Moving a building near high-voltage lines.
- (7) Equipment or machines must be operated near power lines according to the following:
 - (a) For lines rated 50 kv. or below, minimum clearance between the lines and any part of the object must be ten feet;
 - (b) For lines rated over 50 kv. minimum clearance between the lines and any part of the object must be ten feet plus four tenths of an inch for each 1 kv., over 50 kv., or twice the length of the line insulator but never less than ten feet;

- (c) In transit, the clearance must be a minimum of four feet for voltages less than 50 kv., ten feet for voltages over 50 kv. up to and including 345 kv., and sixteen feet for voltages up to and including 750 kv.;
- (d) The employer must designate someone to observe clearance and give warning for operations where it is difficult for the operator to see well enough to maintain the necessary clearance.

Exception: The employer is exempt from this requirement if electrical distribution and transmission lines have been deenergized and visibly grounded at point of work; or if insulating barriers, not a part of or an attachment to the equipment or machinery, have been erected to prevent physical contact with the lines.

WAC 296-307-15009 Signs an employer must post to warn employees working near overhead lines.

The employer must post and maintain in plain view of the operator on each derrick, power-shovel, drilling-rig, hay loader, hay stacker, or similar apparatus with parts that are capable of vertical, lateral or swinging motion, a durable warning sign legible at twelve feet that says, "unlawful to operate this equipment within ten feet of high-voltage lines."

WAC 296-307-15012 The employer must notify the utility when employees are working near overhead lines.

The employer must notify the operator of high-voltage lines when any operations are to be performed, tools or materials handled, or equipment is to be moved or operated within ten feet of any high-voltage line. All required safety measures must be completed before proceeding with any work that would reduce the clearance requirements of this section.

PART L
TEMPORARY WORKER HOISING (TWH)

WAC		Page
296-307-161	Temporary worker housing and cherry harvest camps.....	1
296-307-16101	Purpose and applicability.....	1
296-307-16102	Additional requirements to protect occupants in temporary worker housing from 2019 novel coronavirus. (COVID-19) exposure.....	1
296-307-16103	Definitions.....	7
296-307-16104	Technical assistance-Notice of violation.....	10
296-307-16115	Maximum capacity for TWH occupants.....	11
296-307-16120	Variance and procedure.....	12
296-307-16125	Temporary worker housing sites and cherry harvest campsites.....	13
296-307-16127	TWH management plan.....	13
296-307-16130	Water supply.....	14
296-307-16135	Sewage disposal.....	15
296-307-16140	Electricity and lighting.....	15
296-307-16145	Building requirements and maintenance.....	16
296-307-16146	Ventilation.....	18
296-307-16147	Tents.....	19
296-307-16149	Carbon monoxide alarms, smoke detectors, and fire extinguishers.....	20
296-307-16150	Laundry facilities.....	21
296-307-16155	Handwashing and bathing facilities.....	21
296-307-16160	Toilet facilities.....	22
296-307-16165	Cooking and food-handling facilities.....	24
296-307-16170	Cots, beds, bedding, and personal storage.....	25
296-307-16175	First aid and safety.....	26
296-307-16180	Refuse (waste) disposal.....	26
296-307-16185	Insect and rodent control.....	27
296-307-16190	Disease prevention and control.....	27

WAC 296-307-161 Temporary worker housing and cherry harvest camps.

WAC 296-307-16101 Purpose and applicability.

- (1) Purpose. This part is adopted by the Washington state department of labor and industries to implement the provisions of chapter 49.17 RCW and establish minimum health and safety requirements for temporary worker housing and cherry harvest camps.
- (2) Applicability. This part applies to:
 - (a) Temporary worker housing, including cherry harvest camps, provided by agricultural employers or operators in the state of Washington; and
 - (b) Operators of temporary worker housing must be licensed under this chapter if the housing meets the criteria identified in WAC 296-307-161.

For licensing requirements, see WAC [246-358-025](#), Licensure. For self-survey requirements, see WAC [246-358-027](#), Requirements for self-survey program. For enforcement requirements, see WAC [246-358-028](#), Enforcement.

Note: The requirements in this part only apply to residents of the TWH facility who are also employees of the TWH facility owner. Requirements that would apply to other TWH residents, such as family members, who are not employees of the TWH facility owner, are in chapter [246-358](#) WAC, Temporary worker housing.

Effective 09/16/22 through 01/14/23.

WAC 296-307-16102 Additional requirements to protect occupants in temporary worker housing from 2019 novel coronavirus (COVID-19) exposure.

- (1) The operator of temporary worker housing (TWH) under this chapter must implement the following steps to protect occupants from the hazards posed by SARS-CoV-2, the virus that causes coronavirus disease 2019 (COVID-19):
 - (a) Educate occupants and allow entry of community workers:
 - (i) The operator must educate occupants in a language or languages understood by the occupants on COVID-19, including: How the virus is spread and how to prevent virus spread including the importance of handwashing; the use of face coverings/masks; proper respiratory etiquette; the importance of daily cleaning and disinfection of frequently touched items; steps that can be taken to improve ventilation; common symptoms and risk factors; how to get a vaccine and where to get answers about vaccine questions; what to do if they develop symptoms of COVID-19; what to do if they are exposed to SARS-CoV-2; and what to do if they test positive for SARS-CoV-2.

- (ii) The operator must also allow entry of community health workers and community-based outreach workers to provide additional information. For the purposes of this section, a community health worker is defined as a frontline public health worker who is a trusted member of and/or has an unusually close understanding of the community served. This trusting relationship enables the worker to serve as a liaison/link/intermediary between health/social services and the community to facilitate access to services and improve the quality and cultural competence of service delivery. A community-based outreach worker is defined as a legal aid representative, a union representative, or a representative from other community-based advocacy organizations.

Note: When there is a designated or recognized office at an employer's establishment, all visitors should check in to provide their name and contact information and complete a screening to ensure they are symptom free. To the extent possible, a minimum number of visitors should be allowed at a time and 6-foot physical distancing should be maintained. Personal protective equipment must be worn at all times.

- (b) Conspicuously post information regarding the facility's health and safety policies, how to identify symptoms, to whom to report if not feeling well, and where and how to secure medical treatment – all in a language commonly understood by the occupants.
- (c) The operator must provide at no cost an adequate number of face coverings/masks for occupants to use in accordance with Washington department of health guidelines, or as required by Washington department of labor and industries (L&I) safety rules.
- (d) Ventilation.
- (i) For the purposes of this section "mechanical ventilation" means the active process of supplying air to or removing air from an indoor space by powered equipment such as motor-driven fans and blowers but not by devices such as wind-driven turbine ventilators and mechanically operated windows.
- (ii) If the TWH facility/building has a mechanical ventilation system, maintain it according to the manufacturer's specifications and operate the system to provide optimal fresh and filtered air. TWH operators must have building maintenance staff or HVAC contractors set their existing mechanical ventilation system to increase ventilation or the percentage of outside air that circulates into the system and verify the following:
- (A) Make sure all HVAC systems are fully functional, especially those that have been shut down or operating at reduced capacity during the pandemic or off season.

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- (B) Use HVAC system filters with a minimum efficiency reporting value (MERV) rating of at least 13. If the HVAC system does not support MERV 13 filters, use the highest MERV rating filters supported by the HVAC system.
 - (C) Maximize the HVAC system's outdoor air intake. Make sure exhaust air is not pulled back into the building through HVAC air intakes or open windows. Reductions in outside air intake may be made when there are hazardous external conditions such as wildfire smoke or periods during and following pesticide application.
 - (D) Use appropriate personal protective equipment (particulate respirator, eye protection, and disposable gloves) when changing filters.
 - (E) Maintenance checks must occur at the beginning of each growing season when preparing buildings to be reopened. Additional checks must occur based on manufacturer recommendations (usually quarterly or annually).
 - (F) Keep a maintenance log including documentation of filter selection (include selection reason if less than MERV 13 filtration is used), filter conditions, and outside air settings. Operators shall make records required by this section available to the state agency representatives upon request.
- (iii) The operator must instruct residents in buildings with mechanical ventilation to:
- (A) Turn on mechanical ventilation systems (i.e., HVAC) or open windows whenever the TWH facility or building is occupied.
 - (B) Temporarily shut down the system when pesticides are being applied in the vicinity of the building.
 - (C) Operate exhaust fans in restrooms continuously at maximum capacity.
- (iv) The operator shall ensure that filters in any ventilation system used in a TWH facility or building are clean and in good repair.
- (v) In buildings without mechanical ventilation systems, windows must be open whenever occupied. Windows must be closed when conditions outside of the building could pose a hazard to occupants including, but not limited to, during dust storms or when pesticides are being applied to fields near the building. The operator must instruct residents to remove or redirect personal fans to prevent blowing air from one worker to another.
- (e) Clean and disinfect surfaces. The operator must:
- (i) Clean and disinfect areas where symptomatic suspect SARS-CoV-2 cases or people who tested positive for SARS-CoV-2 have been, according to CDC guidelines and before the space is used by others.

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- (ii) Ensure adequate supplies of soap and single-use paper towels at all sinks to allow for frequent handwashing.
- (2) COVID-19 screening and isolation of suspect SARS-CoV-2 and positive SARS-CoV-2 cases.
- (a) The operator must develop and implement a plan to identify and isolate occupants with suspect SARS-CoV-2 and positive SARS-CoV-2, including:
 - (i) A process to screen occupants for symptoms of COVID-19 as identified by the centers for disease control and prevention (CDC), including fever, cough, shortness of breath, difficulty breathing, chills, shaking with chills, muscle pain, headaches, fatigue, sore throat, congestion or runny nose, nausea or vomiting, diarrhea, and loss of taste or smell. The operator must ensure that an adequate number of thermometers or "no touch" or "no contact" thermometers are available for occupants to use. All thermometers must be properly sanitized between each use. Any worker with a temperature of 100.4°F or higher is considered to have a fever.
 - (ii) A "suspect SARS-CoV-2 case" is defined as a person with signs and symptoms compatible with COVID-19 above who has not been tested yet, who is awaiting test results, or who refuses testing. Upon identification of any individual known to have or suspected of having SARS-CoV-2 cases, the operator must contact the local health officer immediately as required under WAC 296-307-16190 and provide transportation for any medical evaluation or treatment. Ensure individuals providing transportation have appropriate personal protective equipment.
 - (iii) Identify close contacts in accordance with the Washington state department of health or local health officer close contact definition. Individuals who have been in close contact with the symptomatic suspect SARS-CoV-2 case or person who has tested positive for SARS-CoV-2 with a viral test must follow Washington state department of health or local health officer guidance for close contacts if applicable, including quarantine, symptom monitoring, testing, and face covering/masking. Close contacts of a suspect case who is ruled out do not need to continue to be treated as close contacts.
 - (iv) Any occupant exposed to COVID-19, regardless of vaccination status, must continue to be screened for symptoms of COVID-19 as described in (a)(i) of this subsection.
 - (v) Isolate suspect SARS-CoV-2 cases with sleeping, eating, and bathroom accommodations that are separate from others. If the suspect occupant resides in a room with family members, the sick occupant will have the option to isolate with the family members.

- (vi) Individuals who test positive for SARS-CoV-2 with a viral test must be isolated and only housed with other cases who have tested positive for SARS-CoV-2 with a viral test and must have separate bathroom, cooking and eating facilities from people who have not been diagnosed with COVID-19. If the occupant who tested positive for SARS-CoV-2 resides in a room with family members, the positive occupant will have the option to isolate with the family members. Individuals may leave isolation when they meet Washington state department of health guidance for isolation or when released from isolation by the local health officer.
- (vii) The operator must report suspect SARS-CoV-2 cases or SARS-CoV-2 positive TWH occupants in isolation to the division of occupational safety and health (DOSH) within 24 hours after placement.

Note: This notification can be made by telephone to the department's toll-free telephone number, 1-800-4BE-SAFE (1-800-423-7233), or to DOSH by any other means.

- (b) The operator must ensure appropriate isolation facilities for suspect SARS-CoV-2 cases or SARS-CoV-2 positive TWH occupants, including the following:
 - (i) Ensure that a licensed health care professional visits or assesses symptomatic occupants daily and asymptomatic occupants upon initial placement in isolation and upon request of the asymptomatic occupant or the licensed health care professional, at the employer's expense to perform a health check for each individual in isolation. Evaluations by licensed health care providers may be performed in-person, using audio telemedicine, or video telemedicine. At a minimum, the health care professional must review symptoms; temperature; oxygen saturation via pulse oximetry; and determine if additional medical services are needed, such as an in-person evaluation or treatment. If the licensed health care professional is not already familiar with the occupant's medical history, the licensed health care professional must obtain relevant medical history from the occupant.
 - (ii) Provide the health care provider performing the evaluation with information on the location of the isolation facilities and what the distance is from isolation facility and the nearest advanced life support emergency medical services, an emergency room with ventilator capability, and outpatient nonemergency medical services. If the health care provider has a question about the safety, health, or well-being for the occupant in isolation, they may contact the housing operator for further information.

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- (iii) For evaluations done by telehealth, the operator must ensure each occupant in isolation has or is provided a working telephone with a clear connection. The operator must also provide the occupant with a U.S. Food and Drug Administration approved pulse oximeter and thermometer with written and verbal instructions on use and interpretation of their results in the occupant's preferred language.
 - (iv) If an occupant prefers not to self-operate the pulse oximeter, and/or thermometer, the employer must ensure that they have competent assistance.
 - (v) Interpretation services must be provided when the medical professional is not fluent in the occupant's preferred language.
 - (vi) For purposes of this subsection, a licensed health care professional means:
 - (A) An individual licensed under chapter 18.79 RCW as a registered nurse;
 - (B) An individual licensed under chapter 18.71 RCW as a physician;
 - (C) An individual licensed under chapter 18.71A RCW as a physician assistant;
 - (D) An individual licensed under chapter 18.57 RCW as an osteopathic physician;
 - (E) An individual licensed under chapter 18.57A RCW as an osteopathic physician assistant;
 - (F) An individual licensed under chapter 18.79 RCW as an advanced registered nurse practitioner; and
 - (G) An individual licensed under chapter 18.71 RCW as a paramedic or emergency medical technician (EMT) if authorized to monitor suspect SARS-CoV-2 cases or SARS-CoV-2 positive individuals as authorized by the local medical program director, EMS administrators, and fire chief while working in their agency/jurisdiction.
 - (H) A medical assistant-certified (MA-C) or medical assistant-registered (MA-R) credentialed under chapter 18.360 RCW and under the delegation and supervision of a licensed health care practitioner.
 - (vii) Facilitate transportation for in-person medical evaluation or treatment when specified or recommended by a medical provider or upon request of the occupant.
 - (viii) Guarantee that the occupants have ready access to telephone service to summon emergency care.
 - (ix) Provide occupants with information about paid leave and workers compensation.

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- (x) Permit access to other medical professionals who offer health care services in addition to the licensed health care professional(s) contracted to provide health checks.
 - (xi) The operator must provide food and water.
 - (xii) If the operator uses other isolation facilities, such as hotels, the operator must verify that the isolation facility complies with requirements of this section prior to transporting workers to the facility. Isolated workers may also be housed in county or state run isolation centers.
- (3) The operator must revise the facility's written TWH management plan to include implementation of the requirements in this section, as applicable.
 - (a) The plan must identify a single point of contact at the TWH for COVID-19 related issues.
 - (b) The operator must share the plan with all occupants on the first day the plan is operational or the first day the occupant arrives at the TWH. The operator must designate a person that will ensure all occupants are aware of all aspects of the plan and be available to answer questions.
 - (c) If changes are made to the TWH management plan, the operator must submit the revised TWH management plan to the state department of health within 10 calendar days of the effective date of this section.
 - (d) Failure to submit a revised plan or properly implement the requirements of this section may result in administrative action, including license suspension or fines.
 - (4) Consistent with WAC 296-307-16120(1), an operator may request a temporary variance from the requirements of this section when another means of providing equal protection is provided.
 - (5) In the event that any provisions of this section are in conflict with other regulations in this chapter, such other regulation shall be deemed superseded for purposes of this chapter.

WAC 296-307-16103 Definitions.

The following definitions apply throughout this chapter unless the context clearly indicates otherwise:

- (1) **Agricultural employee.** Any person who renders personal services to, or under the direction of, an agricultural employer in connection with the employer's agricultural activity.
- (2) **Agricultural employer.** Any person engaged in agricultural activity, including the growing, producing, or harvesting of farm or nursery products, or engaged in the forestation or reforestation of lands, which includes, but is not limited to, the planting, transplanting, tubing, precommercial thinning, and thinning of trees and seedlings, the clearing, piling, and disposal of brush and slash, the harvest of Christmas trees, and other related activities.

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- (3) **Bathing facility.** An enclosed area provided by the operator for workers to bathe or shower, and may be located within a family shelter or a common facility.
 - (4) **Building.** Any structure used or intended by the operator to be used by workers for cooking, eating, sleeping, sanitation, or other facilities.
 - (5) **Cherry harvest camp.** A place where housing and related facilities are provided to agricultural employees by agricultural employers or TWH operators for their use while employed in the harvest of cherries in the state of Washington. Cherry harvest camps are the only TWH site allowing tents.
 - (6) **Common.** A shared facility provided by the operator for all workers of the TWH.
 - (7) **Common areas.** Housing areas shared or used by one or more families or unrelated individuals.
 - (8) **Communicable disease.** An illness caused by an infectious agent that can be transmitted from a person, animal, or object to a person by direct or indirect means including, but not limited to, transmission via an intermediate host or vector, food, water, or air.
 - (9) **Community-based outreach worker.** A legal aid representative, a union representative, or a representative from other community-based advocacy organizations.
 - (10) **Community health worker.** A frontline public health worker who is a trusted member of or has a close understanding of the community served.
 - (11) **Current certificate (first aid).** A first-aid training certificate that has not expired.
 - (12) **Dining hall.** A cafeteria-type eating place with food furnished by and prepared under the direction of the operator for consumption, with or without charge, by workers.
 - (13) **Drinking fountain.** A fixture equal to a nationally recognized standard or a designed-to-drain faucet, which provides potable drinking water under pressure. A “drinking fountain” does not mean a bubble-type water dispenser.
 - (14) **Dwelling unit.** A shelter, tent, building, or portion of a building, which may include cooking and eating facilities, that are:
 - (a) Provided and designated by the operator as either a sleeping area, living area, or both, for occupants; and
 - (b) Physically separated from other sleeping and common areas. As used in this subsection “physically separated” means a physical wall separating rooms.
 - (15) **Family shelter.** A dwelling unit with sleeping facilities for up to 15 workers that may include toilet or cooking facilities. If services such as bathing, food-handing, or toilet facilities are provided in the family shelter, they are for the sole use of the occupants of the family shelter.
 - (16) **First-aid trained.** The person holds a current certificate of first-aid training.
 - (17) **Floor space.** The area within a dwelling unit with a minimum ceiling height of seven feet.
 - (18) **Food-handling facility.** An enclosed area provided by the operator for workers to prepare their own food, and may be within a family shelter or common facility.

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- (19) **Group A public water system.** A public water system as defined and referenced under WAC [246-290-020](#).
- (20) **Group B public water system.** A public water system that is not a Group A public water system, and is defined and referenced under WAC [246-291-005](#).
- (21) **Habitable room.** A room or space in a structure used for living, sleeping, eating, or cooking. Bathing facilities, toilet facilities, closets, halls, storage or utility space, and similar areas are not considered habitable rooms.
- (22) **Health officer.** The individual appointed as such for a local health department under chapter [70.05](#) RCW or appointed as the director of public health of a combined city-county health department under chapter [70.08](#) RCW.
- (23) **Livestock.** Horses, cows, pigs, sheep, goats, poultry, etc.
- (24) **Livestock operation.** Any place, establishment, or facility consisting of pens or other enclosures in which livestock is kept for purposes including, but not limited to, feeding, milking, slaughter, watering, weighing, sorting, receiving, and shipping. Livestock operations include, among other things, dairy farms, corrals, slaughterhouses, feedlots, and stockyards. Operations where livestock can roam on a pasture over a distance may be treated as outside the definition.
- (25) **Local health jurisdiction or LHJ.** A county health department under chapter 70.05 RCW, city-county health department under chapter 70.08 RCW, or health district under chapter 70.46 RCW.
- (26) **Mechanical ventilation system.** A mechanism that actively processes supplying air to or removing air from an indoor space by powered equipment such as motor-driven fans and blowers but not by devices such as kitchen or bathroom fans, wind-driven turbine ventilators and mechanically operated windows.
- (27) **MSPA.** The Migrant and Seasonal Agricultural Worker Protection Act (96 Stat. 2583; 29 U.S.C. Sec. 1801 et seq.).
- (28) **Occupant.** A temporary employee or a person who resides with a temporary worker at the TWH or camp.
- (29) **Operating license or license.** A document issued annually by the department of health.
- (30) **Operator.** A person holding legal title to the land on which the TWH or camp is located. However, if the legal title and the right to possession are in different persons, “operator” means a person having the lawful control or supervision over the TWH.
- (31) **Outbreak.** The occurrence of a condition in an area over a given period of time in excess of the expected number of occurrences including, but not limited to, foodborne disease, waterborne disease, and health care-associated infection.
- (32) **Recreational park trailers.** A trailer-type unit that is primarily designed to provide temporary living quarters for recreational, camping, or seasonal use, that meets the following criteria:
- (a) Built on a single chassis, mounted on wheels;
 - (b) Having a gross trailer area not exceeding 400 square feet (37.15 square meters) in the set-up mode;

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- (c) Certified by the manufacturer as complying with ANSI A119.5; and
 - (d) Chapter [296-105P WAC](#).
- (33) **Recreational vehicle.** A vehicular-type unit that is compliant with chapter [296-150R](#) WAC and primarily designed as temporary living quarters for recreational camping, travel, or seasonal use that either has its own motive of power or is mounted on, or towed by, another vehicle. Recreational vehicles include: Camping trailers, fifth-wheel trailers, motor homes, travel trailers, and truck campers, but does not include pickup trucks with camper shells, canopies, or other similar coverings.
- (34) **Refuse.** Solid wastes, rubbish, or garbage.
- (35) **Suspected case.** A person that is suspected by a medical provider or public health provider of having a notifiable condition, but the diagnosis has not yet been confirmed by the medical provider.
- (36) **Temporary worker or worker.** An agricultural employee employed intermittently and not residing year-round at the same TWH site.
- (37) **Temporary worker housing (TWH) or housing.** A place, area, or piece of land where sleeping places or housing sites are provided by an agricultural employer for agricultural employees or by another person, including a temporary worker housing operator, who is providing such accommodations for employees for temporary, seasonal occupancy. TWH includes cherry harvest camps.
- (38) **Tent.** An enclosure or shelter constructed of fabric or pliable material composed of rigid framework to support tensioned membrane that provides a weather barrier.
- (39) **WISHA.** The Washington Industrial Safety and Health Act, chapter [49.17](#) RCW, administered by the Washington state department of labor and industries.
- (40) **Worker-supplied housing.** Housing owned by the worker and made available to the same worker on the operator's TWH site. Worker-supplied housing includes recreational park trailers, recreational vehicles, tents, or other structures that meet the requirements of this chapter.

WAC 296-307-16104 Technical assistance-Notice of violation.

- (1) The department of health or the department of labor and industries may provide technical assistance to assist in compliance with this chapter if requested by an operator.
- (2) The department of labor and industries will only provide technical assistance to cherry harvest camps if requested by an operator.
- (3) During a consultative technical assistance visit, or within a reasonable time thereafter, the department must inform the owner or operator of the TWH on any violations of law or agency rules as follows:
 - (a) A description of the condition that is not in compliance and the text of the specific section or subsection of the applicable law or rule;
 - (b) A statement of what is required to achieve compliance;
 - (c) The date by which the agency requires compliance to be achieved;

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- (d) Notice of the means to contact any technical assistance services provided by the agency or others; and
 - (e) Notice of when, where, and to whom a request to extend the time to achieve compliance for good cause may be filed with the agency.

WAC 296-307-16115 Maximum capacity for TWH occupants.

- (1) Operator-supplied dwelling unit capacity will be based on:
 - (a) The square footage of the floor space in habitable rooms provided for sleeping purposes as described in WAC 296-307-16145(13) and Table 1 of this section; and
 - (b) The number of bathing, food handling, handwashing, laundry, and toilet facilities as described in WAC 296-307-16150 through 296-307-16165.
- (2) Worker-supplied housing will be based on the number of spaces designated by the operator for worker-supplied housing.
- (3) Operators may take into consideration the services provided by the worker-supplied housing to ensure all ratios for services required by this chapter are met for all occupants. If the ratios for services are not met, then the operator must provide common facility capacity for bathing, food handling, handwashing, laundry and toilet facilities.

Table 1 TWH Maximum Capacity

Occupant capacity: Determine total square footage and total facility to occupant ratio						
Floor space requirements	Sleeping room only			Sleeping room with kitchen		
	50 square feet per occupant			100 square feet per temporary worker		
Facility requirements	Toilets		Handwash sinks		Bathtubs or showers	
	Male	Female	Male	Female	Male	Female
Common facilities, single sex	2 minimum, 1 per 15 occupants	2 minimum, 1 per 15 occupants	2 minimum, 1 per 6 occupants	2 minimum, 1 per 6 occupants	1 per 10 occupants	1 per 10 occupants
Common facilities Male/Female	1 minimum, 1 per 15 occupants	1 minimum, 1 per 15 occupants	1 per 6 occupants	1 per 6 occupants	1 per 10 occupants	1 per 10 occupants
Each family shelter	1, if provided		1		1, if provided	

WAC 296-307-16120 Variance and procedure.

- (1) Conditions may exist in operations that a state standard will not have practical use. The director of the department of labor and industries may issue a variance from the requirements of the standard when another means of providing equal protection is provided. The substitute means must provide equal protection in accordance with the requirements of chapter [49.17](#) RCW and chapter [296-900](#) WAC, Administrative rules.
- (2) A temporary variance may be requested under chapter [296-900](#) WAC, Administrative rules, when an operator cannot comply with new requirements by the effective date(s) of this chapter because:
 - (a) The construction or alteration to a building cannot be completed in time;
 - (b) Materials or equipment are not available; or
 - (c) Professional or technical assistance is not available.
- (3) Applications for variances will be reviewed and may be investigated by the department of labor and industries and the department of health. Variances granted will be limited to the specific case or cases covered in the application and may be revoked for cause. The variance must remain prominently posted on the premises while in effect.

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- (4) Variance application forms may be obtained from the Department of Labor and Industries, P.O. Box 44650, Olympia, Washington 98504-4650 or the Department of Health, P.O. Box 47852, Olympia, Washington 98504-7852, upon request. Requests for variances from safety and health standards must be made in writing to the director or the assistant director, Department of Labor and Industries, P.O. Box 44650, Olympia, Washington 98504-4650. (Reference RCW [49.17.080](#) and [49.17.090](#).)

WAC 296-307-16125 Temporary worker housing sites and cherry harvest campsites.

- (1) The operator must locate and operate a TWH site to prevent a health or safety hazard that is:
- (a) Adequately drained and any drainage from and through the TWH must not endanger any domestic or public water supply;
 - (b) Free from periodic flooding and depressions in which water may become a nuisance;
 - (c) At least two hundred feet from a swamp, pool, sink hole, or other surface collection of water unless there is a mosquito prevention program for those areas;
 - (d) Large enough to prevent overcrowding of necessary structures. The principal housing area for sleeping and for food preparation and eating must be at least five hundred feet from where livestock are kept; and
 - (e) The grounds and open areas surrounding the shelters must be in a clean and sanitary condition.
- (2) The operator must ensure the principal TWH area for sleeping and for food preparation and eating are at least five hundred feet from where live stock are kept or congregate.
- (3) The operator must ensure the TWH grounds and open areas surrounding the buildings are kept in a clean and sanitary condition free from refuse.
- (4) The operator must ensure all worker-supplied housing is maintained in good working condition.
- (5) The operator must restrict the number of occupants in the TWH to the capacity as determined by the department of health.
- (6) When closing housing permanently or for the season:
- (a) The operator must dispose of all refuse to prevent nuisance; and
 - (b) The operator must leave the grounds and buildings in a clean and sanitary condition.

WAC 296-307-16127 TWH Management plan.

- (1) An operator licensed shall develop and implement a written TWH management plan that must include:

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- (a) A safety plan that includes:
 - (i) Emergency information, including site name and address, emergency contact phone numbers, location of local emergency services, and the department of health multilingual TWH complaint line;
 - (ii) A plan for contacting a first-aid trained person or emergency services within a reasonable amount of time; and
 - (iii) Those designated actions operators and occupants shall take to ensure occupant safety from fire and other emergencies, including the following:
 - (A) Emergency escape procedures and emergency escape route assignments;
 - (B) Procedures to account for all occupants after emergency evacuation has been completed;
 - (C) The preferred means of reporting fires and other emergencies; and
 - (D) Names or regular job titles of those who can be contacted for further information or explanation of duties under the plan.
 - (iv) A requirement to designate and train a sufficient number of people to assist in the safe and orderly emergency evacuation of occupants; and
 - (v) A requirement to regularly and properly maintain, according to established procedures, equipment and systems installed on heat producing equipment to prevent accidental ignition of combustible materials.
 - (b) Residency rules that describe to the occupants expectations for maintaining a safe and orderly TWH.
- (2) The operator shall also make available:
- (a) A written copy of the TWH management plan, in English and the language commonly understood by the occupants, to the department of health or the department of labor and industries upon request; and
 - (b) A written copy of the residency rules to occupants, in English and the language commonly understood by the occupants by:
 - (i) Posting it in a central location visible to the occupants; and
 - (ii) Providing individual copies to each occupant if requested.
- (3) When changes are made to the TWH management plan, the operator shall submit the revised TWH management plan to the department of health within 10 calendar days of the effective date and comply with the requirements in subsection (2)(b) of this section.

WAC 296-307-16130 Water supply.

- (1) The operator must provide a safe and reliable supply of drinking water from an approved Group A or Group B public water system meeting the requirements of:
 - (a) WAC [246-358-025\(2\)\(d\)](#), chapters [246-290](#) and [246-291](#) WAC, or

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- (b) Local board of health rules.
 - (2) The operator must ensure that the distribution lines are able to maintain the working pressure of the water piping system at not less than twenty pounds per square inch after allowing for friction and other pressure losses.
 - (3) When water is not piped to each dwelling unit, the operator must provide cold, potable, running water under pressure within one hundred feet of each dwelling unit.
 - (4) When water sources are not available in each individual dwelling unit or tent, the operator must provide one or more drinking fountains for each one hundred occupants or fraction thereof. The use of common drinking cups or containers from which water is dipped or poured is prohibited.
 - (5) The operator must provide an adequate supply of hot and cold running water under pressure in bathing, food-handling, and laundry facilities.
 - (6) The operator must provide an automatically controlled hot water supply of one hundred to one hundred twenty degrees Fahrenheit in bathing, food-handling, and laundry facilities.
 - (7) When water within one hundred feet of a dwelling unit is unsafe for drinking purposes and accessible to workers, the operator must post a sign by each nonpotable water source that:
 - (a) Reads "Do not drink. Do not use for washing. Do not use for preparing food."
 - (b) Is printed in English and the native language of the workers;
 - (c) Is printed on material colored to indicate unsafe; and
 - (d) Is marked with easily understood pictures or symbols.

WAC 296-307-16135 Sewage disposal.

- (1) The operator must provide sewage disposal systems in accordance with local health jurisdictions.
- (2) The operator must connect all drain, waste, and vent systems from buildings to:
 - (a) Public sewers, if available; or
 - (b) Approved on-site sewage disposal systems that are designed, constructed, and maintained as required in chapters [246-272A](#) and [173-240](#) WAC, and local ordinances.

WAC 296-307-16140 Electricity and lighting.

- (1) The operator must ensure that electricity is supplied to all dwelling units, family shelters, and common facilities, except chemical toilets;
- (2) The operator must ensure that all electrical wiring, fixtures, and electrical equipment must:

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- (a) Comply with the electric standards of the department of labor and industries regulations, chapter [19.28](#) RCW, chapter [296-46B](#) WAC, and local ordinances; and
 - (b) Be maintained in a safe condition.
- (3) The operator must ensure that each habitable room must have at least:
 - (a) One ceiling-type light fixture; and
 - (b) At least one separate floor-type or wall-type convenience outlet;
 - (4) The operator must ensure that laundry, toilet facilities, and bathing facilities have at least one ceiling-type or wall-type light fixture;
 - (5) The operator must ensure that general lighting and task lighting within all facilities is adequate to carry on normal daily activities;
 - (6) The operator must ensure that adequate lighting is provided for safe passage for workers to handwashing sinks and toilets. Lighting requirements may be met by natural or artificial means;
 - (7) For lighting requirements in tents, please see WAC 296-307-16147.

WAC 296-307-16145 Building requirements and maintenance.

- (1) An operator must construct, if provided TWH dwelling units, including common facilities, which must meet the following requirements:
 - (a) Protect against the elements;
 - (b) The State Building Code, chapter [19.27](#) RCW, or TWH housing construction standard, chapter [246-359](#) WAC; and
 - (c) State and local ordinances, codes, and regulations.
- (2) An operator must prevent condensation in dwelling units and common facilities to the degree that it does not contribute to a health risk or safety issue to occupants.
- (3) An operator must prevent mold in dwelling units and common facilities.
- (4) An operator must provide a locking mechanism on the exterior door(s) of each family shelter. The mechanism must not prevent egress and must be easily opened from the inside without use of a key or special knowledge.
- (5) An operator must provide a locking mechanism on all bedroom doors, excluding doors to bedrooms housing more than fifteen occupants. The mechanism must not prevent egress and must be easily opened from the inside without use of a key or special knowledge.
- (6) An operator must provide a locking mechanism on:
 - (a) Each toilet stall door, if provided; and
 - (b) Each shower stall door, if provided.
- (7) An operator must identify each dwelling unit and space used for shelter by posting a number at each site.
- (8) An operator must maintain buildings in good repair and sanitary condition.

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- (9) An operator must comply with all applicable state and federal laws and rules for lead based paint. For more information on lead, go to:
<http://www.lni.wa.gov/Safety/Topics/AtoZ/Lead>.
- (10) An operator must provide exits that are unobstructed and remain free of any material or matter where its presence would obstruct or render the exit hazardous.
- (11) An operator must provide habitable rooms with:
- (a) Window covering a total area equal to at least one-tenth of the total floor space; and
 - (b) At least one-half of each window can be opened to the outside for ventilation; or
 - (c) Mechanical ventilation in accordance with applicable standards from the American Society of Heating, Refrigerating, and Air-conditioning Engineers (ASHRAE).
- (12) An operator must provide each room used for sleeping purposes with:
- (a) At least fifty square feet of floor space for each worker, not including any floor space in any portion of a room less than seven feet from the finished floor to the finished ceiling; and
 - (b) Windows covering a total area equal to at least one-tenth of the floor space within the surrounding walls of the sleep room.
- (13) An operator must provide each room used for sleeping and cooking purposes:
- (a) Meet the requirements of subsection (12) if this section;
 - (b) At least one hundred square feet of floor space per temporary worker; and
 - (c) For a family shelter constructed or approved for construction under chapter [246-359](#) WAC before January 1, 2016, one hundred square feet of floor space per temporary worker is required by January 1, 2019. Upon the operator's request, the department of health may grant an extension(s) for up to three additional years. Requests must:
 - (i) Include a schedule and work plan for achieving compliance;
 - (ii) Be on a form provided by the department of health; and
 - (iii) Be submitted to the department of health prior to January 1, 2019.
- (14) An operator must ensure wooden floors are at least one foot above ground level or equal to the requirements in the State Building Code, chapter [19.27](#) RCW or Temporary worker housing construction standard, chapter [246-359](#) WAC.
- (15) An operator must provide sixteen-mesh screening on all exterior openings and screen doors with self-closing devices.
- (16) An operator must provide and maintain screen doors on all exterior entrances that:
- (a) Have self-closing devices; and
 - (b) Close without gaps that would allow entry of pests.

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- (17) An operator must install all heating, cooking, and water heating equipment according to state and local ordinances, codes, and regulations and maintain in a safe condition.
 - (18) An operator must provide habitable rooms with equipment capable of maintaining a temperature of at least seventy degrees Fahrenheit during cold weather.
 - (19) An operator must ensure that all recreational vehicles and park trailers meet the requirements as defined in this chapter.

WAC 296-307-16146 Ventilation.

- (1) If the TWH facility or building has a mechanical ventilation system, the operator shall maintain it according to the manufacturer's specifications and operate the system to provide fresh and filtered air. The operator shall have building maintenance staff or mechanical ventilation system contractors set the system to increase ventilation or the percentage of outside air that circulates in the facility or building and verify the following:
 - (a) The mechanical ventilation system is fully functional;
 - (b) The mechanical ventilation system filters have a minimum efficiency reporting value (MERV) rating of at least 13. If the mechanical ventilation system does not support MERV 13 filters, use the highest MERV rating filter supported by the mechanical ventilation system;
 - (c) The mechanical ventilation system's outdoor air intake is maximized. Reductions in outside air intake may be made when external conditions pose health and safety risks to the occupants;
 - (d) Maintenance checks occur at the beginning of each growing season when preparing buildings to be reopened. Additional maintenance checks must occur based on manufacturer recommendations, usually quarterly or annually;
 - (e) Ensure written maintenance records are maintained. The written record must include documentation of filter selection, including a selection reason if less than MERV 13 filtration is used, and filter conditions. Written records must be available for review upon request by the state agency representatives;
 - (f) Filters in any mechanical ventilation system used in a TWH facility or building must be in good repair and replaced in accordance with manufacturer's instructions.
- (2) The operator shall instruct occupants in housing with mechanical ventilation systems to:
 - (a) Turn on mechanical ventilation systems whenever the TWH facility or building is occupied; and
 - (b) Temporarily shut down the mechanical ventilation system when external conditions pose health and safety risks to occupants.
- (3) In buildings without mechanical ventilation systems, the operator shall instruct occupants to close windows and other outside openings when external conditions pose health and safety risks to occupants.

WAC 296-307-16147 Tents.

- (1) Each tent must be constructed to sleep no more than 15 workers.
- (2) Tents must provide protection from the elements, insects, and animals.
- (3) Structural stability and floors.
 - (a) Tents and their supporting framework must be adequately braced and anchored to prevent weather related collapse. The operator shall provide documentation of the structural stability to the department of health, if requested.
 - (b) Floors must be smooth, sloped from a raised center towards the lower outer edges. Floors must be without breaks or holes to provide a hard, stable walking surface. Nonridged flooring supported by grass, dirt, soil, gravel, or other uneven surfaces is not acceptable. Floors that are constructed of wood or concrete must comply with the building code, chapter [19.27](#) RCW and this chapter.
 - (c) Floor systems must be designed to prevent the entrance of snakes, rodents, and other nuisances.
- (4) Flame-retardant treatments.
 - (a) The sidewalls, drops, and tops of tents must be composed of flame-resistant material or treated with a flame-retardant in an approved manner.
 - (b) Floor coverings, which are integral to the tent, and the bunting, must be composed of flame-resistant material or treated with a flame retardant in an approved manner and in accordance with Uniform Building Code, Standard 31.1.
 - (i) Identification of tent size and fabric or material type;
 - (ii) For flame-resistant materials, the necessary information to determine compliance with this section and National Fire Protection Association Standard 701, Standard Methods of Fire Tests for Flame-resistant Textiles and Films;
 - (iii) For flame-retardant materials, the date that the tent was last treated with an approved flame-retardant;
 - (iv) The trade name and type of flame-retardant used in the flame-retardant treatment; and
 - (v) The name of the person and the firm that applied the flame-retardant.
- (5) Means of egress.
 - (a) Tents must have a primary entrance door. At least one door must lead to the outside of the tent. The door must not be obstructed in any manner and must remain free of any material or matter where its presence would obstruct or render the exit hazardous.
 - (b) The area designated for refuge must be accessible and remain clear of storage materials or hazards.

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- (c) If food-handling facilities are provided in tents, or the tent occupancy capacity is for 10 or more workers, a window allowing access must be located opposite the door and must have a means to open the window or provide an easily opened space, for example, a zipper which opens downward to the floor, must be provided.
- (6) Floor area. The operator must:
- (a) If food-handling facilities are provided in the tent, provide an additional 20 square feet of floor space;
 - (b) Provide at least 50 square feet of floor space for each worker in rooms used for sleeping purposes.
- (7) Ceiling height.
- (a) A ceiling height of at least seven feet is required in 50 percent of the total floor area.
 - (b) No portion of the tent measuring less than six feet from the flooring to the ceiling will be included in any computation of the floor area.
- (8) Windows and ventilation.
- (a) The operator shall provide a window area equal to one-tenth of the total floor area in each habitable room which opens at least halfway or more directly to the outside for cross-ventilation and has a minimum of 16-mesh screens on all exterior openings.
 - (b) The windows must have weather-resistant flaps, which will cover the window area and a means of fastening the flaps to provide protection from the elements and allow privacy for the occupants.
 - (c) The operator shall instruct occupants to close windows and other outside openings when external conditions pose a health and safety risk to occupants.
- (9) Electrical and lighting. The operator shall ensure that:
- (a) Electricity is supplied to all tents used as habitable rooms.
 - (b) All electrical wiring, fixtures and electrical equipment must comply with the electrical standards of the department of labor and industries regulations, chapter [19.28](#) RCW, and local ordinances, and be maintained in a safe condition.
 - (c) Each tent used as a habitable room has at least one ceiling-type light fixture and at least one separate floor-type or wall-type convenience outlet.
 - (d) If cooking is provided in the tent, appropriate wiring and electrical equipment is provided.

WAC 296-307-16149 Carbon monoxide alarms, smoke detectors, and fire extinguishers.

- (1) An operator must provide and maintain working carbon monoxide alarms that are:
- (a) Located in each dwelling unit with a sleeping area; and

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- (b) Installed in accordance with the manufacturer's recommendations in compliance with the building code, WAC [51-51-0315](#).
- (2) An operator must provide and maintain working smoke detectors that:
 - (a) Are located in each sleeping area;
 - (b) Are located on each level of dwelling units with a sleeping area;
 - (c) Are located in each cooking facility area;
 - (d) Emits a signal when batteries are low;
 - (e) Are placed on the ceiling or wall, but not on the wall above any door; and
 - (f) Are in compliance with the building code, WAC 51-51-0314.
 - (3) An operator must provide properly working fire extinguishers in dwelling units where occupants sleep if the dwelling unit does not have a second means of emergency egress. Fire extinguishers must be:
 - (a) A minimum 2A:10BC;
 - (b) Installed and maintained according to the manufacturer's instructions; and
 - (c) Installed in accordance with local ordinances, codes and regulations when applicable

WAC 296-307-16150 Laundry facilities.

- (1) An operator must provide laundry facilities that include:
 - (a) One laundry tray or tub or one mechanical washing machine for every thirty occupants;
 - (b) Adequate facilities for drying clothes; and
 - (c) Sloped, coved floors of nonslip impervious materials with screened floor drains.
- (2) An operator must maintain laundry facilities in a clean and sanitary condition.

WAC 296-307-16155 Handwashing and bathing facilities.

- (1) An operator must provide handwashing and bathing facilities adequate for the maximum capacity of the TWH according to Table 1 of WAC 296-307-16115.
- (2) An operator must meet the following general requirements for all handwashing and bathing facilities:
 - (a) Provide cleanable, nonabsorbent waste containers;
 - (b) Provide all showers, baths, or shower rooms with screened floor drains to remove waste water;
 - (c) Maintain fixtures and drains in good working order;

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- (d) Separate showers with partitions or walls.
 - (i) Partitions and walls must ensure privacy and be smooth, cleanable, and nonabsorbent.
 - (ii) For bathing facility constructed or approved for construction under chapter [246-359](#) WAC before January 1, 2016, partitions or walls are required by January 1, 2017.
 - (e) All showers separated by partitions must ensure privacy.
- (3) An operator must meet the following requirements for common facilities:
- (a) One handwash sink for every six occupants. Of these handwash sinks, locate adjacent to toilets at least one handwash sink for every fifteen occupants;
 - (b) One showerhead for every ten occupants;
 - (c) One “service sink” in each building used for common laundry, handwashing, or bathing;
 - (d) Sloped, coved floors of nonslip impervious materials with floor drains;
 - (e) Shower and bathing facilities must provide privacy from the opposite sex and the public;
 - (f) Maintain common bathing and handwashing facilities in a clean and sanitary condition, cleaned at least daily; and
 - (g) Bathing and shower facilities must be available at all times during operation of the TWH.
- (4) An operator must meet the following requirements for family shelters:
- (a) At least one handwash sink per family shelter. If an operator provides a family shelter with toilet facilities, at least one handwash sink located in the toilet room or immediately adjacent to the toilet room; and
 - (b) Request occupants in family shelters to maintain bathing and handwashing facilities in a clean and sanitary condition.

WAC 296-307-16160 Toilet facilities.

- (1) The operator must provide toilet facilities adequate for the maximum capacity of the TWH according to Table 1 of WAC 296-307-16115.
- (2) The operator must not provide or allow the use of pit privies.
- (3) The operator must fill abandoned pit privies with earth.
- (4) The operator must meet the following general requirements for all toilet facilities:
 - (a) Provide flush toilets unless chemical toilets are specifically approved by the department of health according to requirements in chapter [246-272](#) WAC;

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- (b) Flush toilets, chemical toilets, and urinals must not be located in any sleeping room, dining room, cooking or food-handling facility or in any tent;
 - (c) Toilet rooms must be provided with:
 - (i) Handwashing sinks located in or immediately adjacent to the toilet room;
 - (ii) Either a window of at least six square feet opening directly to the outside or adequate ventilation;
 - (iii) Sixteen-mesh screens on all outside openings;
 - (iv) Fixtures maintained in good working order, including toilet(s) and sink(s); and
 - (v) Drains maintained in good working order, including floor drains with screens.
 - (d) When chemical toilets are approved, they must be:
 - (i) Located at least fifty feet from any dwelling unit or food-handling facility;
 - (ii) Maintained by a licensed waste disposal company;
 - (iii) Comply with local ordinances; and
 - (iv) Located immediately adjacent to a handwash sink(s); and
 - (e) When urinals are provided:
 - (i) There must be one urinal or two linear feet of urinal trough for each twenty-five men;
 - (ii) The floors and the walls surrounding a urinal and extending out at least fifteen inches on all sides must be constructed of materials which will not be adversely affected by moisture; and
 - (iii) The urinal must have an adequate water flush.
- (4) The operator must meet the following requirements for common toilet facilities:
- (a) Where common toilet facilities are provided, the number of toilets for each sex must be based on the maximum number of occupants of that sex which the camp is designed to house at any one time, in the ratio of one such toilet for every fifteen occupants, with a minimum of two toilets according to Table 1 of WAC 296-307-16115;
 - (b) Locate toilet rooms so that:
 - (i) Toilets are within two hundred feet of the door of each sleeping room; and
 - (ii) No person has to pass through a sleeping room to reach a toilet room.
 - (c) Maintain toilets in a clean and sanitary condition, cleaned at least daily;
 - (d) Provide each toilet compartment with an adequate supply of toilet paper at all times;
 - (e) Separate toilets by partitions or walls. For the purposes of this section, partitions do not include curtains.

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- (i) Partitions and wall must ensure privacy, and must have smooth, cleanable, and nonabsorbent surfaces;
 - (ii) For a common toilet facility constructed or approved for construction under chapter [246-359](#) WAC before January 1, 2016, partitions or wall are required by January 1, 2017.
- (f) Ensure the area surrounding common toilet facilities are adequately lighted; and
 - (g) When common facilities will be used for both men and women:
 - (i) Provide separate toilet rooms for each sex with a minimum of one toilet room for each sex and meet the required ratio as defined in (a) of this subsection;
 - (ii) Identify each room for “men” and “women” with signs printed in English and in the native language of the persons occupying the camp, or identified with easily understood pictures or symbols; and
 - (iii) Separate facilities by solid walls or partitions extending from the floor to the roof or ceiling when facilities for each sex are located in the same building.
- (5) The operator must meet the following requirements for family shelters if common toilet facilities are not provided:
- (a) One toilet for each individual family shelter;
 - (b) Ensure toilet facilities are cleaned prior to occupancy; and
 - (c) Request employees to maintain the facilities in a clean and sanitary condition.

WAC 296-307-16165 Cooking and food-handling facilities.

- (1) The operator must provide sanitary facilities for storing and preparing food;
- (2) The operator must provide all food-handling facilities with:
 - (a) Covered and enclosed or screened cooking and food-handling facilities for all occupants;
 - (b) Covered and enclosed or screened eating facilities with adequate tables and seating for the occupants;
 - (c) If provided, hotplates that meet WAC 296-307-16140(2);
 - (d) A sink with hot and cold running potable water under pressure;
 - (e) At least two cubic feet of dry food storage space per occupant;
 - (f) Nonabsorbent, and easily cleanable food preparation surfaces situated off the floor;
 - (g) Mechanical refrigeration conveniently located and able to maintain a temperature of forty degrees Fahrenheit or below, with at least two cubic feet of storage space per occupant;
 - (h) Fire-resistant, nonabsorbent, nonasbestos, and easily cleanable wall coverings adjacent to cooking areas;

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- (i) Nonabsorbent, easily cleanable floors;
 - (j) Adequate ventilation for cooking facilities; and
 - (k) Cooking facilities, including fixtures and drains, maintained in good working order.
- (3) In common food-handling facilities, the operator must provide:
- (a) A room, building, or space within a building adequate in size, separate from any sleeping quarters or tent for workers to prepare and cook their own food;
 - (b) No direct openings to living or sleeping areas from the common food-handling facility;
 - (c) An operable cook stove or electric hot plate with four cooking surfaces for every ten workers through any combination of cooking surfaces including burners, one foot in length of burner surface, microwave ovens, stove ovens, or convection ovens.
- (4) In family shelter food-handling facilities, the operator must provide an operable cook stove or electric hotplate with four cooking surfaces for every ten workers through any combination of cooking surfaces including burners, one foot in length of burner surface, microwave ovens, stove ovens, or convection ovens.
- (5) The operator must ensure that common dining hall facilities comply with chapter [246-215](#) WAC, Food service.

WAC 296-307-16170 Cots, beds, bedding, and personal storage.

- (1) The operator must provide beds, cots, or bunks in good condition for the maximum occupancy approved by the department of health for operator-supplied housing. Cots may only be used in tents for cherry harvest camps;
- (2) The operator must allow the use of cots in tents for cherry harvest camps only. Cots must be sturdy and stable and without:
 - (a) Visible mold;
 - (b) Rips or tears;
 - (c) Insect infestation;
 - (d) Stains from bodily fluids; and
 - (e) Rodents or rodent droppings.
- (3) In TWH other than cherry harvest camps, the operator must provide beds and bunks with clean mattresses in good repair and without:
 - (a) Mold;
 - (b) Rips or tears;
 - (c) Insect infestation;
 - (d) Stains from bodily fluids; or
 - (e) Rodents or rodent droppings.

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- (4) If provided by the operator, the operator must maintain bedding in a clean and sanitary condition;
 - (5) The operator must locate all beds, cots, and bedding at least thirty-six inches from cooking surfaces;
 - (6) The operator must provide a minimum of twelve inches of clearance between each cot, bed or bunk and the floor;
 - (7) The operator must allow space to separate beds or cots laterally and end-to-end by at least thirty-six inches when single beds or cots are used;
 - (8) The operator must meet the following requirements when bunk beds are used:
 - (a) Allow space to separate beds laterally and end-to-end by at least forty-eight inches;
 - (b) Maintain a minimum space of twenty-seven inches between the upper and lower bunks;
 - (c) Prohibit triple bunks.
 - (9) The operator must provide all occupants suitable storage space for clothing and personal articles. Storage space must be located in the occupant's room used for sleeping;
 - (10) Effective January 1, 2017, for each temporary worker housed in a common sleeping facility, the operator must provide suitable storage space that must:
 - (a) Ensure all or a portion of the storage space is enclosed and lockable;
 - (b) Be anchored in a manner which adequately prevents the storage space from being removed from the building; and
 - (c) Be accessible to the temporary worker.

WAC 296-307-16175 First aid and safety.

- (1) The operator must comply with chapters [15.58](#) and [17.21](#) RCW and chapters [16-228](#) and 296-307 WAC, Parts I and J, and pesticide label instructions when using pesticides in and around the TWH;
- (2) The operator must prohibit, in the TWH area, the use, storage, or mixing of flammable, volatile, or toxic substances other than those intended for household use;
- (3) The operator must provide readily accessible first-aid equipment;
- (4) The operator must ensure that a first-aid trained person is readily accessible to administer first aid at all times;
- (5) The operator must remove unused refrigerator units or other appliances to prevent access by children.

WAC 296-307-16180 Refuse (waste) disposal.

- (1) The operator must comply with local sanitation codes for removing and disposing of refuse from TWH areas;

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- (2) The operator must protect against rodent harborage, insect breeding, and other health hazards while storing, collecting, transporting, and disposing of refuse;
 - (3) The operator must store refuse in fly-tight, rodent-tight, impervious, and cleanable or reusable containers or in single-use containers;
 - (4) The operator must keep refuse containers clean;
 - (5) The operator must provide at least one reusable container for each dwelling unit that is:
 - (a) Located within one hundred feet of each dwelling unit;
 - (b) Placed on a solid, flat, and level stand made of wood, metal, or concrete; and
 - (c) Secured to prevent falling over or spilling.
 - (6) The operator must empty refuse containers at least twice each week, and when full.

WAC 296-307-16185 Insect and rodent control.

The operator must take effective measures to prevent and control insect and rodent infestation.

WAC 296-307-16190 Disease prevention and control.

The operator shall:

- (1) Cooperate with the local health jurisdiction and department of health in the investigation and control of cases, suspected cases, outbreaks, and suspected outbreaks of communicable diseases or notifiable conditions;
- (2) Report immediately to the local health jurisdiction the name and address of any occupant or occupants known to have or suspected of having:
 - (a) Any communicable diseases made notifiable by emergency rule or emergency declaration;
 - (b) An outbreak of foodborne or waterborne illness; or
 - (c) Any occurrence of the following symptoms in two or more occupants:
 - (i) Fever, diarrhea, sore throat, vomiting, or jaundice;
 - (ii) Coughing up blood or a cough lasting three weeks or longer; or
 - (iii) Unexpected weight loss;
- (3) Implement infection control measures as required by the local health jurisdiction for care of occupants who have been exposed to other occupants with a suspected or positive case of a communicable disease;
- (4) Conspicuously post information regarding the operator's health and safety policies, how to identify symptoms of communicable diseases, to whom to report to if not feeling well, and where and how to secure medical treatment. All information shall be posted in a language commonly understood by the occupants;

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- (5) Allow entry of community health workers and community-based outreach workers to provide additional information to occupants provided that the community health worker or community outreach worker:
 - (a) Contacts the operator before visiting the TWH site;
 - (b) Checks in with designated TWH staff when arriving on the TWH site; and
 - (c) Wears appropriate personal protective equipment and completes a health screening as required by the local health jurisdiction;
 - (6) Prohibit any individual with a communicable disease from preparing, cooking, serving, or handling food, foodstuffs, or materials in dining halls;
 - (7) Develop and follow a communicable disease prevention and response plan that includes:
 - (a) A process to screen occupants for symptoms of communicable diseases when needed, using symptom lists specified by the local health jurisdiction or department of health;
 - (b) Providing oral thermometers or "no touch" or "no contact" thermometers for occupants to use as specified by the local health jurisdiction or department of health. Any worker with a temperature of 100.4°F or higher is considered to have a fever;
 - (c) Contacting the local health jurisdiction immediately as required under subsection (2) of this section and facilitating transportation for any medical evaluation or treatment at no cost to the occupant. If the transportation is not provided by an aid service or ambulance service, the operator shall provide personal protective equipment to individuals providing transportation;
 - (d) When required by the local health jurisdiction or department of health to quarantine or isolate an occupant to prevent the spread of a communicable disease, the plan must include attestation of the following:
 - (i) Provide ready access for occupants to telephone service to summon emergency care;
 - (ii) Provide occupants with information about paid leave and workers compensation;
 - (iii) Permit access to medical professionals who offer health care services as required by the local health jurisdiction; and
 - (iv) Provide, at no cost to the occupant, food and water for occupants in isolation or quarantine; and

(8) Provide:

- (a) Training for persons responsible to execute the communicable disease prevention and response plan when the plan is updated, or at least annually, if the plan is not updated every year. Information and training must be provided in a manner and language readily understood by the person responsible to execute the plan; and
- (b) Documentation of training records must include the name of the person trained and the date that the training occurred. Documentation must be available for review upon request by the state agency representatives.

PART M

GUARDING TOOLS AND EQUIPMENT, FARM SHOPS, MATERIALS HANDLING

WAC		Page
296-307-18005	Guarding fan blades.....	1
296-307-18010	Guarding constant-running drives.....	1
296-307-18015	Training an employer must provide for employees must provide for employees who use agricultural equipment.....	1
296-307-18020	Machine controls.....	1
296-307-18025	Steam pipe guarding.....	2
296-307-185	Guarding powered saws.....	2
296-307-18503	Powered saws.....	2
296-307-18506	Guarding band saws.....	2
296-307-18509	Guarding radial arm saws.....	6
296-307-18512	Guarding table saws.....	6
296-307-18515	Guarding circular fuel-wood saws.....	3
296-307-190	Guarding bench grinders, abrasive wheels, and portable grinders.....	4
206-307-19003	Definitions that apply to this section.....	4
296-307-19006	Guarding abrasive wheels.....	4
296-307-19009	The use, mounting, and guarding rules for abrasive wheels.....	6
296-307-19012	Flanges.....	6
296-307-19015	Guarding vertical portable grinders.....	7
296-307-19018	Guarding other portable grinders.....	7
296-307-195	Grounding and “dead man” controls for hand-held portable power tools.....	7
296-307-200	Compressed air.....	8
296-307-20005	Compressed air for cleaning.....	8
296-307-20010	Compressed air tools.....	8
296-307-205	Guarding portable powered tools.....	8
296-307-20505	Guarding portable powered tools.....	8
296-307-20510	Switches and controls on portable powered tools.....	8
296-307-20515	Pneumatic powered tools and hose.....	10
296-307-220	Power lawnmowers.....	10
296-307-22003	Definitions that apply to this section.....	10
296-307-22006	Guarding power lawnmowers.....	10
296-307-22009	Walk-behind and riding rotary mowers.....	11
296-307-22012	Walk-behind rotary mowers.....	11
296-307-22015	Riding rotary mowers.....	12
296-307-225	Jacks.....	12
296-307-22503	Definitions that apply to this section.....	12
296-307-22506	The rated load must be marked on a jack.....	13
296-307-22509	Operation and maintenance of jacks.....	13

WAC	Page
296-307-230	General requirements for materials handling and storage. 13
296-307-232	Conveyors. 15

Note: WAC 296-307-18005, WAC 296-307-18010, WAC 296-307-18015, WAC 296-307-18020 and WAC 296-307-18025 are moved to Part M. These sections contain guarding requirements which were inadvertently adopted at the end of Part L instead of Part M.

WAC 296-307-18005 Guarding fan blades.

The employer must guard the blades of a fan located less than seven feet above the floor or working level. The guard must have maximum openings of one-half inch.

WAC 296-307-18010 Guarding constant-running drives.

Constant-running drives. Drives that continue to rotate when the engine is running and all clutches are disengaged.

Shields, guards, and access doors that will prevent accidental contact with rotating machine parts on constant-running drives must be in place when the machine is running.

Exception: This requirement does not apply to combines when guards could create fire hazards.

WAC 296-307-18015 Training an employer must provide for employees who use agricultural equipment.

At the time of initial assignment and at least annually thereafter, the employer must instruct every employee in the safe operation and servicing of all equipment that the employee will use, including at least the following:

- (1) Keep all guards in place when the machine is in operation.
- (2) Only persons required for instruction or machine operation may ride on equipment, unless a passenger seat or other protective device is provided.
- (3) Stop engine, disconnect the power source, and wait for all machine movement to stop before servicing, adjusting, cleaning, or unclogging the equipment.

Exception: When the machine must be running to be properly serviced or maintained, the employer must instruct employees in the steps and procedures necessary to safely service or maintain the equipment.

- (4) Make sure everyone is clear of machinery before starting the engine, engaging power, or operating the machine.
- (5) Lock out electrical power before performing maintenance or service on farmstead equipment.

WAC 296-307-18020 Machine controls.

- (1) If machine operation requires the presence of an operator on the machine, a “stop” button must be provided on the machine within reach of the operator.
- (2) Power and control devices must be marked to indicate the function and machine they control. “On” and “off” must be marked.
- (3) “Stop” buttons must be red or orange. Each machine must have one or more stop buttons according to the working position of the operators.
- (4) Power control devices must be located or guarded to prevent unexpected or accidental movement of the control. “Start” buttons must be recessed.

WAC 296-307-18025 Steam pipe guarding.

- (1) All steam pipes or pipes hot enough to burn a person (other than coil pipes, radiators for heating rooms or buildings, or pipes on portable steam engines and boilers) must be guarded with a standard safeguard, unless guarded by location.
- (2) All exposed hot pipes within seven feet of the floor or working platform, or within fifteen inches measured horizontally from stairways, ramps, or fixed ladders, must be covered with insulating material or be guarded to prevent contact.

WAC 296-307-185 Guarding powered saws.**WAC 296-307-18503 Powered saws.**

- (1) The employer must ensure that all cracked saw blades are removed from service, except as indicated in WAC 296-307-18515(6).
- (2) Inserting a wedge between a saw disk and its collar to form a “wobble saw” for rabbeting or dadoing is prohibited.

<p>Exception: This does not apply to properly designed adjustable rabbeting blades.</p>
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- (3) The employer must provide and ensure that employees use push sticks or push blocks in sizes and types suitable for the work to be done.

WAC 296-307-18506 Guarding band saws.

- (1) The employer must ensure that all band wheels are completely encased or guarded on both sides. Guards must be constructed of at least No. 14 U.S. gauge metal, nominal two-inch wood material, or mesh or perforated metal of at least U.S. gauge No. 20 with maximum openings of three-eighths inch.
- (2) The employer must ensure that all nonworking portions of the band saw blade are enclosed or guarded. The working side of the blade between the guide and the table may be left open to work on the stock.

- (3) The employer must ensure that the guard for the portion of the blade between the sliding guide and the upper-saw-wheel guard protects the saw blade at the front and outer side.

WAC 296-307-18509 Guarding radial arm saws.

- (1) The employer must ensure that the upper hood completely encloses the upper portion of the blade, including the end of the saw arbor. The upper hood must be constructed to protect the operator from flying material, and to deflect sawdust. The sides of the lower exposed portion of the blade must be guarded to the full diameter of the blade by a device that will automatically adjust itself to the thickness of the stock and remain in contact with stock. The employer may use an alternative lower blade guard if it provides equivalent protection.
- (2) The employer must provide an adjustable stop to prevent the forward travel of the blade beyond the position necessary to complete the cut.
- (3) The employer must equip a radial arm-saw with a mechanism to return the saw and keep it in position at the back of the table or behind the rip fence.

For example: The employer may use a counter-weight or a saw retractor device, or tilt the front of the radial arm saw unit up enough to maintain the blade at the back of the table or behind the rip fence when the pull handle is released by the operator.

- (4) The employer must ensure that ripping and ploughing are permitted only against the direction in which the saw turns. Mark the direction of the saw rotation on the hood, and attach a permanent warning sign to the rear of the guard that prohibits ripping or ploughing from that position. (Where the blade teeth exit the upper hood when set up for ripping would be the rear of the saw in this case.) Each radial arm saw used for ripping must be provided with antikickback fingers or dogs to prevent the saw from throwing the material or stock back at the operator.

WAC 296-307-18512 Guarding table saws.

- (1) The employer must ensure that each circular blade table saw used for ripping or crosscutting is guarded by a standard hood that covers the saw blade above the material completely at all times during the cut. The hood must adjust itself automatically to the thickness of, and must remain in contact with, the material being cut.

<p>Exception: When finished surfaces of stock may be marred by the guard, it may be raised slightly to avoid contact. The hood must be designed to protect the operator from flying material.</p>
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- (2) The employer must ensure that any table saw used for ripping has antikickback fingers or dogs and a spreader.
- (3) While used for rabbeting, ploughing, grooving or dadoing a table saw may be used without an antikickback device and a spreader. Upon completion, the antikickback device and spreader must be replaced immediately.
- (4) The employer must ensure that the part of the table saw that is beneath the table is fully guarded to prevent employee contact with the portion of the blade below the table.

- (5) Power transmission components of table saws must be guarded according to WAC 296-307-280.

WAC 296-307-18515 Guarding circular fuel-wood saws.

- (1) The employer must ensure that fuel-wood saws are guarded by a standard guard that completely encloses the blade to the depth of the teeth, except for the area where material is fed into the blade.
- (2) The employer must ensure that the tables of fuel-wood saws is constructed so that material being sawed is supported on both sides of the blade.
- (3) The employer must provide a mechanism that will prevent the leading edge of the saw from passing the front edge of the table or roll case.
- (4) The employer must provide tilting tables of fuel-wood saws with a backrest for the full length of the table. The backrest must extend upward from the table platform at least to the height of the saw opening. An opening in a backrest must be a maximum of two inches. The backrest frame and filler must be constructed of material strong and rigid enough to prevent distortion under normal use.
- (5) Power transmission components of fuel-wood saws must be guarded according to WAC 296-307-280.
- (6) When a circular fuel-wood saw blade develops a crack, the employer must discontinue its use until properly repaired, according to the following measurements.

Length of Crack	Diameter of saw (inches)
1/2"	12"
1"	24"
1 1/2"	36"

WAC 296-307-190 Guarding bench grinders, abrasive wheels, and portable grinders.

WAC 296-307-19003 Definitions that apply to this section.

Abrasive wheel. A cutting tool consisting of abrasive grains held together by organic or inorganic bonds. This includes diamond and reinforced wheels.

Flanges. Collars, discs, or plates between which wheels are mounted. Also referred to as adapter, sleeve, or back.

Mounted wheels. Wheels of various dimensions that are usually 2 inches in diameter or smaller. They can be either organic or inorganic bonded abrasive wheels. They are secured to plain or threaded steel mandrels.

Off-hand grinding. Grinding material or a part that is held in the operator's hand.

Portable grinding. The grinding machine is hand-held and may be easily moved from one location to another.

Reinforced wheels. A class of organic wheels that contain strengthening fabric or filament. "Reinforced" does not mean wheels using such mechanical additions as steel rings, steel cup backs, or wire or tape winding.

Safety guard. An enclosure designed to restrain the pieces of the grinding wheel and protect the operator in the event that the wheel is broken in operation.

WAC 296-307-19006 Guarding abrasive wheels.

- (1) Abrasive wheels must be used only on machines provided with safety guards.

Exception: This requirement does not apply to the following:

1. Wheels used for internal work while the wheel is within the work being ground.
2. Mounted wheels 2 inches and smaller in diameter, used in portable operations.
3. Types 16, 17, 18, 18R, and 19 cones, plugs, and threaded hole pot balls where the work offers protection.
4. Specially shaped "sickle grinding" wheels mounted in mandrel-type bench or floor stands.

- (2) The safety guard must cover the spindle end, nut, and flange projections.

Exceptions:

1. When the work provides protection to the operator, the spindle end, nut, and outer flange may be exposed. When the work entirely covers the side of the wheel, the side covers of the guard may be omitted.
2. The spindle end, nut, and outer flange may be exposed on portable machines designed for, and used with, type 6, 11, 27, and 28 abrasive wheels, cutting off wheels, and tuck pointing wheels.
3. The spindle end, nut, and outer flange may be exposed on machines designed as portable saws.

- (3) The guard must cover the sides and periphery of the wheel.

Exceptions:

1. Bench and floor stands:
 - a. The maximum permissible angle of exposure is 90°. This exposure must begin at a point not more than 65° above the horizontal plane of the wheel spindle.
 - b. Wherever the nature of the work requires contact with the wheel below the horizontal plane of the spindle, the exposure must not exceed 125°. This exposure must begin at a point not more than 65° above the horizontal plane of the wheel spindle.
2. Swing-frame grinders may only be exposed on the bottom half; the top half of the wheel must be enclosed at all times.
3. Where the work is applied to the top of the wheel, the exposure of the grinding wheel periphery must not exceed 60°.
4. When the work entirely covers the side of the wheel, the side covers of the guard may be omitted.

- (4) The safety guard must be mounted to maintain proper alignment with the wheel, and the strength of the fastenings must exceed the strength of the guard.
- (5) Take care to see that the safety guard is properly positioned before starting the mounted wheel.
- (6) Abrasive wheel machinery guards must meet the design specifications of ANSI B7.1-1970.
- (7) **Exception:** WAC 296-307-19006 does not apply to natural sandstone wheels and metal, wooden, cloth, or paper discs, with a layer of abrasive on the surface.

WAC 296-307-19009 The use, mounting, and guarding rules for abrasive wheels.

- (1) Immediately before mounting, the operator must closely inspect and sound (ring test) all wheels to make sure they are not damaged. Before mounting the wheel, the operator must check the spindle speed of the machine to be certain that it does not exceed the maximum operating speed marked on the wheel.

Ring test. To tap the wheel gently with a light nonmetallic implement, such as the handle of a screwdriver for light wheels, or a wooden mallet for heavier wheels.
- (2) Grinding wheels must fit freely on the spindle and remain free under all grinding conditions. The wheel hole must be made suitably oversized to ensure that heat and pressure do not create a hazard.
- (3) All contact surfaces of wheels, blotters, and flanges must be flat and free of foreign matter.
- (4) Bushings used in the wheel hole must not exceed the width of the wheel and must not contact the flanges.
- (5) On offhand grinding machines, work rests must be used to support the work. The work rest must be rigid and adjustable to compensate for wheel wear. Work rests must be kept

adjusted closely to the wheel with a maximum opening of one-eighth inch to prevent the work from jamming between the wheel and the rest. The work rest must be securely clamped after each adjustment and must not be adjusted with the wheel in motion.

- (6) Goggles or face shields must be used when grinding.
- (7) Nonportable grinding machines must be securely mounted on substantial floors, benches, foundations, or other adequate structures.
- (8) After mounting, abrasive wheels must be run at operating speed with the safety guard in place and properly adjusted, or in a protected enclosure for at least one minute before applying work. During this time, no one may stand in front of or in line with the wheel.
- (9) Grinders or abrasive wheels that vibrate or are out of balance must be repaired before use.
- (10) Abrasive wheels not designed for the machine or guard must not be mounted on a grinder.
- (11) Side grinding must only be performed with wheels designed for this purpose.

Note: Light grinding on the side of straight wheels is permitted only when very delicate pressure is applied.

- (12) Where the operator may stand in front of the opening, safety guards must be adjustable to compensate for wheel wear. The distance between the wheel periphery and the adjustable tongue or the guard above the wheel must not exceed one-quarter inch.

WAC 296-307-19012 Flanges.

- (1) Grinding machines must have flanges.
- (2) All abrasive wheels must be mounted between flanges that are at least one-third the diameter of the wheel. Regardless of flange type used, the wheel must always be guarded. Blotters must be used according to this section.
- (3) Design and material requirements include:
 - (a) Flanges must be designed to transmit the driving torque from the spindle to the grinding wheel.
 - (b) Flanges must be made of steel, cast iron, or other material of equal or greater strength and rigidity.
- (4) An abrasive wheel that is designed to be held by flanges must not be operated without them. Except for those types requiring flanges of a special design, flanges must be at least one-third the diameter of the wheel.
- (5) Facings of compressible material (blotters) must be inserted between the abrasive wheel and flanges to ensure uniform distribution of flange pressure.
- (6) All flanges must be maintained in good condition. When the bearing surfaces become damaged, they should be trued or refaced. When refacing or truing, exercise care to make sure that proper relief and rigidity is maintained before starting the wheel.

WAC 296-307-19015 Guarding vertical portable grinders.

Safety guards on right angle head or vertical portable grinders must have a maximum exposure angle of 180°, and the guard must be between the operator and the wheel during use. The guard must be adjusted so that pieces of an accidentally broken wheel will be deflected away from the operator.

WAC 296-307-19018 Guarding other portable grinders.

Other portable grinding machines must be guarded so that only the bottom half of the wheel is exposed. The top half of the wheel must be enclosed at all times.

WAC 296-307-195 Grounding and “dead man” controls for hand-held portable power tools.

- (1) Each hand-held, power-driven tool must have a “dead man” control, such as a spring-actuated switch, valve, or equivalent device, so that the power will be automatically shut off whenever the operator releases the control.
- (2) The frames and all exposed, noncurrent-carrying metal parts of portable electric machinery, operated at more than fifty volts to ground, must be grounded. Other hand-held portable motors driving electric tools must be grounded if they operate at more than fifty volts to ground. The ground must use a separate ground wire and polarized plug and receptacle.

Exception: Double insulated tools that are designed and used according to the requirements of Article 250-45 of the National Electrical Code (1971 edition) are exempt from the grounding requirements.

WAC 296-307-200 Compressed air.**WAC 296-307-20005 Compressed air for cleaning.**

Using compressed air for cleaning purposes is prohibited, except where the pressure is reduced to less than 30 psi and then only with effective chip guarding and personal protective equipment.

WAC 296-307-20010 Compressed air tools.

- (1) When using compressed air tools, use care to prevent the tool from being shot from the gun.
- (2) When momentarily out of use, the gun should be laid so that the tool cannot fly out if the pressure is accidentally released. When not in use, all tools should be removed from the gun.
- (3) When disconnecting a compressed air tool from the air line, first shut off the pressure and then operate the tool to release the pressure remaining in the hose.

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- (4) Compressed air hose or guns must not be pointed at or brought into contact with the body of any person.

WAC 296-307-205 Guarding portable powered tools.

WAC 296-307-20505 Guarding portable powered tools.

- (1) All portable, power-driven circular saws with a blade diameter greater than 2 inches must have guards above and below the base plate or shoe.
- (a) The upper guard must cover the saw to the depth of the teeth, except for the minimum arc required to permit the base to be tilted for bevel cuts.
 - (b) The lower guard must cover the saw to the depth of the teeth, except for the minimum arc required to allow proper retraction and contact with the work.
 - (c) When the tool is withdrawn from the work, the lower guard must automatically and instantly return to covering position.
- (2) Portable belt sanding machines must have guards at each nip point where the sanding belt runs onto a pulley. These guards must prevent the hands or fingers of the operator from coming in contact with the nip points. The unused run of the sanding belt must be guarded against accidental contact.
- (3) Portable electric powered tools must meet the electrical requirements of chapter 296-307 WAC Part T.

WAC 296-307-20510 Switches and controls on portable powered tools.

- (1) The following powered tools must have a constant pressure switch or control that will shut off the power when the pressure is released:
- (a) All hand-held powered circular saws with a blade diameter-greater than 2 inches;
 - (b) Electric, hydraulic or pneumatic chain saws; and
 - (c) Percussion tools without positive accessory holding means.
- All hand-held gasoline powered chain saws must have a constant pressure throttle control that will shut off the power to the saw chain when the pressure is released.
- (2) The following powered tools must have a constant pressure switch or control:
- (a) All hand-held powered drills, tappers, fastener drivers, and horizontal, vertical, and angle grinders with wheels greater than 2 inches in diameter;
 - (b) Disc sanders with discs greater than 2 inches in diameter;
 - (c) Belt sanders;
 - (d) Reciprocating saws;
 - (e) Saber, scroll, and jig saws with blade shanks greater than a nominal 1/4 inch; and
 - (f) Other similarly operating powered tools.

- These tools may have a lock-on control if they can be turned off by a single motion of the same finger or fingers that turn it on.
- (3) The following powered tools must have either a positive on-off control, or other controls as described above:
- (a) All other hand-held powered tools, including:
 - (b) Platen sanders;
 - (c) Grinders with wheels 2 inches in diameter or less;
 - (d) Disc sanders with discs 2 inches in diameter or less;
 - (e) Routers;
 - (f) Planers;
 - (g) Laminate trimmers;
 - (h) Nibblers;
 - (i) Shears; and
 - (j) Saber, scroll, and jig saws with blade shanks a nominal 1/4 inch wide or less.
 - (i) Saber, scroll, and jig saws with nonstandard blade holders may use blades with shanks that are nonuniform in width, if the narrowest portion of the blade shank is an integral part in mounting the blade.
 - (ii) Blade shank width must be measured at the narrowest portion of the blade shank when saber, scroll, and jig saws have nonstandard blade holders.
 - (iii) "Nominal" in this section means +0.05 inch.
- (4) The operating control on hand-held power tools must be located to minimize the possibility of accidental operation that would constitute a hazard to employees.

Exception: This section does not apply to concrete vibrators, concrete breakers, powered tampers, jack hammers, rock drills, garden appliances, household and kitchen appliances, personal care appliances, or to fixed machinery.

WAC 296-307-20515 Pneumatic powered tools and hose.

- (1) The operating trigger on portable pneumatic powered tools must be located to minimize the possibility of accidental operation and arranged to close the air inlet valve automatically when the operator removes pressure.
- (2) A tool retainer must be installed on each tool that would otherwise be ejected from the hose.
- (3) Hose and hose connections used for conducting compressed air to utilization equipment must be designed for the pressure and service to which they are subjected.

WAC 296-307-220 Power lawnmowers.

WAC 296-307-22003 Definitions that apply to this section.

Blade tip circle. The path described by the outermost point of the blade as it rotates about its shaft axis.

Catcher assembly. A part that provides a means for collecting grass clippings or debris.

Deadman control. A control designed to automatically interrupt power to a drive when the operator releases the control.

Guard. A part for shielding a hazardous area of a machine.

Lowest blade position. The lowest blade position when the mower is not in use.

Operator area (walk-behind mowers) A circular area behind the mower that is no smaller than 30 inches in diameter, the center of which is 30 inches behind the nearest blade tip circle.

Power reel mower. A lawn-cutting machine with a power source that rotates one or more helically formed blades about a horizontal axis and creates a shearing action with a stationary cutter bar or bed knife.

Power rotary mower. A lawn-cutting machine with a power source that rotates one or more cutting blades about a vertical axis.

Riding mower. A powered, self-propelled lawn-cutting vehicle on which the operator rides and controls the machine.

Sulky type mower. A walk-behind mower that has been converted to a riding mower by the addition of a sulky.

Walk-behind mower. A mower either pushed or self-propelled and normally guided by the operator walking behind the unit.

WAC 296-307-22006 Guarding power lawnmowers.

- (1) Walk-behind, riding-rotary, and reel power lawnmowers designed for use by employees must meet the design specifications in ANSI B71.1-1968.

Exception: These specifications do not apply to sulky-type mowers, flail mowers, sickle-bar mowers, or mowers designed for commercial use.

- (2) All power-driven chains, belts, and gears must be positioned or guarded to prevent accidental contact with the operator during normal starting, mounting, and operation of the machine.
- (3) The motor must have a shut-off device that requires manual and intentional reactivation to restart the motor.
- (4) All positions of the operating controls must be clearly identified.
- (5) The words, "Caution — Be sure the operating control(s) is in neutral before starting the engine," or similar wording must be clearly visible at an engine starting control point on self-propelled mowers.
- (6) All power lawn mowers must be used according to the manufacturer's instructions.

WAC 296-307-22009 Walk-behind and riding rotary mowers.

- (1) The mower blade must be enclosed except on the bottom and the enclosure must extend to or below the lowest blade position.
- (2) Guards that must be removed to install a catcher assembly must meet the following requirements:
 - (a) Warning instructions are attached to the mower near the opening stating that the mower must not be used without either the catcher assembly or the guard in place.
 - (b) The mower is used only with either the catcher assembly or the guard in place.
 - (c) The catcher assembly is properly and completely installed.
- (3) The word "caution" or stronger wording must be placed on the mower at or near each discharge opening.
- (4) Blade(s) must stop rotating from the manufacturer's specified maximum speed within 15 seconds after declutching, or shutting off power.

WAC 296-307-22012 Walk-behind rotary mowers.

- (1) The horizontal angle of the grass discharge opening(s) in the blade enclosure must not contact the operator area.
- (2) There must be one of the following at all grass discharge openings:
 - (a) A minimum of 3 inches between the end of the discharge chute and the blade tip circle; or
 - (b) A rigid bar fastened across the discharge opening, secured to prevent removal without the use of tools. The bottom of the bar must be no higher than the bottom edge of the blade enclosure.
- (3) The highest point(s) on the blade enclosure front, except discharge-openings, must be a maximum of 1-1/4 inches above the lowest blade position. Mowers with a swingover handle are considered to have no front in the blade enclosure and therefore must comply with WAC 296-307-22009(1).
- (4) The mower handle must be fastened to the mower to prevent loss of control by unintentional uncoupling while in operation.
- (5) Mower handles must be locked in the normal operating position(s) so that they cannot be accidentally disengaged during normal mower operation.
- (6) A swingover handle must meet the requirements of this section.
- (7) Wheel drive disengaging controls, except deadman controls, must move opposite to the direction of the vehicle motion in order to disengage the drive. Deadman controls may operate in any direction to disengage the drive.
- (8) The employer must ensure that each walk-behind rotary mower has a positive constant-pressure device that requires the operator to hold the device in the "on" position to

operate the mower. Using rope or string or other material to tie the constant pressure device in the "on" position is prohibited.

WAC 296-307-22015 Riding rotary mowers.

- (1) The highest point(s) of all openings in the blade enclosure front must be a maximum of 1 1/4 inches above the lowest blade position.
- (2) Opening(s) must not allow grass or debris to discharge directly toward the operator seated in normal operator position.
- (3) There must be one of the following at all grass discharge openings:
 - (a) A minimum of 6 inches between the end of the discharge chute and the blade tip circle; or
 - (b) A rigid bar fastened across the discharge opening secured to prevent removal without the use of tools. The bottom of the bar must be no higher than the bottom edge of the blade enclosure.
- (4) Mowers must have stops to prevent jackknifing or locking of the steering mechanism.
- (5) The mower must have brakes.
- (6) Hand-operated wheel drive disengaging controls must move opposite to the direction of vehicle motion in order to disengage the drive. Foot-operated wheel drive disengaging controls must be depressed to disengage the drive. Deadman controls, both hand and foot operated, may operate in any direction to disengage the drive.

WAC 296-307-225 Jacks.

WAC 296-307-22503 Definitions that apply to this section.

Jack. An appliance for lifting and lowering or moving horizontally a load using a pushing force.

Note: Jack types include lever and ratchet, screw, and hydraulic.

Rating. The maximum working load for which a jack is designed to lift the load safely throughout its travel.

WAC 296-307-22506 The rated load must be marked on a jack.

- (1) The operator must make sure that the jack used has a load rating sufficient to lift and sustain the load.
- (2) The rated load must be legibly and permanently marked in a prominent location on the jack by casting, stamping, or other suitable means.

Note: The operator should follow the manufacturer's specifications to raise the rated load of a jack.

WAC 296-307-22509 Operation and maintenance of jacks.

- (1) If the foundation is not firm, the operator must block the base of the jack. If the cap might slip, the operator must place a block in between the cap and the load.
- (2) The operator must watch the stop indicator, which must be kept clean, in order to determine the limit of travel. The indicated limit must not be overrun.
- (3) After the load has been raised, it must immediately be cribbed, blocked, or otherwise secured. Working under a load raised only with jacks is prohibited.
- (4) Hydraulic jacks exposed to freezing temperatures must be supplied with an adequate antifreeze liquid.
- (5) All jacks must be properly lubricated at regular intervals. The lubricating instructions of the manufacturer should be followed, and only lubricants recommended by the manufacturer should be used.
- (6) The operator must ensure that each jack is thoroughly inspected according to the service conditions and at least:
 - (a) For constant or intermittent use at one locality, once every 6 months;
 - (b) For jacks sent out of shop for special work, when sent out and when returned;
 - (c) For a jack subjected to abnormal load or shock, immediately before and immediately thereafter.
- (7) Repair or replacement parts must be examined for possible defects.
- (8) Jacks that are out of order must be tagged, and not be used until repaired.

WAC 296-307-230 General requirements for materials handling and storage.

- (1) Safe clearances of three feet must be allowed for aisles, loading docks, doorways, and wherever turns or passage must be made. Passageways must be kept clear and in good repair, with no obstructions.
- (2) Bags, bales, boxes, and other containers stored in tiers must be made secure against sliding or collapse.
- (3) Storage areas must be kept free from any accumulation of materials that could cause tripping, fire, or explosion.
- (4) Employees must be instructed in proper lifting or moving techniques and methods. Mechanical devices or assistance in lifting must be used when moving heavy objects.
- (5) When removing material stored in piles, employees must remove material in a manner that maintains the stability of the pile and prevents collapse.
- (6) Storage areas must have proper drainage.
- (7) The employer must provide clearance signs to warn of clearance limits.
- (8) For powered industrial truck (forklift) requirements, see WAC 296-307-520.

WAC 296-307-232 Conveyors.

Conveyors must be constructed, operated, and maintained according to ANSI B 20.1-1957.

- (1) When the return strand of a conveyor operates within seven feet of the floor, there must also be a trough strong enough to carry the weight resulting from a broken chain.
- (2) If the strands are over a passageway, a means must be provided to catch and support the ends of the chain in the event of a break.
- (3) When the working strand of a conveyor crosses within three feet of the floor level in passageways, a bridge must be provided for employees to cross over the conveyor.
- (4) Whenever conveyors pass adjacent to or over working areas or passageways, protective guards must be installed. These guards must be designed to catch and hold any load or materials that may fall off or dislodge and injure an employee.
- (5) Employees must be prohibited from walking on the rolls of roller-type conveyors. If employees must walk on roller-type conveyors because of an emergency, the conveyor must be shut off first.
- (6) Guards, screens, or barricades that are strong enough to prevent material from falling must be installed on all sides of the shaftway of elevator-type conveyors except at openings where material is loaded or unloaded. Automatic shaftway gates or suitable barriers must be installed at each floor level where material is loaded or unloaded from the platform.
- (7) Conveyors must have an emergency stopping device that can be reached from the conveyor. The device must be located near the material entrance to each chopper, mulcher, saw, or similar equipment. The device must be located so that it can stop the conveyor before an employee enters the point of operation of the machine fed by the conveyor.

<p>Exception: The emergency stopping device is not required where the conveyor leading into the equipment is under constant control of an operator with full view of the material entrance and the conveyor is located where the operator cannot fall onto it.</p>

- (8) Where conveyors are over seven feet high, means must be provided to safely permit essential inspection and maintenance operations.
- (9) Any part showing signs of significant wear must be inspected carefully and replaced before it creates a hazard.
- (10) Replacement parts must be equal to or exceed the manufacturer's specifications.

**PART N
SANITATION FOR INDOOR WORKPLACES**

WAC		Page
296-307-240	Sanitation for fixed, indoor workplaces.	1
296-307-24001	The employer must comply with state health regulations.....	1
296-307-24003	Scope.....	1
296-307-24006	Definitions that apply to this section.....	1
296-307-24009	Housekeeping requirements that apply to fixed, indoor workplaces.	2
296-307-24012	Maintenance of potable water supply.....	2
296-307-24015	Maintenance of nonpotable water supply.	2
296-307-24018	Toilet facilities.	2
296-307-24021	Employer provided washing facilities.	3
296-307-24024	Lavatories.....	3
296-307-24027	Employer provided change rooms.....	3
296-307-24030	Consumption of food and beverages in the workplace.	4
296-307-24033	Waste storage and removal.....	4
296-307-24036	Employer vermin control programs.....	4

WAC 296-307-240 Sanitation for fixed, indoor workplaces.**WAC 296-307-24001 The employer must comply with state health regulations.**

The employer must comply with the rules and regulations of the state board of health governing sanitation in the workplace. We enforce these regulations according to RCW 43.20.050.

WAC 296-307-24003 Scope.

WAC 296-307-240 covers sanitation for employees who normally work in fixed, indoor places of agricultural employment.

Fixed, indoor workplace. One where the employees perform a majority of their duties at that site.

This does not cover field employees who only occasionally enter a shop or other farm building as part of their normal duties. Field employees are covered by the field sanitation requirements of WAC 296-307-095.

This section does not cover measures for the control of toxic materials.

WAC 296-307-24006 Definitions that apply to this section.

Lavatory. A basin used exclusively for washing hands, arms, face, and head.

Personal service room. A room used for activities not directly connected with the business function of the employer. Such activities include but are not limited to, first aid, medical services, dressing, showering, toilet use, washing, and eating.

Potable water. Water that meets state or local quality standards for drinking water, or water that meets the quality standards of the Environmental Protection Agency's "National Interim Primary Drinking Water Regulations," published in 40 CFR, Part 141, and 40 CFR 147.2400.

Toilet facility. A fixture maintained within a toilet room for the purpose of defecation or urination, or both.

Toilet room. A room maintained within or on the premises of any place of employment, containing toilet facilities for employee use.

Toxic material. A material that exceeds a regulatory limit (such as in chapter [296-62](#) WAC), or toxicity that causes or is likely to cause death or serious physical harm.

Urinal. A toilet facility maintained within a toilet room for the sole purpose of urination.

Water closet. A toilet facility maintained within a toilet room for the purpose of both defecation and urination and which is flushed with water.

Wet process. Any process or operation in a workroom that normally results in walking or standing surfaces becoming wet.

WAC 296-307-24009 Housekeeping requirements that apply to fixed, indoor workplaces.

- (1) The employer must ensure that all places of employment are kept clean to the extent that the work allows.
- (2) The employer must ensure that the floor of every workroom is kept as dry as possible. Where wet processes are used, the employer must maintain drainage. The employer must provide false floors, platforms, mats, or other dry standing places where practical, or provide appropriate waterproof footwear.
- (3) To facilitate cleaning, every floor, working place, and passageway must be kept free from protruding nails, splinters, loose boards and unnecessary holes and openings.
- (4) Cleaning and sweeping must be done to minimize dust in the air and when practical, done outside of working hours.

WAC 296-307-24012 Maintenance of potable water supply.

- (1) A common drinking cup and other common utensils are prohibited.
- (2) The employer must provide potable water in all places of employment, for drinking, washing of the person, cooking, washing food, washing cooking or eating utensils, washing food preparation or processing premises, and for personal service rooms.
- (3) Potable drinking water dispensers must be maintained in sanitary condition, be closeable, and have a tap.
- (4) Open containers for drinking water from which the water must be dipped or poured, even if fitted with a cover, are prohibited.

WAC 296-307-24015 Maintenance of nonpotable water supply.

- (1) The employer must ensure that nonpotable water is marked as unsafe and is not used for drinking, washing of the person, cooking, washing food, washing cooking or eating utensils, washing food preparation or processing premises, or personal service rooms, or for washing clothes.
- (2) Nonpotable water used for cleaning any other work premises must be free of concentrations of chemicals, fecal coliform, or other substances that could create unsanitary conditions or be harmful to employees.
- (3) Nonpotable water systems or systems carrying any other nonpotable substance must be constructed to prevent backflow or backsiphonage into a potable water system.

WAC 296-307-24018 Toilet facilities.

- (1) The employer must provide toilet facilities, with separate toilet rooms for each sex, according to the requirements in the table below. The employer must provide facilities for each sex based on the number of employees of that sex for whom facilities are furnished.
- (2) Where single-occupancy rooms have more than one toilet facility, only one facility in each toilet room counts toward these requirements.

In this table, “**number of employees**” means the maximum number of employees present at any one time on a regular shift.

Number of Employees	Minimum Number of Water Closets
1 to 15	1
16 to 35	2
36 to 55	3
56 to 80	4
81 to 110	5
111 to 150	6
Over 150	One additional fixture for each additional 40 employees

- (3) Where toilet rooms are occupied by one person at a time, can be locked from the inside, and contain at least one water closet, separate toilet rooms for each sex need not be provided.
- (4) Where toilet facilities will not be used by women, urinals may be provided instead of water closets, except that the number of water closets must not be less than 2/3 of the minimum specified.
- (5) The sewage disposal method must not endanger the health of employees.
- (6) Toilet paper with holder must be provided for every water closet.
- (7) Each water closet must occupy a separate compartment with a door and walls or partitions between fixtures high enough to ensure privacy.

WAC 296-307-24021 Employer provided washing facilities.

The employer must provide facilities for maintaining personal cleanliness in the workplace. The facilities must be convenient for employees and maintained in a sanitary condition.

WAC 296-307-24024 Lavatories.

- (1) The employer must ensure that lavatories are available in all workplaces.
- (2) Each lavatory must have hot and cold running water, or tepid running water.
- (3) The employer must provide hand soap or similar cleansing agent.
- (4) The employer must provide individual hand towels, warm air blowers, or clean individual sections of continuous cloth toweling convenient to the lavatories.

WAC 296-307-24027 Employer provided change rooms.

- (1) Whenever employees are required by a WISHA standard to wear protective clothing because of the possibility of contamination with toxic materials, the employer must provide change rooms with separate storage facilities for street clothes and for the protective clothing.
- (2) If the employer provides work clothes for employees, they must be dry.

WAC 296-307-24030 Consumption of food and beverages in the workplace.

- (1) This section applies to workplaces where employees may consume food, beverages, or both on the premises.
- (2) No employee may consume food or beverages in a toilet room nor in any area exposed to a toxic material.
- (3) If the workplace exposes employees to injurious dusts or other toxic materials, the employer must provide a separate lunchroom unless it is convenient for employees to lunch away from the premises. The size of the lunchroom must be based on the maximum number of persons using the room at one time, according to the following table.

Number of Persons	Square Feet per Person
25 and less	13
26 – 74	12
75 – 149	11
150 and over	10

- (4) The employer must provide receptacles of smooth, corrosion resistant, easily cleanable, or disposable materials for the disposal of waste food. The employer must provide enough receptacles to encourage their use and to prevent overfilling. Receptacles must be emptied at least once a working day and maintained in sanitary condition. Receptacles must have a solid tight-fitting cover unless sanitary condition can be maintained without a cover.
- (5) No food or beverages may be stored in toilet rooms or in an area exposed to toxic material.
- (6) All employee food service facilities and operations must follow sound hygienic principles. If all or part of the food service is provided, the food dispensed must be wholesome and free from spoilage. Food must be processed, prepared, handled, and stored so as to prevent contamination.

WAC 296-307-24033 Waste storage and removal.

- (1) The employer must ensure that any receptacle used for waste or garbage that may rot is constructed so that it does not leak and can be thoroughly cleaned and maintained in a

sanitary condition. A receptacle must have a solid tight-fitting cover, unless it can be maintained in a sanitary condition without a cover. Receptacles designed to maintain sanitary condition may be used in place of this requirement.

- (2) All sweepings, solid or liquid wastes, refuse, and garbage must be removed to avoid creating a health menace, and as often as necessary to maintain the workplace in a sanitary condition.

WAC 296-307-24036 Employer vermin control programs.

Every building with personal service, food preparation, or eating rooms must be constructed, equipped, and maintained to restrict infestation by rodents, insects, and other vermin. The employer must have a continuing and effective extermination program where vermin are present.

PART O

WALKING WORKING SURFACES; FIXED INDUSTRIAL STAIRS; AERIAL MANLIFTS

WAC

Page

<u>296-307-250</u>	<u>Walking working surfaces, elevated walkways, and platforms.</u>	<u>1</u>
<u>296-307-25003</u>	<u>Definitions that apply to this section.....</u>	<u>1</u>
<u>296-307-25006</u>	<u>When railings may be omitted.....</u>	<u>1</u>
<u>296-307-25009</u>	<u>Protection an employer must provide for openings.</u>	<u>1</u>
<u>296-307-25012</u>	<u>Protection an employer must provide for openings and holes.....</u>	<u>2</u>
<u>296-307-25015</u>	<u>Protection an employer must provide for open-sided floors, platforms, and runways.....</u>	<u>2</u>
<u>296-307-25018</u>	<u>Requirements that apply to stairway railings and guards.....</u>	<u>2</u>
<u>296-307-25021</u>	<u>Standard railing construction.</u>	<u>2</u>
<u>296-307-25024</u>	<u>Stair railing construction.....</u>	<u>3</u>
<u>296-307-25027</u>	<u>Requirements for railing dimensions.....</u>	<u>3</u>
<u>296-307-25030</u>	<u>Requirements that apply to toeboards.</u>	<u>4</u>
<u>296-307-25033</u>	<u>Handrails and railings construction.</u>	<u>4</u>
<u>296-307-25036</u>	<u>Materials for floor opening covers.</u>	<u>4</u>
<u>296-307-25039</u>	<u>Constructing and mounting skylight screens.....</u>	<u>5</u>
<u>296-307-25042</u>	<u>Protection the employer is required to provide for openings.</u>	<u>5</u>
<u>296-307-260</u>	<u>Fixed industrial stairs.</u>	<u>5</u>
<u>296-307-26003</u>	<u>Scope.....</u>	<u>5</u>
<u>296-307-26006</u>	<u>Definitions that apply to this section.....</u>	<u>5</u>
<u>296-307-26009</u>	<u>How to determine if fixed stairs are required.</u>	<u>6</u>
<u>296-307-26012</u>	<u>Spiral stairs.....</u>	<u>6</u>
<u>296-307-26015</u>	<u>Strength requirements for fixed stairs.</u>	<u>6</u>
<u>296-307-26018</u>	<u>Width requirements for fixed stairs.</u>	<u>6</u>
<u>296-307-26021</u>	<u>Angle requirements for installing stairways.</u>	<u>6</u>
<u>296-307-26024</u>	<u>Requirements that apply to stair treads.....</u>	<u>7</u>
<u>296-307-26027</u>	<u>Requirements that apply to the length of stairways.....</u>	<u>7</u>
<u>296-307-26030</u>	<u>Requirements that apply to railings and handrails on fixed stairs.</u>	<u>7</u>
<u>296-307-26033</u>	<u>Requirements that apply to alternating tread-type stairs.....</u>	<u>8</u>
<u>296-307-26036</u>	<u>Other requirements that apply to fixed stairs.....</u>	<u>8</u>
<u>296-307-270</u>	<u>Requirements that apply to aerial manlift equipment.....</u>	<u>8</u>
<u>296-307-27005</u>	<u>Requirements that apply to aerial manlift equipment.....</u>	<u>8</u>
<u>296-307-27010</u>	<u>Requirements that apply to using aerial manlift equipment</u>	<u>9</u>

WAC 296-307-250 Walking working surfaces, elevated walkways, and platforms.

WAC 296-307-25003 Definitions that apply to this section.

Handrail. A rail used to provide employees with a handhold for support.

Hole. A gap two inches or more in its least dimension, in a floor, roof, or other surface.

Opening. A gap or void thirty inches (76 cm) or more high and eighteen inches (48 cm) or more wide, in a wall or partition, through which employees can fall to a lower level.

Platform. A work surface elevated above the surrounding floor or ground.

Runway. A passageway for persons, elevated above the surrounding floor or ground level, such as a footwalk along shafting or a walkway between buildings.

Stair railing. A vertical barrier along exposed sides of a stairway to prevent people from falling.

Standard railing. A vertical barrier along exposed edges of a floor opening, wall opening, ramp, platform, or runway to prevent people from falling.

Standard strength and construction. Any construction of railings, covers, or other guards that meets the requirements of this section.

Toeboard. A vertical barrier at floor level along open sides or edges of a floor opening, platform, runway, ramp, or other walking/working surface to prevent materials, tools, or debris falling onto persons passing through or working in the area below.

WAC 296-307-25006 When railings may be omitted.

Railings may be omitted from sections of open-sided floors, platforms, or walkways where guard rails impair operations, if railings are replaced when they no longer impair operations.

WAC 296-307-25009 Protection an employer must provide for openings.

- (1) Every stairway floor opening must be guarded by a standard railing constructed according to this section. The railing must guard all exposed sides (except the entrance to the stairway). Infrequently used stairways where traffic across the opening prevents using a fixed standard railing (as when located in aisle spaces, etc.), may use an alternate guarding method. In these cases, the guard must have a hinged floor opening cover of standard strength and construction and removable standard railings on all exposed sides (except at the entrance to the stairway). See chapter [296-880](#) WAC, Unified safety standards for fall protection.
- (2) When employees must feed material into any hatchway or chute opening, you must provide protection to prevent people from falling through the opening. See chapter [296-880](#) WAC, Unified safety standards for fall protection.
- (3) When practical, the area under floor openings must be fenced off. Otherwise, the area must be plainly marked with yellow lines and telltales hanging within 5-1/2 feet of the ground or floor level.

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- (4) Where floor openings are used to drop materials from one level to another, audible warning systems must be installed and used to indicate to employees on the lower level when material is dropped.

WAC 296-307-25012 Protection an employer must provide for openings and holes.

See requirements in chapter [296-880](#) WAC, Unified safety standards for fall protection.

WAC 296-307-25015 Protection an employer must provide for open-sided floors, platforms, and runways.

See requirements in chapter [296-880](#) WAC, Unified safety standards for fall protection.

WAC 296-307-25018 Requirements that apply to stairway railings and guards.

- (1) Every flight of stairs having four or more risers must have standard stair railings or standard handrails as follows (stairway widths measured clear of all obstructions except handrails):
- (a) Stairways less than 44 inches wide with both sides enclosed must have at least one handrail, preferably on the right side descending.
 - (b) Stairways less than 44 inches wide with one side open must have at least one stair railing on the open side.
 - (c) Stairways less than 44 inches wide with both sides open must have one stair railing on each side.
 - (d) Stairways more than 44 inches wide but less than 88 inches wide must have one handrail on each enclosed side and one stair railing on each open side.
 - (e) Stairways 88 or more inches wide must have one handrail on each enclosed side, one stair railing on each open side, and one intermediate stair railing at the approximate middle.

<p>Exception: Vehicle service pit stairways are exempt from this requirement if hand or stair rails would prevent vehicle movement into position over the pit.</p>

- (2) Winding stairs must have a handrail that prevents walking on all portions of the treads that are less than 6 inches wide.
- (3) Nonindustrial and “monumental” steps are exempt from the requirements of this section. However, public and private building steps at loading or receiving docks, in maintenance areas, etc., and stairs used exclusively by employees, must meet the requirements of this section.

WAC 296-307-25021 Standard railing construction.

A standard railing must meet the following requirements:

- (1) The railing has a top rail, intermediate rail, and posts.

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- (2) The railing height is between thirty-six and forty-two inches nominal from the upper surface of the top rail to the floor, platform, runway, or ramp level.
 - (3) The top rail is smooth.
 - (4) The intermediate rail is approximately halfway between the top rail and the floor, platform, runway, or ramp.
 - (5) The ends of the rails do not overhang the terminal posts except where the overhang does not create a hazard.
 - (6) Guardrails taller than 42 inches are constructed so they do not create a hazard. Additional mid-rails are installed so that openings beneath the top rail prevent a spherical object with a 19-inch or larger diameter from falling through.

WAC 296-307-25024 Stair railing construction.

A stair railing must be constructed similar to a standard railing. The stair railing must be between 34 and 30 inches tall measured from the top of the top rail to the tread surface meeting the face of the riser at the forward edge of the tread.

WAC 296-307-25027 Requirements for railing dimensions.

Standard railings must meet the following requirements:

- (1) For wood railings:
 - (a) The posts are of at least two inch by four inch nominal stock spaced six feet apart or less; and
 - (b) The top and intermediate rails are of at least two inch by four inch nominal stock.
 - (c) If the top rail is made of two right-angle pieces of 1-inch by 4-inch stock, posts are spaced on 8-foot centers, with 2-inch by 4-inch intermediate rail.
- (2) For pipe railings:
 - (a) The posts and top and intermediate railings are at least 1-1/2 inches nominal diameter (outside diameter); and
 - (b) The posts are spaced on centers of eight feet or less.
- (3) For structural steel railings:
 - (a) The posts and top and intermediate rails are of 2-inch by 2-inch by 3/8-inch angles or other metal shapes of equivalent bending strength; and
 - (b) The posts are spaced on centers of eight feet or less.
- (4) Post anchors and framing parts for all railings are constructed so that the completed structure can withstand a load of at least two hundred pounds applied in any direction at any point on the top rail.
- (5) Other types, sizes, and arrangements of railing construction that meet the following requirements are acceptable:

- (a) The top rail is smooth;
- (b) The top rail is between thirty-six and forty-two inches nominal above the floor, platform, runway, or ramp level;
- (c) The railing is strong enough to withstand two hundred pounds of pressure on the top rail;
- (d) The railing provides protection between the top rail and the floor, platform, runway, ramp, or stair treads, equivalent to that of a standard intermediate rail;
- (e) There are no overhanging rail ends unless the overhang does not create a hazard; such as baluster railings, scrollwork railings, or paneled railings.

Note: The dimensions specified are based on the U.S. Department of Agriculture Wood Handbook, No. 72, 1955 (No. 1 (S4S) Southern Yellow Pine (Modulus of Rupture 7,400 psi)) for wood; ANSI G 41.5-1970, American National Standard Specifications for Structural Steel, for structural steel; and ANSI B 125.1-1970, American National Standard Specifications for Welded and Steamless Steel Pipe, for pipe.

WAC 296-307-25030 Requirements that apply to toeboards.

- (1) Standard toeboard height is at least four inches nominal from its top edge to the level of the floor, platform, runway, or ramp. The toeboard must be securely fastened in place and with a maximum of 1/4 inch clearance above floor level. It must be made of any substantial material that is either solid or with openings that are a maximum of one inch in diameter.
- (2) Where material is piled high enough that a standard toeboard does not provide protection, paneling from the floor to the intermediate rail, or to the top rail, must be provided.

WAC 296-307-25033 Handrails and railings construction.

- (1) A handrail must have a horizontal part mounted directly on a wall or partition by brackets attached to the lower side of the handrail. The brackets must be attached to ensure that there is a smooth surface along the top and both sides of the handrail. The handrail must be rounded or otherwise provide an adequate handhold for anyone grasping it to avoid falling. The ends of the handrail should be turned in to the supporting wall or arranged to prevent a projection hazard.
- (2) Handrails must be a maximum of thirty-four inches high and at least thirty inches from the upper surface of the handrail to the surface of the tread in line with the face of the riser or to the surface of the ramp.
- (3) The size of handrails must be:
 - (a) For hardwood, at least two inches in diameter.
 - (b) For metal pipe, at least 1-1/2 inches in diameter.

- (4) Brackets must be spaced a maximum of eight feet apart.
- (5) Handrail mounting must be strong enough to withstand a load of at least two hundred pounds applied in any direction at any point on the rail.
- (6) All handrails and railings must have a clearance of at least 1-1/2 inches between the handrail or railing and the wall or any other object.

WAC 296-307-25036 Materials for floor opening covers.

Floor opening covers must be made of any material that meets the following strength requirements:

- (1) Trench or conduit covers and their supports, when located in plant roadways, must be designed to carry a truck rear-axle load of at least 20,000 pounds.
- (2) Manhole covers and their supports, when located in plant roadways, must meet local standard highway requirements if any; otherwise, they must be designed to carry a truck rear-axle of at least 20,000 pounds.
- (3) Other floor opening covers must be made of any material that can carry a truck rear-axle load of at least 20,000 pounds. Covers may project a maximum of one inch above the floor level if all edges are chamfered to a maximum angle with the horizontal of thirty degrees. All hinges, handles, bolts, or other parts must set flush with the floor or cover surface.

WAC 296-307-25039 Constructing and mounting skylight screens.

See requirements in chapter [296-880](#) WAC, Unified safety standards for fall protection.

WAC 296-307-25042 Protection the employer is required to provide for openings.

See requirements in chapter [296-880](#) WAC, Unified safety standards for fall protection.

WAC 296-307-260 Fixed industrial stairs.**WAC 296-307-26003 Scope.**

WAC 296-307-260 covers the safe design and construction of fixed general industrial stairs. Fixed general industrial stairs includes interior and exterior stairs around machinery, tanks, and other equipment, and stairs leading to or from floors, platforms, or pits.

This section does not apply to stairs used for fire exits, to construction operations, to private buildings or residences, or to articulated stairs that are installed on floating roof tanks or on dock facilities, where the angle changes with the rise and fall of the base support.

Stairs of public and private buildings at loading or receiving docks, in maintenance areas, etc., or stairs that are used exclusively by employees, are considered “fixed industrial steps” and must meet these requirements.

WAC 296-307-26006 Definitions that apply to this section.

Nose or nosing. The part of a tread projecting beyond the face of the riser immediately below.

Open riser. The air space between the treads of stairways without risers.

Platform. An extended step or landing breaking a continuous run of stairs.

Railing. A vertical barrier erected along exposed sides of stairways and platforms to prevent people from falling. The top part of the railing usually serves as a handrail.

Rise. The vertical distance from the top of a tread to the top of the next higher tread.

Riser. The upright part of a step at the back of a lower tread and near the leading edge of the next higher tread.

Stairs or stairway. A series of steps. A series of steps and landings having three or more risers constitutes stairs or a stairway.

Tread. The horizontal part of a step.

Tread run. The horizontal distance from the leading edge of a tread to the leading edge of an adjacent tread.

Tread width. The horizontal distance from front to back of tread, including nosing.

WAC 296-307-26009 How to determine if fixed stairs are required.

Fixed stairs must be provided for:

- (1) Employee access from one structure level to another where operations require regular travel between levels.
- (2) Employee access to operating platforms on any equipment that requires regular attention during operations.
- (3) Employees that need daily access to elevations, or access at each shift, for purposes such as gauging, inspection, regular maintenance, etc., where:
 - (a) The work may expose employees to acids, caustics, gases, or other harmful substances; or
 - (b) Employees must normally carry tools or equipment by hand.

Note: This section does not prohibit the use of fixed ladders for access to elevated tanks, towers, and similar structures, overhead traveling cranes, etc., where the use of fixed ladders is common practice.

WAC 296-307-26012 Spiral stairs.

Spiral stairways are prohibited except for special limited use and secondary access when a conventional stairway is not practical. Winding stairways may be installed on tanks and similar round structures where the diameter of the structure is a minimum of five feet.

WAC 296-307-26015 Strength requirements for fixed stairs.

Fixed stairways must be designed and constructed to carry a load of five times the normal live load anticipated, and must be at least strong enough to carry safely a moving concentrated load

WAC 296-307-26018 Width requirements for fixed stairs.

Fixed stairways must be at least 22 inches wide.

WAC 296-307-26021 Angle requirements for installing stairways.

- (1) Fixed stairs must be installed at angles to the horizontal of between thirty and fifty degrees. Any uniform combination of rise/tread dimensions may be used that will provide a stairway at an angle within the permissible range.

The following table lists examples of rise/tread dimensions that will produce a stairway within the permissible range. Rise/tread combinations are not limited to those in the table.

Angle to Horizontal	Rise in (inches)	Tread Run in (inches)
30°35'	6 ½	11
32°08'	6 ¾	10 ¾
33°41'	7	10 ½
35°16'	7 ¼	10 ¼
36°52'	7 ½	10
38°29'	7 ¾	9 ¾
40°08'	8	9 ½
41°44'	8 ¼	9 ¼
43°22'	8 ½	9
45°00'	8 ¾	8 ¾
46°38'	9	8 ½
48°16'	9 ¼	8 ¼
49°54'	9 ½	8

- (2) A permanent stairway may be installed at an angle above the fifty degree critical angle when space limitations require. Such installations (commonly called inclined ladders or ship's ladders) must have handrails on both sides and open risers. They must be capable of sustaining a live load of one hundred pounds per square foot with a safety factor of

four. The following preferred and critical angles from the horizontal are recommended for inclined ladders and ship's ladders:

- (a) 35 to 60 degrees-Preferred angle from horizontal.
- (b) 60 to 70 degrees-Critical angle from horizontal.

WAC 296-307-26024 Requirements that apply to stair treads.

- (1) When risers are used, each tread and the top landing of a stairway should have a nose extending 1/2 to one inch beyond the face of the lower riser.
- (2) Noses should have an even leading edge.
- (3) All treads must be reasonably slip-resistant and the nosings must be of nonslip finish. Welded bar grating treads without nosings are acceptable if the leading edge can easily be identified by employees descending the stairway and the tread is serrated or is nonslip.
- (4) Rise height and tread width must be uniform throughout any flight of stairs including any

WAC 296-307-26027 Requirements that apply to the length of stairways.

Long flights of stairs, unbroken by landings or intermediate platforms, should be avoided. You should consider providing intermediate platforms where practical and for frequently used stairways. Stairway platforms must be at least as wide as the stairway and at least 30 inches long, measured in the direction of travel.

WAC 296-307-26030 Requirements that apply to railings and handrails on fixed stairs.

Standard railings must be provided on the open sides of all exposed stairways and stair platforms. Handrails must be provided on at least one side of closed stairways, preferably on the right side descending. Stair railings and handrails must be installed according to WAC 296-307-250.

WAC 296-307-26033 Requirements that apply to alternating tread-type stairs.

Alternating tread-type stairs. Stairs with a series of steps between 50 and 70 degrees from horizontal, attached to a center support rail in an alternating manner so that a user of the stairs never has both feet at the same level at the same time.

- (1) Alternating tread-type stairs must be designed, installed, used, and maintained according to the manufacturer's specifications, and must have the following:
 - (a) Stair rails on all open sides;
 - (b) Handrails on both sides of enclosed stairs;
 - (c) Stair rails and handrails that provide an adequate handhold for a user grasping it to avoid a fall;
 - (d) A minimum of 17 inches between handrails;
 - (e) A minimum width of 22 inches overall;
 - (f) A minimum tread depth of 8 inches;

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- (g) A minimum tread width of 7 inches; and
 - (h) A maximum rise of 9 1/2 inches to the tread surface of the next alternating tread.
 - (2) Alternating tread-type stairs must have a maximum 20-foot continuous rise. Where more than a 20-foot rise is necessary to reach the top of a required stair, one or more intermediate platforms must be provided according to WAC 296-307-26027.
 - (3) Stairs and platforms must be installed so the top landing of the alternating tread stair is flush with the top of the landing platform.
 - (4) Stair design and construction must sustain a load of at least five times the normal live load, and be at least strong enough to carry safely a moving concentrated load of 1,000 pounds.
 - (5) Treads must have slip-resistant surfaces.
 - (6) Where a platform or landing is used, the width must be at least as wide as the stair and at least 30-inches deep in the direction of travel. Stairs must be flush with the top of the landing platform.

WAC 296-307-26036 Other requirements that apply to fixed stairs.

- (1) Vertical clearance above any stair tread to an overhead obstruction must be at least 7 feet measured from the leading edge of the tread.
- (2) Stairs with treads less than 9 inches wide should have open risers.
- (3) Open grating type treads are desirable for outside stairs.

WAC 296-307-270 Aerial manlift equipment.**WAC 296-307-27005 Requirements that apply to aerial manlift equipment.**

- (1) We will accept safety factor test data on working or structural components from one of the following as evidence that a manlift meets minimum safety requirements:
 - (a) The manufacturer;
 - (b) A competent testing laboratory;
 - (c) A registered engineering firm; or
 - (d) A registered engineer.

If, after use, it appears doubtful whether this equipment will meet the above requirements, we may require that tests be conducted, and we may order that you make corrections.

- (2) All aerial manlifts must have working brake systems.
- (3) Automatic apertures must be installed in the hydraulic systems of aerial manlifts to maintain the boom in position in case any part of the hydraulic pressure system fails.
- (4) Controls must be guarded by partial enclosures to minimize accidental contact.

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- (5) The manufacturer's recommended maximum load limit must be posted conspicuously near the controls and must be kept in a legible condition.
 - (6) All critical hydraulic and pneumatic components must meet the provisions of ANSI A92.2-1969, Section 4.9 Bursting Safety Factor. Critical components are those which, in case of failure, would cause a free fall or free rotation of the boom. All noncritical components must have a bursting safety factor of at least two to one.

WAC 296-307-27010 Requirements that apply to using aerial manlift equipment.

- (1) The manufacturer's instructional manual, if any, must be used to establish the proper operational sequences and maintenance procedures. If there is no manual, you must develop instructions. The instructions must be available for reference by operators.
- (2) The assigned operator must make a daily visual inspection and perform the tests recommended by the manufacturer.
- (3) Only employees qualified by training or experience may operate aerial manlifts.
- (4) Employees must report defective aerial manlift equipment to you as soon as identified. Using defective equipment is prohibited when the defect may cause an accident.
- (5) When moving to and from the job site, the basket of the manlift must be in the low position.
- (6) Unsafe practices are prohibited, such as, sitting or standing on the basket edge, standing on material placed across the basket, or working from a ladder set inside the basket.
- (7) The basket must not be rested on a fixed object so that the weight of the boom is supported by the basket.
- (8) The employee and the aerial manlift equipment must maintain distance from high voltage lines according to WAC 296-307-150.

PART P

GUARDING POWER TRANSMISSION MACHINERY

WAC		Page
296-307-280	Guarding power transmission machinery.....	1
296-307-28002	Power transmission belts covered by this section	1
296-307-28004	Definition of guarded by location.....	1
296-307-28006	General requirements that apply to machine guarding.....	1
296-307-28014	Requirements that apply to prime-mover guards.....	2
296-307-28016	Guarding shafting.....	2
296-307-28018	Guarding pulleys.....	3
296-307-28020	Guarding horizontal belt, rope, and chain drives.....	4
296-307-28022	Guarding overhead horizontal belt, rope, and chain drives.....	4
296-307-28024	Guarding vertical and inclined belts.....	4
296-307-28026	Guarding cone-pulley belts.....	5
296-307-28028	Guarding belt tighteners.....	5
296-307-28030	Guarding gears, sprockets, and chains.....	6
296-307-28032	Guarding friction drives.....	6
296-307-28034	Guarding keys, set screws, and other projections.....	6
296-307-28036	Guarding collars and couplings.....	7
296-307-28038	Self-lubricating bearing.....	7
296-307-28040	Guarding clutches, cutoff couplings, and clutch pulleys.....	7
296-307-28042	Guarding belt shifters, clutches, shippers, poles, perches, and fasteners.....	7
296-307-28044	Materials required to use standard guards.....	8
296-307-28046	Manufacturing standard guards.....	8
296-307-28048	Disk, shield, and U-guards.....	9
296-307-28050	Materials used for guards.....	9
296-307-28052	Wood guards.....	10
296-307-28054	Materials used for guarding horizontal overhead belts.....	10
296-307-28056	Clearance maintained between guards and power transmission machinery.....	11
296-307-28058	Construction of overhead rope and chain-drive guards.....	11
296-307-28060	Materials used for guardrails and toeboards.....	11
296-307-28062	Shafting.....	15
296-307-28064	Pulley maintenance.....	15
296-307-28066	Belt maintenance.....	15
296-307-28068	Maintenance for other equipment.....	15
296-307-290	Auger conveying equipment.....	16
296-307-29005	Requirements that apply to auger conveying equipment.....	16
296-307-29010	Other requirements that apply to auger conveying equipment manufactured after October 25, 1976.....	16
296-307-300	Guarding farmstead equipment.....	17

WAC		Page
296-307-30003	Scope.....	17
296-307-30006	Guarding power takeoff shafts of farmstead equipment.....	17
296-307-30009	Guarding other power transmission components of farmstead equipment.....	17
296-307-30012	Guarding functional components of farmstead equipment.....	18
296-307-30015	Removing guards on farmstead equipment.	18
296-307-30018	Requirements that apply to electrical control used for maintaining and servicing farmstead equipment.	18
296-307-30021	Additional guarding requirements that apply to farmstead equipment.....	19

WAC 296-307-280 Guarding power transmission machinery.**WAC 296-307-28002 Power transmission belts covered by this section.**

WAC 296-307-280 covers all types and shapes of power transmission belts.

Exception: The following power transmission belts are exempt from WAC 296-307-280 when operating at 250 feet per minute or less:

- (1) Flat belts that are one inch wide or less.
- (2) Flat belts that are 2" wide or less and are free from metal lacings or fasteners.
- (3) Round belts that are 1/2" in diameter or less.
- (4) Single strand V-belts that are 13/32" wide or less.

WAC 296-307-28004 Definition of guarded by location.

Guarded by location. That the location of a component eliminates potential hazards. A component seven feet or more above a working surface is considered guarded by location.

WAC 296-307-28006 General requirements that apply to machine guarding.

- (1) All power transmission components must be guarded according to the requirements of this section.
- (2) The employer must protect employees from coming into contact with moving machinery parts by:
 - (a) A guard or shield or guarding by location; or
 - (b) A guardrail or fence whenever a guard or shield or guarding by location is infeasible.
- (3) Strength and design of guards.
 - (a) Guards must be designed and located to prevent inadvertent contact with the hazard.
 - (b) Unless otherwise specified, each guard and its supports must be strong enough to withstand the force that a 250 pound person would exert leaning on or falling against the guard.
 - (c) Guards must be securely fastened to the equipment or building.
- (4) A guard or shield on stationary equipment must be provided at the mesh point or pinch point where the chain or belt contacts the sprocket or pulley.
- (5) Machines that will throw stock, material, or objects must be covered or provided with a device designed and constructed to minimize this action. (Machines such as rip saws, rotary mowers and beaters, rotary tillers are included in this classification.)

- (6) For requirements relating to the control of hazardous energy (lockout-tagout) see WAC 296-307-320.

WAC 296-307-28014 Requirements that apply to prime-mover guards.

Flywheels. Include flywheels, balance wheels, and flywheel pulleys mounted and revolving on crankshaft of engine or other shafting.

Prime movers. Include steam, gas, oil, and air engines, motors, steam and hydraulic turbines, and other equipment used as a source of power.

- (1) Unless guarded by location, flywheels must be guarded according to the following requirements:
- (a) Guard enclosures are made of sheet, perforated, or expanded metal, or woven wire.
 - (b) Guard rails are between 15 and 20 inches from the rim. When a flywheel extends into a pit or is within 12 inches of the floor, a standard toeboard is provided.
 - (c) When the upper rim of a flywheel extends through a working floor, it is surrounded by a guardrail and toeboard.
 - (d) **Exception:** When a flywheel with a smooth rim 5 feet or less in diameter cannot be guarded by the above methods, the employer must guard by meeting the following requirements:

On the exposed side, cover the flywheel spokes with a disk that makes a smooth surface and edge, and provides for inspection. The employer may leave an open space, less than 4 inches wide, between the outside edge of the disk and the rim of the wheel, to turn the wheel over. If a disk is used, keys or other projections left uncovered by the projections must be cut off or covered.

Note: This exception does not apply to flywheels with solid web centers.

- (e) At the flywheel of a gas or oil engine, the employer may provide an adjustable guard for starting the engine or for running adjustment. A slot opening for a jack bar is permitted.
 - (f) For flywheels above working areas, the employer must install guards that are strong enough to hold the weight of the flywheel if the shaft or wheel mounting fails.
- (2) Cranks and connecting rods, when exposed to contact, must be guarded according to WAC 296-307-28046 and 296-307-28048, or by a guardrail according to WAC 296-307-28060.
- (3) Tail rods or extension piston rods must be guarded according to WAC 296-307-28046 and 296-307-28048, or by a guardrail on the sides and end, with a clearance of between 15 and 20 inches when rod is fully extended.

WAC 296-307-28016 Guarding shafting.

Revolving shafts must be guarded by a standard safeguard unless guarded by location.

- (1) All shafting must be secured against excessive end movement.
- (2) Guarding horizontal shafting.
 - (a) Unless guarded by location, all exposed parts of horizontal shafting, must be enclosed in a guard that covers the shafting completely or by a trough that covers the sides and top or sides and bottom of the shafting as location requires.
 - (b) Shafting under bench machines must be enclosed by a guard that covers the shafting completely or by a trough that covers the sides and top or sides and bottom of the shafting as location requires. The sides of the trough must extend to at least 6 inches from the underside of table. If shafting is near the floor, the trough must extend to at least 6 inches from the floor. In every case, the sides of trough must extend at least 2 inches beyond the shafting or projection.

<p>Exception: Maintenance runways are exempt from this requirement. "Maintenance runway" means any permanent runway or platform used for oiling, maintenance, running adjustment, or repair work, but not for passageway.</p>
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- (3) Unless guarded by location, vertical and inclined shafting must be enclosed according to WAC 296-307-28046 and 296-307-28050 through WAC 296-307-28060.

<p>Exception: Maintenance runways are exempt from this requirement.</p>
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- (4) Projecting shaft ends.
 - (a) Projecting shaft ends must have a smooth edge and end and must not project more than one-half the diameter of the shaft unless guarded by nonrotating caps or safety sleeves.
 - (b) Unused keyways must be filled up or covered.

WAC 296-307-28018 Guarding pulleys.

- (1) Unless guarded by location, pulleys must be guarded according to WAC 296-307-28046 and 296-307-28050 through WAC 296-307-28060. Pulleys serving as balance wheels (e.g., punch presses) on which the point of contact between belt and pulley is more than 6 feet 6 inches from the floor or platform may be guarded with a disk covering the spokes.
- (2) If the distance to the nearest fixed pulley, clutch, or hanger is equal to or less than the width of the belt, then the employer must provide a guide to prevent the belt from leaving the pulley on the side where insufficient clearance exists.
- (3) Where there are overhanging pulleys on line, jack, or countershafts with no bearing between the pulley and the outer end of the shaft, the employer should provide a guide to prevent the belt from running off the pulley.
- (4) Pulleys with cracks, or pieces broken out of rims are prohibited.

- (5) Pulleys must be designed and balanced for the operating speed.
- (6) Composition or laminated wood pulleys must not be installed where they are likely to deteriorate.

WAC 296-307-28020 Guarding horizontal belt, rope, and chain drives.

Belts. Include all power transmission belts, such as flat belts, round belts, V-belts, etc., unless otherwise specified.

- (1) Where both runs of horizontal belts are 7 feet or less from the floor level, the guard must extend to at least 15 inches above the belt or to a standard height. (See Table P-1.)

Exception: Where both runs of a horizontal belt are 42 inches or less from the floor, the belt must be fully enclosed according to WAC 296-307-28046 and 296-307-28050 through WAC 296-307-28060.

- (2) In power development rooms, a guardrail may be used instead of the guard.

WAC 296-307-28022 Guarding overhead horizontal belt, rope, and chain drives.

- (1) Unless guarded by location, overhead horizontal belts must be guarded on the sides and bottom according to WAC 296-307-28054.
- (2) Unless guarded by location, horizontal overhead belts must be guarded for their entire length when:
 - (a) Located over passageways or work places and traveling 1,800 feet or more per minute.
 - (b) The center to center distance between pulleys is 10 feet or more.
 - (c) The belt is 8 inches wide or more.
- (3) Where the upper and lower runs of horizontal belts are located so that employees can pass between them, the passage must be either:
 - (a) Completely barred according to WAC 296-307-28046 and 296-307-28050 through WAC 296-307-28060; or
 - (b) In a passage that employees must use, there must be a platform over the lower run guarded on either side by a railing that is completely filled in with wire mesh or other filler, or by a solid barrier. The upper run must be guarded to prevent contact by the employee or by objects carried by the employee.
- (4) Overhead chain and link belt drives must be guarded according to the same requirements as overhead horizontal belts.
- (5) American or continuous system rope drives located where the condition of the rope (particularly the splice) cannot be constantly and conveniently observed, must have an alarm (preferably electric-bell type) that will warn when the rope begins to fray.

WAC 296-307-28024 Guarding vertical and inclined belts.

- (1) Vertical and inclined belts must be guarded according to WAC 296-307-28044 and 296-307-28050 through WAC 296-307-28060.
- (2) All guards for inclined belts must provide a minimum clearance of 7 feet between belt and floor at any point outside of the guard.
- (3) A vertical or inclined belt may be guarded with a nip-point belt and pulley guard, if it is:
 - (a) 2-1/2 inches wide or less;
 - (b) Running at a speed of less than one thousand feet per minute; and
 - (c) Free from metal lacings or fastenings.

Nip-point belt and pulley guard. A device that encloses the pulley and has rounded or rolled edge slots through which the belt passes.

- (4) Vertical belts running over a lower pulley more than seven feet above floor or platform must be guarded according to the same requirements as horizontal overhead belts, if the belt is:
 - (a) Located over passageways or work places and traveling 1,800 feet or more per minute;
 - (b) Eight inches wider or more.

WAC 296-307-28026 Guarding cone-pulley belts.

- (1) The cone belt and pulley must have a belt shifter that adequately guards the nip point of the belt and pulley. If the frame of the belt shifter does not adequately guard the nip point of the belt and pulley, the nip point must be protected by a vertical guard in front of the pulley that extends at least to the top of the largest step of the cone.

Belt shifter. A device for mechanically shifting belts from tight to loose pulleys or vice versa, or for shifting belts on cones of speed pulleys.

- (2) If the belt is endless or laced with rawhide laces, and no belt shifter is used, the belt may be guarded according to the following:
 - (a) The nip point of the belt and pulley is protected by a nip point guard in front of the cone;
 - (b) The guard extends at least to the top of the largest step of the cone; and
 - (c) The guard is formed to show the contour of the cone.
- (3) If the cone is less than 3 feet from the floor or working platform, the cone pulley and belt must be guarded to a height of 3 feet regardless of whether the belt is endless or laced with rawhide.

WAC 296-307-28028 Guarding belt tighteners.

- (1) Suspended counterbalanced belt tighteners and all components must be substantially constructed and securely fastened. The bearings must be securely capped. The employer must provide a mechanism to prevent the tightener from falling in case the belt breaks.

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- (2) Unless guarded by location, suspended counterweights must be encased to prevent accident.
 - (3) Belt tighteners used for starting and stopping machinery, unless held by gravity in the “off” or “out of service” position, must have a mechanism that will hold the belt tightener away from the belt when not in use. The mechanism must automatically grip, latch or otherwise fasten itself to and hold the belt tightener in “off” or “out of service” position until released by hand.

WAC 296-307-28030 Guarding gears, sprockets, and chains.

- (1) Gears must be guarded by one of the following methods:
 - (a) A complete enclosure; or
 - (b) A standard guard according to WAC 296-307-28050 through 296-307-28060, at least 7 feet high extending 6 inches above the mesh point of the gears; or
 - (c) A band guard covering the face of gear. The guard must have flanges extended inward beyond the root of the teeth on the exposed side or sides. If a part of the train of gears guarded by a band guard is less than 6 feet from the floor, the gear must be guarded by a disk guard or by a complete enclosure at least 6 feet tall.
- (2) Hand-operated gears used only to adjust hand-powered machine parts may be unguarded. However, the department recommend guarding these gears.
- (3) Unless guarded by location, all sprocket wheels and chains must be enclosed. Where the drive extends over other machine or working areas, the employer must provide protection against falling parts.

Exception: This section does not apply to manually operated sprockets.

- (4) When gears require frequent oiling, the employer must provide openings with hinged or sliding self-closing covers. All points not readily accessible must have oil feed tubes if lubricant is added while machinery is in motion.

WAC 296-307-28032 Guarding friction drives.

When exposed to contact, the driving point of all friction drives must be guarded. All arm or spoke friction drives and all web friction drives with holes in the web must be entirely enclosed. When exposed to contact, all projecting belts on friction drives must be guarded.

WAC 296-307-28034 Guarding keys, set screws, and other projections.

- (1) All projecting keys, set screws, and other projections in revolving parts must be removed, or made flush, or guarded by metal covers.
- (2) Projections, such as exposed bolts, keys, or set screws that are part of sprockets, grooved pulleys or pulleys on stationary equipment must be shielded unless guarded by location.

Exception: This section does not apply to keys or set screws within gear or sprocket casings or other enclosures, nor to keys, set screws, or oilcups in hubs of pulleys less than 20 inches in diameter where they are within the plane of the rim of the pulley.

Note: We recommend that you not use projecting set screws or oilcups in any revolving pulley or part of machinery.

WAC 296-307-28036 Guarding collars and couplings.

- (1) All revolving collars, including split collars, must be cylindrical.
- (2) Screws or bolts used in collars must not project beyond the largest periphery of the collar.
- (3) Shaft couplings must be constructed to prevent hazard from bolts, nuts, set screws, or revolving surfaces. Bolts, nuts, and set screws are permitted where they are covered with safety sleeves or where they are used parallel with the shafting and are countersunk or where they do not extend beyond the flange of the coupling.

WAC 296-307-28038 Self-lubricating bearings.

The department recommends the employer use self-lubricating bearings. All drip cups and pans must be securely fastened.

WAC 296-307-28040 Guarding clutches, cutoff couplings, and clutch pulleys.

- (1) Unless guarded by location, clutches, cutoff couplings, or clutch pulleys with projecting parts must be enclosed by a stationary guard constructed according to WAC 296-307-28046. The employer may use a "U" type guard.
- (2) In enginerooms, a guardrail, preferably with toeboard, may be used instead of the guard if the room is only occupied by engineroom attendants.
- (3) A bearing support next to a friction clutch or cutoff coupling must have self-lubricating bearings that require infrequent maintenance.

WAC 296-307-28042 Guarding belt shifters, clutches, shippers, poles, perches, and fasteners.

Belt pole (sometimes called a **belt shipper** or **shipper pole**). A device used in shifting belts on and off fixed pulleys on line or countershaft where there are no loose pulleys.

- (1) Tight and loose pulleys must have a permanent belt shifter with a mechanical means to prevent the belt from creeping from loose to tight pulley.
- (2) Belt shifter and clutch handles must be rounded. They must be as far as possible from danger of accidental contact, but within easy reach of the operator. Where belt shifters are not directly over a machine or bench, the handles must be cut off 6 feet 6 inches above floor level.

- (3) All belt and clutch shifters of the same type in each shop should move in the same direction to stop machines, i.e., either all right or all left.

Exception: This requirement does not apply to a friction clutch on a countershaft carrying two clutch pulleys with open and crossed belts. In this case the shifter handle has three positions and the machine is at a standstill when the clutch handle is in the neutral or center position.

- (4) When belt poles must be used as a substitute for mechanical shifters, they must be big enough for employees to grasp them securely. Poles must be smooth and preferably of straight grain hardwood, such as ash or hickory. The edges of rectangular poles should be rounded. Poles should extend from the top of the pulley to within approximately 40 inches of the floor or working platform.
- (5) Where loose pulleys or idlers are not practical, belt perches such as brackets, rollers, etc., must be used to keep idle belts away from the shafts. Perches should be substantial and designed for safe belt shifting.
- (6) Belts that must be shifted by hand and belts within seven feet of the floor or working platform that are not guarded according to WAC 296-307-28046 must not be fastened with metal, nor with any other fastening that creates a hazard.

WAC 296-307-28044 Materials required to use standard guards.

- (1) Standard guards must be made of the following materials:
- (a) Expanded metal;
 - (b) Perforated or solid sheet metal;
 - (c) Wire mesh on a frame of angle iron; or
 - (d) Iron pipe securely fastened to the floor or the frame of the machine.
- (2) Wire mesh should have wires that are securely fastened at every cross point either by welding, soldering, or galvanizing.

Exception: Diamond or square wire mesh made of No. 14 gauge wire, 3/4-inch mesh or heavier is exempt from this requirement.

WAC 296-307-28046 Manufacturing standard guards.

- (1) Guards must be free from burrs, sharp edges, and sharp corners.
- (2) Expanded metal, sheet or perforated metal, and wire mesh must be securely fastened to the frame by one of the following methods:
- (a) Rivets or bolts spaced not more than five inches center to center. In case of expanded metal or wire mesh, metal strips or clips must be used to form a washer for rivets or bolts.
 - (b) Welding to frame every four inches.

- (c) Weaving through channel or angle frame, or, if No. 14 gauge 3/4-inch mesh or heavier is used, by bending entirely around rod frames.
 - (d) To fill openings in pipe railing with expanded metal, wire mesh, or sheet metal, make the filler material into panels with rolled edges or edges bound with "V" or "U" edging. The edging must be of at least No. 24 gauge sheet metal fastened to the panels with bolts or rivets spaced a maximum of 5 inches center to center. The bound panels must be fastened to the railing by sheet-metal clips spaced a maximum of 5 inches center to center.
 - (e) Diamond or square mesh made of crimped wire fastened into channels, angle iron, or round-iron frames may also be used as a filler in guards. Size of mesh must correspond to Table P-1.
- (3) Where guard design requires filler material greater than 12 square feet, additional frame members must be provided to ensure that the panel area is a maximum of 12 square feet.
 - (4) All joints of framework must be as strong as the material of the frame.

WAC 296-307-28048 Disk, shield, and U-guards.

- (1) A disk guard must have a sheet-metal disk of at least No. 22 gauge fastened by U-bolts or rivets to the spokes of pulleys, flywheels, or gears. To prevent contact with sharp edges of the disk, the edge must be rolled or wired. In all cases, the nuts must have locknuts on the unexposed side of the wheel.
- (2) A shield guard must have a frame filled in with wire mesh or expanded, perforated, or solid sheet metal.
- (3) If the shield area is less than six square feet, the wire mesh or expanded metal may be fastened in a framework of 3/8-inch solid rod, 3/4-inch by 3/4-inch by 1/8-inch angle iron, or a metal construction of equivalent strength. Metal shields may have edges entirely rolled around a 3/8-inch solid iron rod.
- (4) A U-guard consisting of a flat surface with edge members must cover the under surface and lower edge of a belt, multiple chain, or rope drive. It must be constructed of materials specified in Table P-1, and must meet the requirements of WAC 296-307-28054 through 296-307-28058. Edges must be smooth and, if the size of the guard requires, be reinforced by rolling, wiring, or by binding with angle or flat iron.

WAC 296-307-28050 Materials used for guards.

The materials and dimensions specified in this section apply to all guards. The materials and dimensions specified are minimum requirements. The employer may choose to provide stronger guards.

Exception: Horizontal overhead belts, rope, cable, or chain guards more than 7 feet above floor, or platform must meet the requirements outlined in Table P-2.

- (1) The framework of all guards must have minimum dimensions of 1-inch by 1-inch by 1/8-inch for angle iron, 3/4-inch inside diameter for metal pipe, or metal construction of equivalent strength.

Exception: Guards thirty inches tall or less with a total surface area of ten square feet or less may have a framework of 3/8-inch solid rod, 3/4-inch by 3/4-inch by 1/8-inch angle iron, or metal construction of equivalent strength. The filling material must correspond to the requirements of Table 1.

- (a) All guards must be rigidly braced every 3 feet of their height to some fixed part of machinery or building structure. Where a guard is exposed to contact with moving equipment additional strength may be necessary.
 - (b) The framework for all guards fastened to the floor or working platform and without other support or bracing must consist of 1-1/2-inch by 1-1/2-inch by 1/8-inch angle iron, metal pipe of 1-1/2-inch inside diameter, or metal construction of equivalent strength. All rectangular guards must have at least four upright frame members that extend to the floor and are securely fastened. Cylindrical guards must have at least three supporting members that extend to the floor.
- (2) Where guards are exposed to unusual wear, deterioration, or impact, heavier material and construction should be used to protect against the specific hazards involved.

WAC 296-307-28052 Wood guards.

Wood guards may be used where fumes would cause rapid deterioration of metal guards and outdoors where extreme cold or extreme heat make metal guards and railings undesirable.

- (1) Wood must be sound, tough, and without loose knots.
- (2) Guards must be made of planed lumber not less than 1-inch rough board measure, with rounded edges and corners.
- (3) Wood guards must be securely fastened together with wood screws, hardwood dowel pins, bolts, or rivets.
- (4) Wood guards must be equal in strength and rigidity to metal guards specified in WAC 296-307-28050 and Table P-1.

Note: Requirements for the construction of standard wood railings are in WAC 296-307-28060.

WAC 296-307-28054 Materials used for guarding horizontal overhead belts.

- (1) Guards for horizontal overhead belts must run the entire length of the belt and follow the line of the pulley to the ceiling or extend to the nearest wall.

Exception: Where belts are located so that it is impractical to extend the guard to wall or ceiling, the guard must completely enclose the top and bottom runs of the belt and the face of pulleys.

- (2) The guard and its supporting parts must be securely fastened to the wall or ceiling by gimlet-point lag screws or through bolts. In masonry, expansion bolts must be used. We recommend using bolts placed horizontally through floor beams or ceiling rafters.
- (3) When necessary, suitable reinforcement must be provided for the ceiling rafters or overhead floor beams to sustain safely the weight and stress imposed by the guard.
- (4) The interior surface of all guards must be smooth and free from projections.

Exception: Where construction demands it, protruding shallow roundhead rivets may be used.

WAC 296-307-28056 Clearance maintained between guards and power transmission machinery.

- (1) Overhead belt guards must be at least one-quarter wider than the belt they protect, with a maximum clearance of 6 inches on each side. Overhead rope-drive and block and roller-chain-drive guards must be at least 6 inches wider than the drive on each side.
- (2) Overhead silent chain-drive guards with the chain held on sprockets must have side clearance of:
 - (a) On drives of 20-inch centers or less, at least 1/4-inch from the nearest moving chain part, and
 - (b) On drives of over 20-inch centers, a minimum of 1/2-inch from the nearest moving chain part.
- (3) Table 2 gives the sizes of materials and construction specifications for guards for belts that are 10 inches wide or more. All materials for overhead belt guards must be at least the size specified in Table 2 for belts 10 to 14 inches wide, even if the overhead belt is less than 10 inches wide. However, No. 20 gauge sheet metal may be used as a filler on guards for belts less than 10 inches wide. Expanded metal, because of the sharp edges, should not be used as a filler in horizontal belt guards.
- (4) For clearance between guards and belts, ropes, or chains see Table P-2.

WAC 296-307-28058 Construction of overhead rope and chain-drive guards.

- (1) Overhead-rope and chain-drive guard construction must meet the requirements for overhead-belt guard construction of similar width.

Exception: The filler material must be solid, according to Table P-2, unless fire hazard demands the use of open construction.

- (2) A side guard member of the same solid filling material should extend 2 inches above the level of the lower run of the rope or chain drive and 2 inches within the periphery of the

pulleys that the guard encloses, forming a trough.

- (3) The side filler members should be reinforced on the edges with 1-1/2-inch by 1/4-inch flat steel, riveted to the filling material at 8 inch centers or less. The reinforcing strip should be fastened or bolted to all guard supporting members with at least one 3/8-inch rivet or bolt at each intersection, and the ends should be secured to the ceiling with lag screws or bolts.
- (4) The filling material must be fastened to the framework of the guard and the filler supports by 3/16-inch rivets spaced on 4-inch centers. Measure the width of a multiple drive from the outside of the first to the outside of the last rope or chain in the group accommodated by the pulley.

WAC 296-307-28060 Materials used for guardrails and toeboards.

- (1) A guardrail used to guard power transmission parts must be 42 inches tall, with a midrail between the top rail and the floor.
- (2) Posts must be 8 feet apart or less. They must be permanent and substantial, smooth, and free from protruding nails, bolts, and splinters. If made of pipe, the post must be at least 1-1/4 inches inside diameter. If posts are made of metal shapes or bars, the section must be as strong as posts made of 1-1/2 by 1-1/2 by 3/16-inch angle iron. If posts are made of wood, the posts must be at least 2 by 4 inches. The upper rail must be 2 by 4 inches, or two 1 by 4 inch strips, one at the top and one at the side of the posts. The midrail must be at least 1 by 4 inches.
- (3) The rails (metal shapes, metal bars, or wood), should be on the side of the posts that gives the best protection and support. Where panels are fitted with expanded metal or wire mesh (as noted in Table 1) the middle rails may be omitted. Where guard is exposed to contact with moving equipment, additional strength may be necessary.
- (4) Toeboards must be at least 4 inches tall, of wood, metal, or metal grill of a maximum 1-inch mesh. Toeboards at flywheel pits should be placed as close to edge of the pit as possible.

TABLE P-1 TABLE OF STANDARDS MATERIALS AND DIMENSIONS

Material	Clearance from moving part at all points (inches)	Largest mesh or opening allowable (inches)	Minimum gauge (U.S. Standard) or thickness (inches)	Minimum height of guard from floor or platform level (feet)
Woven wire	Under 2	3/8	No. 16	7
	2-4	1/2	No. 16	7
	Under 4	1/2	No. 16	7
	4-15	2	No. 12	7
Expanded metal	Under 4	1/2	No. 18	7
	4-15	2	No. 13	7
Perforated metal	Under 4	1/2	No. 20	7

Material	Clearance from moving part at all points (inches)	Largest mesh or opening allowable (inches)	Minimum gauge (U.S. Standard) or thickness (inches)	Minimum height of guard from floor or platform level (feet)
	4-15	2	No. 14	7
Sheet metal	Under 4		No. 22	7
	4-15		No. 22	7
Wood or metal strip crossed	Under 4	3/8	Wood 3/4 Metal No. 16	7
	4-15	2	Wood 3/4 Metal No. 16	7
Wood or metal strip not crossed	Under 4	1/2 width	Wood 3/4 Metal No. 16	7
	4-15	1 width	Wood 3/4 Metal No. 16	7
Standard rail	Min. 15 Max. 20			

**TABLE P-2 HORIZONTAL OVERHEAD BELTS, ROPES, AND CHAINS
7 FEET OR MORE ABOVE FLOOR OR PLATFORM**

	Width 0"-14" inclusive	Material
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MEMBERS

Framework	1 1/2"x1" 1/2"x1/4"	Angle iron
Filler (belt guards)	1 1/2"x3/16"	Flat iron
Filler and vertical side member	No. 20 A.W.G. 2"x5/16" flat iron	Solid sheet metal Flat and angle
Filler supports	2"x5/16"	Flat iron
Guard supports		

FASTENINGS

Filler supports to framework	(2) 3/16"	Rivets
Filler flats to supports (belt guards)	(1) 5/16"	Flush rivets
Filler to frame and supports (chain guard)	3/16" (2) 3/6"	Rivets spaced Rivets or bolts
Guard supports to framework	1/4"x3 1/2" lag screws	

Guard and supports to overhead ceiling	or 1/2" bolt	Lag screws or bolts
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DETAILS-SPACING, ETC.

Width of guards	One-quarter wider than belt, rope, or chain drive
Spacing between filler supports	20" center to center
Spacing between filler flats (belt guards)	2" apart
Spacing between guard supports	36" center to center

OTHER BELT GUARD FILLING PERMITTED

Sheet metal fastened as in chain guards	No. 20 A.W.G. No. 12 A.W.G.	Solid or perforated
Woven wire, 2" mesh		

CLEARANCE FROM OUTSIDE OF BELT, ROPE, OR CHAIN DRIVE TO GUARD

Distance center to center of shafts	Up to 15' inclusive 16"	Over 40' 120"
Clearance from belt, or chain to guard		
	Width over 14" to 24" inclusive	Material

MEMBERS

Framework	2"x2"x5/16"	Angle iron
Filler (belt guards)	2"x3/16"	Flat iron
Filler and vertical side member	No. 18 A.W.G.	Solid sheet metal
Filler supports	2"x3/8" flat iron	Flat and angle
Guard supports	2"x3/8"	Flat iron

TABLE P-2 HORIZONTAL OVERHEAD BELTS, ROPES, AND CHAINS**7 FEET OR MORE ABOVE FLOOR OR PLATFORM (Cont.)**

	Width 0"-14" inclusive	Material
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FASTENING

Filler supports to framework	(2) 3/6"	Rivets
Filler flats to supports (belt guards)	(1) 5/16" 8" centers on sides and 4"	Flush rivets

Filler to frame and supports (chain guards)	centers on bottom (2) 7/16"	Rivets or bolts
Guard supports to framework	5/8"x4" lag screws	
Guard and supports to overhead Ceiling	or 5/8" bolts	Lag screws or bolts

DETAILS-SPACING, ETC.

Width of guards		
Spacing between filler supports		16" C. to C.
Spacing between filler flats (belt guards)		2 1/2" apart
Spacing between guard supports		36" C. to C.

OTHER BELT GUARD FILLING PERMITTED

Sheet metal fastened as in chain guards	No. 18 A.W.G. No. 10 A.W.G.	Solid or perforated
Woven wire, 2" mesh		

CLEARANCE FROM OUTSIDE OF BELT, ROPE, OR CHAIN DRIVE TO GUARD

Distance center to center of shafts	Over 15' to 25' 10"	Over 40' inclusive 20"
Clearance from belt/chain to guard		
	Width over 24"	Material

MEMBERS

Framework	3"x3"x3/8"	Angle iron
Filler (belt guards)	2"x5/16"	Flat iron
Filler and vertical side member	No. A.W.G. 2 1/2"x2 1/2"x1/4" angle	Solid sheet metal Flat and angle
Filler supports	2 1/2"x3/8"	Flat iron
Guard supports		

FASTENING

Filler supports to framework	(3) 1/2"	Rivets
Filler flats to supports (belt guards)	(2) 3/8"	Flush rivets
Filler to frame and supports		

(chain guards) Guard supports to framework Guard and supports to overhead ceiling	(2) 5/8" 3/4"x6" lag screws or 3/4" bolts	Rivets or bolts Lag screws or bolts
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**TABLE P-2 HORIZONTAL OVERHEAD BELTS, ROPES, AND CHAINS
7 FEET OR MORE ABOVE FLOOR OR PLATFORM (Cont.)**

	Width 0"-14" inclusive	Material
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DETAILS-SPACING, ETC.

Width of guards		
Spacing between filler supports		16" C. to C.
Spacing between filler flats (belt guards)		4" apart
Spacing between guard supports		36" C. to C.

OTHER BELT GUARD FILLING PERMITTED

Sheet metal fastened as in chain guards	No. 18 A.W.G. No. 8 A.W.G.	Solid or perforated
Woven wire, 2" mesh		

CLEARANCE FROM OUTSIDE OF BELT, ROPE, OR CHAIN DRIVE TO GUARD

Distance center to center of shafts	Over 25' to 40' inclusive	Over 40'
Clearance from belt, or chain to guard	15"	20"

WAC 296-307-28062 Shafting maintenance.

- (1) Shafting must be kept in alignment, and free from rust and excess oil or grease.
- (2) Where explosives, explosive dusts, flammable vapors or flammable liquids exist, guards must take into account the hazard of static sparks from shafting.

WAC 296-307-28064 Pulley maintenance.

- (1) Pulleys must be kept in proper alignment to prevent belts from running off.
- (2) Any pulley carrying a nonshifting belt should have a crowned face.
- (3) Cast-iron pulleys should be tested frequently with a hammer to detect cracks in rim or spokes. The sound is different depending on whether the belt is or is not on the pulley.
- (4) Split pulleys should be inspected to be sure that all bolts holding together the sections of the pulley are tight.

WAC 296-307-28066 Belt maintenance.

- (1) Quarter-twist belts without an idler can be used on drives running in one direction only. They will run off a pulley when direction is reversed.
- (2) The employer must inspect belts, lacings, and fasteners to be sure they are kept in good repair.
- (3) Dressing should not be applied when the belt or rope is in motion; but, when necessary, it should be applied where belts or rope leave the pulley, not where they approach. The same precautions apply to lubricating chains. In the case of V-belts, belt dressing is neither necessary nor advisable.

WAC 296-307-28068 Maintenance for other equipment.

- (1) The employer must inspect all power-transmission equipment at least every 60 days and ensure that it is kept in good working condition at all times.
- (2) Bearings must be kept in alignment and properly adjusted.
- (3) Hangers must be inspected to ensure that all supporting bolts and screws are tight and that supports of hanger boxes are adjusted properly.
- (4) The oilers must wear tightfitting clothing and should use cans with long spouts to keep their hands out of danger. Machinery must be oiled when not in motion, wherever possible.

WAC 296-307-290 Auger conveying equipment.**WAC 296-307-29005 Requirements that apply to auger conveying equipment.**

Augers. Screw conveyors and related accessories designed primarily for conveying agricultural materials on farms.

- (1) Power take-off shafts must be guarded according to WAC 296-307-28046.
- (2) All augers must be covered or guarded when exposed to contact.
- (3) The employer must ensure that each sweep auger has its top half shielded by a guard. All guard openings must be no larger than 4 3/4 inches across.
- (4) The employer must ensure that the exposed auger at the hopper and the intake is guarded or designed to prevent accidental contact with the rotating inlet area. The guard must extend at least 2 1/2 inches above and below the exposed auger. Openings in the guard, for the free flow of material, must be no larger than 4 3/4 inches across and must be strong enough to support 250 pounds at mid span.
- (5) The hand raising winch must have a control that will hold the auger at any angle, and that will only respond to the control. The employer must ensure that the operator is able to lower the auger without disengaging the control. The maximum force required on the handle to raise or lower the auger manually must be 50 pounds.
- (6) The wire rope lifting pulleys must be grooved to fit the wire rope used.

- (7) In order to avoid separation, the employer must provide a positive restraint between the auger tube and the under-carriage lifting arm. The employer must provide stops that restrict the maximum raised angle and minimum lowered angle.
- (8) Wire ropes (cables) must be rust resistant and selected for the design load and service intended.
- (9) The employer must provide the auger operator with service and operation instructions that include safe operation and servicing practices.

WAC 296-307-29010 Other requirements that apply to auger conveying equipment manufactured after October 25, 1976.

The employer must ensure that auger conveying equipment manufactured after October 25, 1976, is guarded as follows:

- (1) Sweep-arm material-gathering mechanisms used on the top surface of materials within silo structures are guarded. The lower or leading edge of the guard is no more than 12 inches above the material surface and no less than 6 inches in front of the leading edge of the rotating member of the gathering mechanism. The guard is parallel to and extends the fullest practical length of the material gathering mechanism.
- (2) Exposed auger flighting on portable grain augers is guarded with either grating type guards or solid baffle style covers as follows:
 - (a) The largest dimensions or openings in grating type guards through which materials flow is 4-3/4 inches. The opening area is a maximum of 10 square inches. The opening is least 2-1/2 inches from the rotating flighting.
 - (b) Slotted openings in solid baffle style covers are a maximum of 1-1/2 inches wide, or less than 3-1/2 inches from the exposed flighting.

WAC 296-307-300 Guarding farmstead equipment.

WAC 296-307-30003 Scope.

WAC 296-307-300 applies to the guarding and care of farmstead equipment.

Farmstead equipment. Agricultural equipment normally used in a stationary manner. This includes, but is not limited to, materials handling equipment and accessories for such equipment whether or not the equipment is an integral part of a building.

WAC 296-307-30006 Guarding power takeoff shafts of farmstead equipment.

- (1) The employer must ensure that all power takeoff shafts, including rear-mounted, mid-mounted or side-mounted shafts, are guarded either by a master shield or by other protective guarding. The master shield must be strong enough to prevent damaging the shield when a 250-pound operator mounts or dismounts the tractor using the shield as a step.
- (2) Power takeoff driven equipment must be guarded to prevent employee contact with rotating parts of the power drive system. Where power takeoff driven equipment

requires removal of the tractor master shield, the equipment must also include protection from any portion of the tractor power takeoff shaft that protrudes from the tractor.

- (3) Signs must be placed at prominent locations on power takeoff driven equipment specifying that power drive system safety shields must be kept in place.

WAC 296-307-30009 Guarding other power transmission components of farmstead equipment.

- (1) All power transmission parts must be guarded according to WAC 296-307-280.
- (2) Smooth shafts and shaft ends (without any projecting bolts, keys, or set screws) may be unguarded if they:
 - (a) Revolve at less than 10 RPM; and
 - (b) Are part of feed handling equipment used on the top surface of materials in bulk storage facilities.

WAC 296-307-30012 Guarding functional components of farmstead equipment.

The following functional components must be shielded to a degree consistent with the intended function and operator's vision of the component:

- (1) Snapping or husking rolls;
- (2) Straw spreaders and choppers;
- (3) Cutterbars;
- (4) Flail rotors;
- (5) Rotary beaters;
- (6) Mixing augers;
- (7) Feed rolls;
- (8) Rotary tillers; and
- (9) Similar units that must be exposed for proper function.

WAC 296-307-30015 Removing guards on farmstead equipment.

- (1) Guards, shields and access doors must be in place when the equipment is in operation.
- (2) Where removal of a guard or access door will expose an employee to any component that continues to rotate after the power is disengaged, the employer must provide in the immediate area, a safety sign warning the employee:
 - (a) To look and listen for evidence of rotation; and
 - (b) To refrain from removing the guard or access door until all components have stopped.
- (3) On equipment manufactured after October 25, 1976, a readily visible or audible warning of rotation is required.

WAC 296-307-30018 Requirements that apply to electrical control used for maintaining and servicing farmstead equipment.

- (1) The employer must ensure that only the employee maintaining or servicing equipment has control of the electrical power source by:
 - (a) Providing an exclusive, positive locking means on the main switch that can be operated only by the employee performing the maintenance or service; or

- (b) For material handling equipment in a bulk storage structure, by providing on the equipment an electrical or mechanical means to disconnect the power. Minimum lockout means must meet the requirements of WAC 296-307-320.
- (2) All circuit protection devices, including those that are an integral part of a motor, must have a manual reset, except where:
- (a) A manual reset is infeasible because of the nature of the operation, distances involved, and the amount of time normally spent by employees in the area of the affected equipment;
 - (b) An electrical disconnect switch is available to the employee within fifteen feet of the equipment being maintained or serviced; and
 - (c) A sign, prominently posted near each hazardous component, warns the employee that unless the electrical disconnect switch is utilized, the motor could automatically reset while the employee is working on the hazardous component.

WAC 296-307-30021 Additional guarding requirements that apply to farmstead equipment.

- (1) The employer must ensure that carton or bag stitching machines are properly safeguarded to prevent anyone from coming in contact with the stitching head and other pinch or nip points.
- (2) The point of operation of all machines must be guarded. The guard must be designed and constructed to prevent the operator from having any part of the body in the danger zone during the operating cycle.

Note: The distance from the point-of-operation guards to the danger line depends on the size of the opening. The required distances are outlined in the table below:

Guarding line or distance of opening from point of operation hazard (inches)	Maximum width of opening (inches)
1/2 to 1 1/2	1/4
1 1/2 to 2 1/2	3/8
2 1/2 to 3 1/2	1/2
3 1/2 to 5 1/2	5/8
5 1/2 to 6 1/2	3/4
6 1/2 to 7 1/2	7/8
7 1/2 to 12 1/2	1 1/4
12 1/2 to 15 1/2	1 1/2
15 1/2 to 17 1/2	1 7/8

Guarding line or distance of opening from point of operation hazard (inches)	Maximum width of opening (inches)
17 1/2 to 31 1/2	2 1/8

PART Q
CONTROL OF HAZARDOUS ENERGY (LOCKOUT-TAGOUT)

WAC		Page
296-307-320	Control of hazardous energy (lockout-tagout).....	1
296-307-32001	Scope.....	1
296-307-32003	Operations not in scope.....	1
296-307-32005	Definitions that apply to this section.....	2
296-307-32007	Required elements of an energy control program.....	3
296-307-32009	Employer requirements for determining when to use lockout vs. tagout.	3
296-307-32011	Requirements that must be met to substitute tagout for lockout.....	3
296-307-32013	Required elements for energy control procedures.....	4
296-307-32015	Requirements that apply to lockout and tagout devices and materials. ...	5
296-307-32017	Inspecting the energy control procedure.....	5
296-307-32019	General requirements that apply to energy control program training and communication.....	6
296-307-32021	Additional requirements that apply to tagout training and communication.....	6
296-307-32023	Employee retraining.....	7
296-307-32025	Retention of training records.....	7
296-307-32027	Qualifications to perform lockout or tagout.....	7
296-307-32029	Notification of lockout and tagout.....	7
296-307-32031	Order of events for lockout or tagout procedures follow.....	7
296-307-32033	Order of events to be followed to remove lockout or tagout devices.....	8
296-307-32035	Testing and positioning machines and equipment?.....	9
296-307-32037	Outside servicing contractors.....	9
296-307-32039	Group lockout or tagout.....	9
296-307-32041	Lockout/tagout during shift changes.....	10

WAC 296-307-320 Control of hazardous energy (lockout-tagout).

WAC 296-307-32001 Scope.

- (1) WAC 296-307-320 covers the servicing and maintenance of machines and equipment in which the unexpected startup of the machine or equipment or release of stored energy could cause injury to employees. This standard establishes minimum performance requirements for the control of such hazardous energy.
- (2) Normal production operations are not covered by this standard. Servicing and/or maintenance that takes place during normal production operations is covered by this standard only if:
 - (a) An employee is required to remove or bypass a guard or other safety device; or
 - (b) An employee is required to place a body part into a point of operation or where an associated danger zone exists during a machine operating cycle.

Exception: Minor servicing activities, that take place during normal production operations, are not covered by this standard if they are routine, repetitive, and integral to the use of the equipment for production, provided that the work is performed using alternative measures that provide effective protection.

WAC 296-307-32003 Operations not in scope.

- (1) WAC 296-307-320 does not apply to work on cord and plug connected electric equipment when:
 - (a) Unexpected energization or startup of the equipment is controlled by unplugging the equipment from the energy source; and
 - (b) The plug is under the exclusive control of the employee performing the servicing or maintenance.
- (2) WAC 296-307-320 does not apply to hot tap operations involving transmission and distribution systems for substances such as gas, steam, water, or petroleum products when they are performed on pressurized pipelines, when:
 - (a) Continuity of service is essential;
 - (b) Shutdown of the system is impractical; and
 - (c) Documented procedures are followed, and special equipment is used that will provide proven effective protection for employees.
- (3) WAC 296-307-320 does not cover exposure to electrical hazards from work on, near, or with conductors or equipment in electric utilization installations. These hazards are covered in chapter 296-307 WAC Part T.

WAC 296-307-32005 Definitions that apply to this section.

Affected employee. An employee who uses a machine or equipment while it is serviced or maintained under lockout or tagout, or who works where such servicing or maintenance is being performed.

Authorized employee. A person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance covered under this part.

Capable of being locked out. An energy isolating device that has a hasp or other means for a lock to be affixed, or has a locking mechanism built into it. It also means that the device can be locked out without dismantling, rebuilding, or replacing the energy isolating device or permanently altering its energy control capability.

Energized. Connected to an energy source or containing residual or stored energy.

Energy isolating device. A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following:

- (a) A manually operated electrical circuit breaker;
- (b) A disconnect switch;
- (c) A manually operated switch with conductors of circuit that can be disconnected from all ungrounded supply conductors and allows no pole to operate independently;
- (d) A line valve;
- (e) A block; and
- (f) Any similar device used to block or isolate energy.

Push buttons, selector switches, and other control circuit devices are not energy isolating devices.

Energy source. Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy, including gravity.

Hot tap. A procedure used in repair, maintenance, and service activities that involves welding on a piece of equipment (pipelines, vessels, or tanks) under pressure, in order to install connections or accessories. It is commonly used to replace or add sections of pipeline without the interruption of service for air, gas, water, steam, and petrochemical distribution systems.

Lockout. Placing a lockout device on an energy isolating device, in accordance with an established procedure, to ensure that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lockout device. A device with a positive means such as a lock (key or combination type) to hold an energy isolating device in the safe position and prevents the energizing of a machine or equipment. Blank flanges and bolted slip blinds are included.

Normal production operations. Using a machine or equipment for its intended production

function.

Servicing and/or maintenance. Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning, or unjamming of machines or equipment and making adjustments or tool changes, where the employee may be exposed to the unexpected energization or startup of the equipment or release of hazardous energy.

Setting up. Any work performed to prepare a machine or equipment to perform its normal production operation.

Tagout. Placing a tagout device on an energy isolating device, according to an established procedure, to indicate that the energy isolating device and the equipment being controlled must not be operated until the tagout device is removed.

Tagout device. A prominent warning device, such as a tag and attachment, that can be securely fastened to an energy isolating device according to an established procedure, to indicate that the energy isolating device and the equipment being controlled must not be operated until the tagout device is removed.

WAC 296-307-32007 Required elements of an energy control program.

The employer must establish a written energy control program consisting of:

- (1) An energy control procedure;
- (2) Employee training; and
- (3) Periodic inspections.

The purpose of the program is to ensure that before any employee services or maintains a machine or equipment where the unexpected energizing, start up, or release of stored energy could occur and cause injury, the machine or equipment is isolated from the energy source, and rendered inoperative.

WAC 296-307-32009 Employer requirements for determining when to use lockout vs. tagout.

- (1) If an energy isolating device is not capable of being locked out, the employer's energy control program must use a tagout system.
- (2) If an energy isolating device is capable of being locked out, the employer's energy control program must use lockout unless a tagout system will provide full employee protection according to WAC 296-307-32011.
- (3) Whenever major replacement or major repair, renovation, or modification of a machine or equipment is performed, and whenever new machines or equipment are installed, energy isolating devices for such machines or equipment must be designed to accept a lockout device.

WAC 296-307-32011 Requirements that must be met to substitute tagout for lockout.

- (1) The employer must ensure that when a tagout device is used on an energy isolating device that is capable of being locked out, the tagout device is attached at the same location that the lockout device would have been attached. The employer must also ensure that the tagout program will provide safety that is equivalent to a lockout program.
- (2) To demonstrate that a tagout program provides safety that is equivalent to a lockout program, the employer must demonstrate full compliance with all tagout requirements and any other measures necessary to provide equivalent safety. Other measures include:
 - (a) Implementing additional safety measures such as the removal of an isolating circuit element;
 - (b) Blocking a controlling switch;
 - (c) Opening an extra disconnecting device; or
 - (d) Removing a valve handle to reduce the likelihood of inadvertent energization.

WAC 296-307-32013 Required elements for energy control procedures.

- (1) The employer must develop, document, and use procedures to control potentially hazardous energy when employees are engaged in activities covered by this section.

Exception: The employer is exempt from documenting procedures for a particular machine or equipment only when all of the following elements exist:

- (a) The machine or equipment has no potential for stored or residual energy or reaccumulation of stored energy after shut down that could endanger employees;
- (b) The machine or equipment has a single energy source that can be readily identified and isolated;
- (c) The isolation and locking out of that energy source will completely deenergize and deactivate the machine or equipment;
- (d) The machine or equipment is isolated from that energy source and locked out during servicing or maintenance;
- (e) A single lockout device will achieve lockout;
- (f) The lockout device is under the exclusive control of the authorized employee performing the servicing or maintenance;
- (g) The servicing or maintenance does not create hazards for other employees; and
- (h) The worksite has experienced no accidents involving the unexpected activation or reenergization of the machine or equipment during servicing or maintenance.

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- (2) The procedures must clearly and specifically outline the scope, purpose, authorization, rules, and techniques for the control of hazardous energy, and the means to enforce compliance including, but not limited to, the following:
 - (a) A specific statement of the intended use of the procedure;
 - (b) Specific procedural steps for shutting down, isolating, blocking and securing machines or equipment to control hazardous energy;
 - (c) Specific procedural steps for the placement, removal, and transfer of lockout devices or tagout devices and the responsibility for them; and
 - (d) Specific requirements for testing a machine or equipment to determine and verify the effectiveness of lockout devices and tagout devices, and other energy control measures.

WAC 296-307-32015 Requirements that apply to lockout and tagout devices and materials.

- (1) The employer must provide locks, tags, chains, wedges, key blocks, adapter pins, self-locking fasteners, or other hardware for isolating, securing, or blocking machines or equipment from energy sources.
- (2) Lockout and tagout devices must be singularly identified; must be the only device(s) used for controlling energy; must not be used for other purposes.
- (3) Lockout and tagout devices must be durable and meet the following requirements:
 - (a) Lockout and tagout devices must be able to withstand the environment to which they are exposed for the maximum period of time that exposure is expected.
 - (b) Tagout devices must be constructed and printed so that exposure to weather conditions or wet and damp locations will not deteriorate the tag or make the tag's message illegible.
 - (c) Tags must not deteriorate when used in corrosive environments such as areas where acid and alkali chemicals are handled and stored.
- (4) Lockout and tagout devices must be the same within the facility in at least color, shape, or size. Also, tagout devices must have the same print and format.
- (5) Lockout and tagout devices must be substantial and meet the following requirements:
 - (a) Lockout devices must be substantial enough to prevent removal without the use of excessive force or unusual techniques, such as with the use of bolt cutters or other metal cutting tools.
 - (b) Tagout devices and their means of attachment must be substantial enough to prevent accidental removal. Tagout device attachment means must be single-use, attachable by hand, self-locking, releasable with an unlocking strength of at least 50 pounds, and having the general design and basic characteristics of being at least equivalent to a one-piece, all-environment-tolerant nylon cable tie.
 - (c) Lockout and tagout devices must indicate the name of employee applying the device(s).

- (6) Tagout devices must warn against hazardous conditions if the machine or equipment is energized and must include a message such as: "Do not start," "do not open," "do not close," "do not energize," "do not operate."

WAC 296-307-32017 Inspecting the energy control procedure.

- (1) The employer must conduct an inspection of the energy control procedure at least annually to ensure that the procedure and the requirements of this standard are followed.
 - (a) An authorized employee, other than the one(s) using the energy control procedure, must perform the inspection.
 - (b) The inspection must be conducted to correct any deviations or inadequacies identified.
 - (c) Where lockout is used for energy control, the inspection must include a review, between the inspector and each authorized employee, of that employee's responsibilities under the energy control procedure.
 - (d) Where tagout is used for energy control, the inspection must include a review, between the inspector and each authorized and affected employee, of that employee's responsibilities under the energy control procedure, and the elements of WAC 296-307-32021.
- (2) The employer must certify that the inspections have been performed. The certification must identify the machine or equipment on which the energy control procedure was being used, the date of the inspection, the employees included in the inspection, and the person performing the inspection.

WAC 296-307-32019 General requirements that apply to energy control program training and communication.

The employer must provide training to ensure that employees understand the purpose and function of the energy control program, and that employees have the knowledge and skills required for the safe application, use, and removal of the energy controls. The training must include the following:

- (1) Each authorized employee must receive training in the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.
- (2) Each affected employee must be instructed in the purpose and use of the energy control procedure.
- (3) All other employees who work in an area where energy control procedures must be used, must be instructed about the procedure and the prohibition against attempting to restart or reenergize machines or equipment that are locked out or tagged out.

WAC 296-307-32021 Additional requirements that apply to tagout training and communication.

When tagout systems are used, employees must also be trained in the following limitations of tags:

- (1) Tags are warning devices affixed to energy isolating devices, and do not provide the physical restraint on those devices that is provided by a lock.
- (2) When a tag is attached to an energy isolating means, it is not to be removed without approval of the authorized person responsible for it, and it is never to be bypassed, ignored, or otherwise defeated.
- (3) Tags must be legible and understandable by all authorized, affected, and other employees working in the area.
- (4) Tags and their means of attachment must be made of materials that will withstand the environmental conditions encountered in the workplace.
- (5) Tags may create a false sense of security, and their meaning needs to be understood as part of the overall energy control program.
- (6) Tags must be securely attached to energy isolating devices so that they cannot be accidentally detached during use.

WAC 296-307-32023 Employee retraining.

- (1) Authorized and affected employees must be retrained whenever there is a change in job assignments, machines, equipment, or processes that present a new hazard, or when there is a change in the energy control procedures.
- (2) Additional retraining must also be provided whenever an inspection reveals, or whenever the employer believes, that the employee's knowledge or use of the energy control procedures is inadequate.
- (3) Retraining must reestablish employee proficiency and introduce new or revised control methods and procedures, as necessary.

WAC 296-307-32025 Retention of training records.

The employer must keep records that certify that employee training has been completed and is up to date. The records must contain each employee's name and dates of training.

WAC 296-307-32027 Qualifications to perform lockout or tagout.

Lockout or tagout must be performed only by authorized employees performing the service or maintenance.

WAC 296-307-32029 Notification of lockout and tagout.

Affected employees must be notified of the application and removal of lockout or tagout devices. Notification must be given before controls are applied and after they are removed.

WAC 296-307-32031 Order of events for lockout or tagout procedures.

The established lockout or tagout procedures must cover the following elements in the following sequence:

Machinery or equipment shutdown before lockout or tagout:

- (1) Before an authorized or affected employee turns off a machine or equipment, the authorized employee must have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, and the method or means to control the energy.
- (2) The machine or equipment must be turned off or shut down using the procedures established for the machine or equipment. The shutdown must be done in the prescribed order to avoid increased hazards to employees.
- (3) All necessary energy isolating devices must be physically located and operated in such a manner as to isolate the machine or equipment from the energy source.

Application of the lockout or tagout device:

- (4) Lockout or tagout devices must be affixed to each energy isolating device by authorized employees.
- (5) Lockout devices, where used, must be affixed in a manner that will hold the energy isolating devices in a "safe" or "off" position.
- (6) Tagout devices, where used, must be affixed in such a manner as will clearly indicate that the operation or movement of energy isolating devices from the "safe" or "off" position is prohibited.
 - (a) Where tagout devices are used with energy isolating devices designed with the capability of being locked, the tag attachment must be fastened at the same point at which the lock would have been attached.
 - (b) Where a tag cannot be affixed directly to the energy isolating device, the tag must be located as close as safely possible to the device, in a position that will be immediately obvious to anyone attempting to operate the device.

Eliminating the hazards of stored energy:

- (7) After applying lockout or tagout devices to energy isolating devices, all potentially hazardous stored or residual energy must be relieved, disconnected, restrained, and otherwise rendered safe.
- (8) If there is a possibility of reaccumulation of stored energy to a hazardous level, verification of isolation must be continued until the servicing or maintenance is completed, or until the possibility of such accumulation no longer exists.

Before beginning service or maintenance:

- (9) Prior to starting work on machines or equipment that have been locked out or tagged out, the authorized employee must verify that the machine or equipment has been isolated and deenergized.

WAC 296-307-32033 Order of events to be followed to remove lockout or tagout devices.

- (1) Before removing lockout or tagout devices, the authorized employee must complete the following procedures:
 - (a) Inspect the work area to ensure that nonessential items have been removed and to ensure that machine or equipment components are operationally intact.

- (b) Check the work area to ensure that all employees have been safely positioned or removed.
- (2) After lockout or tagout devices have been removed and before a machine or equipment is started, affected employees must be notified that the lockout or tagout device(s) have been removed.
- (3) Each lockout or tagout device must be removed from each energy isolating device by the authorized employee who applied the device.

Exception: When the authorized employee who applied the lockout or tagout device is not available to remove it, that device may be removed under the employer's direction, if specific procedures and training for such removal have been developed, documented, and incorporated into the energy control program.

The employer must ensure that the specific procedure provides equivalent safety to the removal of the device by the authorized employee who applied it. The specific procedure must include at least the following elements:

- (a) Verification by the employer that the authorized employee who applied the device is not at the facility;
- (b) Making all reasonable efforts to inform the authorized employee that the lockout or tagout device has been removed; and
- (c) Ensuring that the authorized employee has this knowledge before resuming work at that facility.

WAC 296-307-32035 Testing and positioning machines and equipment.

When lockout or tagout devices must be temporarily removed from the energy isolating device and the machine or equipment energized to test or position the machine or equipment, the following sequence of actions must be followed:

- (1) Clear the machine or equipment of tools and materials according to WAC 296-307-32033 (1)(a).
- (2) Remove employees from the machine or equipment area according to WAC 296-307-32033 (1)(b).
- (3) Remove the lockout or tagout devices as specified in WAC 296-307-32033(3).
- (4) Energize and proceed with testing or positioning.
- (5) Deenergize all systems and reapply energy control measures in accordance with WAC 296-307-32031 to continue the servicing and/or maintenance.

WAC 296-307-32037 Outside servicing contractors.

- (1) Whenever outside servicing contractors are to be engaged in activities covered by this standard, the employer and the outside employer must inform each other of the employer's respective lockout or tagout procedures.

- (2) The outside employer must ensure that employees understand and comply with the restrictions and prohibitions of the employer's energy control program.

WAC 296-307-32039 Group lockout or tagout.

- (1) When servicing and/or maintenance is performed by a crew or other group, they must use a procedure that provides a level of protection equivalent to that provided by the implementation of a personal lockout or tagout device.
- (2) Group lockout or tagout devices must be used according to the procedures required by WAC 296-307-32013 including, but not limited to, the following:
- (a) An authorized employee has primary responsibility for a set number of employees working under the protection of a group lockout or tagout device (such as an operations lock); and
 - (b) A method for the authorized employee to determine if individual group members are exposed to release of stored energy hazards; and
 - (c) When more than one crew or group is involved, assignment of overall lockout or tagout control responsibility to an authorized employee designated to coordinate individual group members and ensure continuity of protection; and
 - (d) Each authorized employee must affix a personal lockout or tagout device to the group lockout device when beginning work, and must remove those devices when the work is complete.

WAC 296-307-32041 Lockout/tagout during shift changes.

During shift or personnel changes, the employer must ensure that employees follow specific procedures to ensure the continuity of lockout or tagout protection. The procedures must include orderly transfer of lockout or tagout protection between off-going and oncoming employees, to minimize exposure to hazards from the unexpected energization or start-up of the machine or equipment, or release of stored energy.

PART R
SAFETY COLOR CODING; ACCIDENT PREVENTION SIGNS AND TAGS

WAC		Page
296-307-330	Safety color coding; accident prevention signs and tags.....	1
296-307-33001	Definitions that apply to this section.....	1
296-307-33003	Use of red in safety color coding.	1
296-307-33005	Use of yellow in safety color coding.	1
296-307-33007	Use of “danger” versus “caution” on signs and tags.	1
296-307-33009	Design and color specifications for accident prevention signs.	2
296-307-33011	Proper uses of accident prevention tags.	2

WAC 296-307-330 Safety color coding; accident prevention signs and tags.

WAC 296-307-33001 Definitions that apply to this section.

Accident prevention sign. A surface with text or pictographs, meant to warn or instruct employees who may be exposed to hazards. Safety posters and education bulletins are not included in this definition.

Accident prevention tag A card that identifies a hazardous condition, generally related to unsafe equipment.

Major message. The sign's or tag's text that is more specific than the signal word and that identifies the specific hazardous condition or safety instruction. Examples include: "High Voltage," "Close Clearance," "Do not Start," or "Do not Use" or a corresponding pictograph.

Pictograph. A pictorial representation that identifies a specific hazardous condition or safety instruction.

Signal word. The sign's or tag's text that contains the word, usually "danger" or "caution" that is intended to capture the employee's immediate attention.

WAC 296-307-33003 Use of red in safety color coding.

Use red to identify:

- (1) Fire protection equipment;
- (2) Safety cans or other portable containers of flammable liquids;
- (3) Danger signs and tags;
- (4) Emergency stop bars on hazardous machines; and
- (5) Stop buttons or electrical switches used to stop machinery in an emergency.

Red lights must be provided at barricades and at temporary obstructions, as specified in ANSI Safety Code for Building Construction, A10.2-1944.

WAC 296-307-33005 Use of yellow in safety color coding.

Use yellow to identify:

- (1) Caution signs and tags; and
- (2) Physical hazards.

WAC 296-307-33007 Use of "danger" versus "caution" on signs and tags.

- (1) Danger signs and tags.
 - (a) Use danger signs and tags when an immediate hazard presents a threat of death or serious injury to employees.
 - (b) Instruct all employees that danger signs and tags indicate immediate danger and

that special precautions are necessary.

- (2) Caution signs and tags.
 - (a) Use caution signs and tags to warn against potential hazards or to caution against unsafe practices.
 - (b) Instruct all employees that caution signs and tags indicate a possible hazard against which proper precaution should be taken.

WAC 296-307-33009 Design and color specifications for accident prevention signs.

- (1) All signs must have rounded or blunt corners and be free from sharp edges. The ends or heads of bolts or other fastening devices must be located so that they do not constitute a hazard.
- (2) Danger, caution, directional, informational, exit, and safety instruction signs must comply with the specification of safety colors of the ANSI Z53.1-1971.

WAC 296-307-33011 Proper uses of accident prevention tags.

- (1) Use tags as a temporary means of warning employees of a hazardous condition, especially defective equipment. Tags are not a complete warning method, but should be used until the hazard can be eliminated.

For example: The employer may use a “do not start” tag on power equipment for a short time until the switch in the system can be locked out; the employer may use a “defective equipment” tag on a damaged ladder while arrangements are made for the ladder to be taken out of service and repaired.

- (2) Use of accident prevention tags.
 - (a) Use tags as a warning to prevent accidental injury or illness to employees who are exposed to hazardous or potentially hazardous conditions, equipment or operations that are out of the ordinary, unexpected or not readily apparent.
 - (b) Use tags until the identified hazard is eliminated or the hazardous operation is completed. Tags are not necessary if signs, guarding, or other protection is used.
 - (c) Place “do not start” tags in a conspicuous location and, if possible, so that they block the starting mechanism that would cause hazardous conditions if the equipment was energized.
- (3) General accident prevention tag specifications.
 - (a) Tags must contain a signal word and a major message. The signal word must be either “danger” or “caution.”
 - (b) The signal word must be readable at least five feet from the hazard.
 - (c) The signal word and the major message must be understandable to all employees who may be exposed to the identified hazard.

- (d) Inform all employees of the meaning of the tags used throughout the workplace and what special precautions are necessary.
 - (e) Attach tags as closely as is safely possible to the hazard. Attach the tags so as to prevent loss or unintentional removal.
 - (f) The tag and attachment method must be constructed of material that is not likely to deteriorate.
- (4) The employer may use warning tags to represent a hazard level between “caution” and “danger,” instead of the required “caution” tag, if they have a signal word of “warning” and an appropriate major message.
- (5) Use “out of order” tags only to indicate that a piece of equipment, machinery, etc., is out of order and that it might present a hazard if used.

PART S
FIRE PROTECTION; EXIT ROUTES

WAC		Page
296-307-340	Portable fire extinguishers.	1
296-307-34003	Scope.	1
296-307-34006	Exemption from the requirements of this section.	1
296-307-34009	Portable fire extinguishers.	2
296-307-34012	Selection and distribution of portable fire extinguishers.	2
296-307-34015	Inspection, maintenance and testing of portable fire extinguishers.	3
296-307-34018	Hydrostatic testing.	3
296-307-34021	Training requirements for portable fire extinguishers.	5
296-307-345	Employee alarm systems.	6
296-307-34503	Scope.	6
296-307-34506	Employee alarm systems.	6
296-307-34509	Installation and restoration requirements for employee alarm systems. .	6
296-307-34512	Employee alarm system maintenance and testing.	7
296-307-34515	Location(s) of manually operated devices.	7
296-307-350	Exit rooms.	7
296-307-35003	Scope.	7
296-307-35006	Definitions that apply to this section.	7
296-307-35009	Design requirements for exit routes.	7
296-307-35012	Operation and maintenance requirements for exit routes.	9
296-307-35015	Emergency action plan.	10
296-307-35018	Fire prevention plan.	11

WAC 296-307-340 Portable fire extinguishers.**WAC 296-307-34003 Scope.**

- (1) WAC 296-307-340 applies to the placement, use, maintenance, and testing of portable fire extinguishers provided for employee use. WAC 296-307-34012 does not apply to extinguishers provided for employee use on the outside of workplace buildings or structures. If the employer does not intend for employees to use extinguishers, and the employer's emergency action plan and fire prevention plan meet the requirements of WAC 296-307-35018, then only the requirements of WAC 296-307-34015 and 296-307-34018 apply.
- (2) All standpipe and hose systems, automatic sprinkler systems, fixed extinguishing systems, dry-chemical fixed extinguishing systems, water-spray and foam, and fire detection systems, must be installed according to state and local ordinances, codes, and regulations governing such installations.

WAC 296-307-34006 Exemption from the requirements of this section.

- (1) The employer is exempt from all requirements of this section, if:
 - (a) The employer has implemented a written fire safety policy that requires all employees to evacuate immediately when the fire alarm sounds; and
 - (b) The employer has an emergency action plan and a fire prevention plan meeting the requirements of WAC 296-307-35015 and 296-307-35018; and
 - (c) Extinguishers are not available for employee use in the workplace.

Note: If the employer is covered by one of the following sections requiring the employer to provide a portable fire extinguisher, then the employer may not apply this exemption:

1. WAC 296-307-07013(12)--Transporting employees;
2. WAC 296-307-34009(8)--Storage of flammables; or
3. WAC 296-307-49503(2)--Welding.

- (2) The employer is exempt from the distribution requirements in WAC 296-307-34012, if:
 - (a) The employer has an emergency action plan meeting the requirements of WAC 296-307-35015 that authorizes only certain employees to use the available portable fire extinguishers; and
 - (b) The plan requires all other employees to evacuate immediately when the fire alarm sounds.

WAC 296-307-34009 Portable fire extinguishers.

- (1) The employer must provide portable fire extinguishers that are readily accessible to employees without subjecting the employees to possible injury.

- (2) The employer must only use approved portable fire extinguishers.
- (3) Portable fire extinguishers using carbon tetrachloride or chlorobromomethane extinguishing agents are prohibited.
- (4) Water type fire extinguishers with a soldered or riveted shell that use self-generating soda acid or self-generating foam or gas cartridges are prohibited.
- (5) The employer must ensure that all portable fire extinguishers are fully charged, operable, and kept in their designated places at all times except during use.
- (6) The employer must ensure that all portable fire extinguishers are tested, constructed, and used according to the National Fire Protection Association's pamphlet No. 10A-1970.

Note: The supplier of the extinguisher or local fire official can furnish this information.

- (7) The employer must post "no smoking" signs in areas where fire or explosion hazards exist. The employer must prohibit smoking within fifty feet of all refueling operations. Take precautions to prevent open flames, sparks, or electric arcs in refueling areas.
- (8) The employer must keep a portable fire extinguisher with a rating of at least 12-B units outside the door of any room used to store flammables or combustibles. This extinguisher must not be more than ten feet from the door.

WAC 296-307-34012 Selection and distribution of portable fire extinguishers.

- (1) The employer must select and distribute portable fire extinguishers based on the classes of anticipated workplace fires and on the size and degree of hazard that would affect their use.
- (2) Distribution of portable fire extinguishers.
 - (a) For Class A fires: The employer must distribute portable fire extinguishers so that no employee must travel more than 75 feet (22.9 m) to a fire extinguisher.

Exception: The employer may use uniformly spaced standpipe systems or hose stations connected to a sprinkler system for emergency use by employees instead of Class A portable fire extinguishers, if:

1. The system meets all regulatory requirements governing total coverage of the area to be protected; and
2. Employees are trained at least annually in their use.

- (b) For Class B fires: The employer must distribute portable fire extinguishers so that no employee must travel more than 50 feet (15.2 m) to a fire extinguisher.
- (c) For Class C fires: The employer must distribute portable fire extinguishers on the basis of the appropriate pattern for the existing Class A or Class B hazards.
- (d) For Class D fires: The employer must distribute portable fire extinguishers or other containers of Class D extinguishing agent so no employee must travel more than 75

feet (22.9 m) from the combustible metal working area to any extinguishing agent. Portable fire extinguishers for Class D hazards are required in those combustible metal working areas where combustible metal powders, flakes, shavings, or similarly sized products are generated at least once every two weeks.

WAC 296-307-34015 Inspection, maintenance and testing of portable fire extinguishers.

The employer is responsible for the inspection, maintenance, and testing of all portable fire extinguishers in the workplace.

- (2) The employer must visually inspect portable extinguishers or hose at least once a month.
- (3) The employer must ensure that portable fire extinguishers receive an annual maintenance check. The employer must keep records of the maintenance dates for one year after the previous entry or the life of the shell, whichever comes first. The employer must provide us with a copy of the record if we ask for it.
- (4) The employer must ensure that stored-pressure dry chemical extinguishers that require a twelve-year hydrostatic test are emptied and undergo applicable maintenance procedures every six years.

Exception: Dry chemical extinguishers with nonrefillable disposable containers are exempt from this requirement.

The six years begins when recharging or hydrostatic testing is performed.

- (5) The employer must ensure that alternate equivalent protection is provided when portable fire extinguishers are removed from service for maintenance and recharging.

WAC 296-307-34018 Hydrostatic testing.

- (1) The employer must ensure that a trained person performs hydrostatic testing with suitable testing equipment and facilities.
- (2) The employer must ensure that portable extinguishers are hydrostatically tested at the intervals listed in the table below.

Type of Extinguishers	Test interval (years)
Soda acid (stainless steel shell)	5
Cartridge operated water and/or antifreeze	5
Stored pressure water and/or antifreeze	5
Wetting agent	5
Foam (stainless steel shell)	5
Aqueous film forming foam (AFF)	5
Loaded stream	5

Type of Extinguishers	Test interval (years)
Dry chemical with stainless steel	5
Carbon dioxide	5
Dry chemical, stored pressure, with mild steel brazed brass or aluminum shells	12
Dry chemical, cartridge or cylinder operated, with mild steel shells	12
Halon 1211	12
Halon 1301	12
Dry powder, cartridge or cylinder operated, with mild steel shell	12

Exception: Extinguishers must not be hydrostatically tested if the following conditions exist:

- (a) When the unit has been repaired by soldering, welding, brazing, or use of patching compounds; s
- (b) When the cylinder or shell threads are damaged;
- (c) When there is corrosion that has caused pitting, including corrosion under removable nameplate assemblies;
- (d) When the extinguisher has been burned in a fire; or
- (e) When a calcium chloride extinguishing agent has been used in a stainless steel shell.

- (3) In addition to an external visual examination, the employer must ensure that the cylinders and shells are examined internally before the hydrostatic testing.
- (4) The employer must ensure that portable fire extinguishers are hydrostatically tested whenever they show new evidence of corrosion or mechanical injury.
- (5) The employer must ensure that hydrostatic tests are performed on extinguisher hose assemblies that are equipped with a shut-off nozzle at the discharge end of the hose. The test interval must be the same as specified for the extinguisher on which the hose is installed.
- (6) Carbon dioxide hose assemblies with a shut-off nozzle must be hydrostatically tested at 1,250 psi (8,620 kPa).
- (7) Dry chemical and dry powder hose assemblies with a shut-off nozzle must be hydrostatically tested at 300 psi (2,070 kPa).
- (8) Hose assemblies passing a hydrostatic test do not require any type of recording or stamping.
- (9) The employer must ensure that hose assemblies for carbon dioxide extinguishers that require a hydrostatic test are tested within a protective cage device.

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- (10) The employer must ensure that carbon dioxide extinguishers and nitrogen or carbon dioxide cylinders used with wheeled extinguishers are tested every five years at 5/3 of the service pressure as stamped into the cylinder. Nitrogen cylinders that comply with 29 CFR 173.34(e)(15) may be hydrostatically tested every ten years.
 - (11) The employer must ensure that all stored pressure and Halon 1211 types of extinguishers are hydrostatically tested at the factory test pressure not to exceed two times the service pressure.
 - (12) The employer must ensure that self-generating type soda acid and foam extinguishers are tested at 350 psi (2,410 kPa).
 - (13) Air or gas pressure used for hydrostatic testing is prohibited.
 - (14) The employer must remove from the workplace all extinguisher shells, cylinders, or cartridges that fail a hydrostatic pressure test, or that are not fit for testing.
 - (15)
 - (a) Water-jacket equipment must be used for testing compressed gas type cylinders. The equipment must have an expansion indicator that operates with an accuracy within one percent of the total expansion or 0.1 cc (.1 mL) of liquid.
 - (b) The following equipment must be used to test noncompressed gas type cylinders:
 - (i) A hydrostatic test pump, hand or power operated, capable of producing not less than one hundred fifty percent of the test pressure, which must include appropriate check valves and fittings;
 - (ii) A flexible connection for attachment to fittings to test through the extinguisher nozzle, test bonnet, or hose outlet, as is applicable; and
 - (iii) A protective cage or barrier for personal protection of the tester, designed to provide visual observation of the extinguisher under test.
 - (16) The employer must maintain records of the hydrostatic testing. Their records must include:
 - (a) The date of test;
 - (b) The test pressure used;
 - (c) The serial number, or other identifier of the fire extinguisher that was tested; and
 - (d) The person or agency performing the test.

The employer must keep the records until the next testing, or until the extinguisher is taken out of service, whichever comes first. The employer must provide us with copies of the records if we ask for them.

WAC 296-307-34021 Training requirements for portable fire extinguishers.

- (1) If the employer provides portable fire extinguishers for employee use, then the employer must also provide training to familiarize employees with the general principles of fire extinguisher use and the hazards involved in fighting fires when they first appear.

The employer must provide the training when the employee is first hired and at least annually thereafter.

- (2) For employees who have been designated to use firefighting equipment as part of an emergency action plan, the employer must provide training in the use of the appropriate equipment.

The employer must provide the training upon initial assignment to the designated group of employees and at least annually thereafter.

WAC 296-307-345 Employee alarm systems.

WAC 296-307-34503 Scope.

- (1) WAC 296-307-345 applies to all emergency employee alarms required by a specific WAC chapter. This section does not apply to discharge or supervisory alarms required on various fixed extinguishing systems or to supervisory alarms on fire suppression, alarm or detection systems unless they are intended to be employee alarm systems.
- (2) The maintenance, testing, and inspection requirements of this section apply to all local fire alarm signaling systems used for alerting employees regardless of the other functions of the system.
- (3) All pre-discharge employee alarms required by this chapter must meet the requirements of WAC 296-307-34506 and 296-307-34512.

WAC 296-307-34506 Employee alarm systems.

- (1) The employer's employee alarm system must provide warning for necessary emergency action called for in the emergency action plan, or safe escape of employees from the workplace.
- (2) The employer must ensure that all employees can see or hear their employee alarm above normal noise or light levels in the workplace. The employer may use tactile devices to alert employees who cannot see or hear the alarm.
- (3) The employer must ensure that their employee alarm is recognizable as an evacuation signal or signal to perform actions designated under the emergency action plan.
- (4) The employer must explain to each employee how to report emergencies. For example: They may use manual pull box alarms, public address systems, radio or telephones. The employer must post emergency telephone numbers near telephones, or employee notice boards when telephones serve as a means of reporting emergencies. When the employer's communication system also serves as the employee alarm system, the employer must ensure that all emergency messages have priority over all non-emergency messages.
- (5) The employer must establish procedures for sounding emergency alarms in the workplace. If the employer has ten or fewer employees in a workplace, direct voice communication is an acceptable procedure for sounding the alarm if all employees can hear it. In this case, the employer does not need a back-up system.

WAC 296-307-34509 Installation and restoration requirements for employee alarm systems.

- (1) The employer must ensure that all systems installed to comply with this standard are approved. Steam whistles, air horns, strobe lights or similar lighting devices, or tactile devices meeting the requirements of this section must also be approved.
- (2) After each test or alarm, the employer must ensure that all employee alarm systems are restored to normal operating condition as soon as possible. The employer must ensure that spare alarm components are available in sufficient quantities and locations for prompt restoration of the system.

WAC 296-307-34512 Employee alarm system maintenance and testing.

- (1) The employer must ensure that all employee alarm systems are maintained in operating condition except when undergoing repairs or maintenance.
- (2) The employer must ensure that a test of the reliability and adequacy of nonsupervised employee alarm systems is made every two months. The employer must use a different actuation device in each test of a multiactuation device system so that no individual device is used for two consecutive tests.
- (3) The employer must maintain or replace power supplies as often as necessary to ensure fully operational condition. The employer must provide back-up alarms, such as employee runners or telephones, when systems are out of service.
- (4) The employer must ensure that supervised employee alarm circuitry is supervised and that it will provide positive notification to assigned personnel whenever a deficiency exists in the system. The employer must ensure that all supervised employee alarm systems are tested at least annually for reliability and adequacy.
- (5) The employer must ensure that employee alarms are serviced, maintained, and tested by someone trained in the operation and functions necessary for reliable and safe operation of the system.

WAC 296-307-34515 Location(s) of manually operated devices.

The employer must ensure that manually operated actuation devices used with employee alarms are easy to find and accessible.

WAC 296-307-350 Exit routes.**WAC 296-307-35003 Scope.**

WAC 296-307-350 requires the employer to provide exit routes for employees to leave the workplace safely during emergencies. This section does not apply to mobile workplaces, such as vehicles or vessels.

WAC 296-307-35006 Definitions that apply to this section.

Exit. The portion of an exit route that is generally separated from other areas to provide a protected way of travel out of the workplace.

Exit route. A continuous and unobstructed path of exit travel from any point within a workplace to safety outside. An exit route generally consists of three parts: Access to an exit; the area, which provides a way of travel out of the workplace; and the way from the exit to the outside. An exit route includes all vertical and horizontal areas.

WAC 296-307-35009 Design requirements for exit routes.

The employer must ensure that each workplace meets each of the following requirements:

- (1) Each exit is a permanent part of the workplace.
- (2) Two exit routes, remote from one another, are available to provide alternate means for employees to safely leave the workplace during an emergency.
 - (a) A single exit route is permitted where the number of employees, the size of the building, its occupancy, or the arrangement of the workplace indicate that a single exit will allow all employees to exit safely during an emergency. Other means of escape, such as fire exits or accessible windows, should be available where fewer than two exit routes are provided.
 - (b) More than two exit routes are available to allow employees to safely leave the workplace during an emergency where the number of employees, the size of the building, its occupancy, or the arrangement of the workplace reasonably suggest that reliance on two exit routes could endanger employees.
- (3) An exit has only those openings necessary to permit access to, or exit from, occupied areas of the workplace. An opening into an exit is protected by a self-closing fire door that remains closed. Each fire door, its frame, and hardware are listed or approved by a nationally recognized testing laboratory.
- (4) Construction materials used to separate an exit have a 1-hour fire resistance rating if the exit connects three or fewer stories. Construction materials used to separate an exit have a 2-hour fire resistance rating if the exit connects 4 or more stories.
- (5) Free and unobstructed access to each exit route is provided to ensure safe exit during an emergency.
 - (a) The exit route is free of material or equipment.
 - (b) Employees are not required to travel through a room that can be locked, such as a bathroom, or toward a dead end to reach an exit.
 - (c) Stairs or a ramp are used if the exit route is not substantially level.
- (6) An exit leads directly outside or to a street, walkway, refuge area, or to an open space with access to the outside.
 - (a) The street, walkway, refuge area, or open space to which an exit leads is large enough to accommodate all building occupants likely to use that exit.
 - (b) A refuge area is:
 - (i) A space along an exit route protected from the effects of fire either by separation from other spaces within the building or by its location; or

- (ii) A floor with at least two spaces separated by smoke-resistant partitions, in a building where each floor is protected by an automatic sprinkler system. An automatic sprinkler system complies with NFPA No. 13, Automatic Sprinkler Systems.
 - (c) Exit stairs that continue beyond the floor of exit discharge are interrupted by doors, partitions, or other effective means.
- (7) Where a doorway or corner of a building is located near a railroad or trolley track so that an employee is liable to walk upon the track in front of an approaching engine or cars, a standard safeguard must be installed with a warning sign.
- (8) An exit door can be readily opened from the inside without keys, tools, or special knowledge. A device, such as a panic bar, that locks only from the outside is permitted. An exit door is free of any device or alarm that, if it fails, can restrict emergency use of an exit.

<p>Note: An exit door may be locked or blocked from the inside in a mental, penal, or correctional institution, if supervisory personnel are continually on duty and a plan exists to remove occupants during an emergency.</p>
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- (9) The opening device on all doors of walk-in refrigerated or freezer rooms must be the type, when locked from the outside with a lock, can be opened from inside.
- (10) A side-hinged exit door is used to connect any room to an exit route. A door that connects any room to an exit route swings out if the room may be occupied by more than 50 persons or highly flammable or explosive materials may be used inside.
- (11) Each exit route supports the maximum-permitted occupant load for each floor served by the exit route. The capacity of an exit does not decrease with the direction of exit travel.
- (12) Minimum height and width requirements:
- (a) Make sure the exit route has a minimum ceiling height of 7 feet 6 inches and that no projection from the ceiling is less than 6 feet 8 inches from the floor.
 - (b) Objects that stick out into the exit route, such as fans hanging from the ceilings or cabinets on walls, must not reduce the minimum height of the exit route to less than 6 feet 8 inches from the floor.
 - (c) The width of an exit route is at least 28 inches wide at all points between handrails. An exit route is wider than 28 inches if necessary to accommodate the expected occupant load.
 - (d) Objects that project into the exit route do not reduce the minimum height and width of an exit route.
- (13) An outdoor exit route is permitted if it meets the requirements for an indoor exit route and the following additional requirements.
- (a) The exit has guardrails to protect exposed sides.

- (b) The exit route is covered if accumulation of snow or ice is likely and is not removed regularly.
- (c) The exit route is reasonably straight with smooth, solid, substantially level floors.
- (d) The exit route has no dead ends longer than 20 feet.

WAC 296-307-35012 Operation and maintenance requirements for exit routes.

The employer must ensure that each workplace meets the following requirements:

- (1) The workplace exit route is maintained to minimize danger to employees during an emergency.
 - (a) The workplace exit route is free of explosive or highly flammable furnishings or decorations.
 - (b) Accumulations of flammable or combustible waste materials are controlled.
 - (c) An exit route does not require employees to travel toward materials that burn very quickly, emit poisonous fumes, or are explosive, unless those materials are effectively shielded from the exit route.
- (2) Each exit route is adequately lit.
- (3) Each exit is clearly visible and is marked by a distinctive sign reading "exit."
 - (a) An exit door is free of signs or decorations that obscure its visibility.
 - (b) Signs are posted along the exit route indicating the direction of travel to the nearest exit.
 - (c) The line-of-sight to an exit sign is uninterrupted.
 - (d) Any doorway or passage that might be mistaken for an exit is marked "not an exit" or with an indication of its actual use.
 - (e) An exit sign is illuminated to a surface value of at least 5 foot candles by a reliable light source and shows a designated color. Self-luminous or electroluminescent signs have a minimum luminance surface value of .06 footlamberts.
- (4) Fire retardant paints or other coatings used in the workplace are maintained.
- (5) Each safeguard to protect employees during an emergency is maintained in proper working order.
- (6) Employees do not occupy a workplace under construction until an exit route that meets these requirements is available for the portion of the workplace to be occupied.
 - (a) Employees do not occupy a workplace during repair or alteration unless either all exits and existing fire protection are maintained or alternate fire protection is provided that ensures an equivalent level of safety.
 - (b) Flammable or explosive materials used during construction or repair do not expose employees to hazards not otherwise present in the workplace or impede emergency

escape from the workplace.

- (7) An operable employee alarm system with a distinctive signal to warn employees of fire or other emergencies is installed and maintained. No employee alarm system is required if employees can see or smell a fire or other hazard so that it would provide adequate warning to them. The employee alarm system complies with the requirements of WAC 296-307-345.

WAC 296-307-35015 Emergency action plan.

- (1) The employer must develop an emergency action plan for each part of the workplace as required by WAC 296-307-030(3)(d).
 - (a) The plan must be in writing, kept in the workplace, and made available to employees on request.
 - (b) An employer of 10 or fewer employees may communicate the plan orally to employees rather than develop a written plan.
- (2) An emergency action plan must include:
 - (a) Procedures for emergency evacuation, including exit route assignments;
 - (b) Procedures to account for all employees after evacuation;
 - (c) Procedures for reporting a fire or other emergency;
 - (d) Procedures to follow for emergency operation or shut down of critical equipment before evacuation;
 - (e) Procedures to follow for rescue and medical duties;
 - (f) Procedures for operating and maintaining an emergency alarm system; and
 - (g) Names or job titles of employees to be contacted to get more information about what to do in an emergency.
- (3) The employer must designate employees to assist in the safe emergency evacuation of other employees. The employer must ensure that the designated employees receive training in emergency evacuation procedures.
- (4) The employer must review the emergency action plan with each employee covered by the plan:
 - (a) When the plan is developed or the employee is assigned initially to the job;
 - (b) When the employee's responsibilities under the plan change; and
 - (c) When the plan is changed.

WAC 296-307-35018 Fire prevention plan.

- (1) The employer must develop a fire prevention plan for each part of the workplace if required by WAC 296-307-34006(1).

- (a) The plan must be in writing, kept in the workplace, and made available to employees on request.
 - (b) An employer of 10 or fewer employees may communicate the plan orally to employees rather than develop a written plan.
- (2) A fire prevention plan must include:
- (a) A list of all major fire hazards, including proper handling and storage procedures for hazardous materials, potential ignition sources and their control, and the type of fire protection equipment necessary to control each major hazard;
 - (b) Procedures to control accumulations of flammable and combustible waste materials;
 - (c) Procedures for regular maintenance of safeguards installed on heat producing equipment to prevent accidental ignition of combustible materials;
 - (d) Names or job titles of employees responsible for maintaining equipment to prevent or control sources of ignition or fires;
 - (e) Names or job titles of employees responsible for control of fuel source hazards.
- (3) The employer must:
- (a) Inform employees of the fire hazards to which they are exposed; and
 - (b) Review with each employee those parts of the fire prevention plan necessary for self-protection upon initial assignment to a job.

**PART T
ELECTRICAL**

WAC		Page
296-307-360	Electrical.	1
296-307-36005	Scope.....	1
296-307-36010	Definitions that apply to this part.....	1
296-307-362	General electrical requirements.	3
296-307-36203	The following electrical equipment must be approved.....	3
296-307-36206	Determining electrical equipment safety.	3
296-307-36209	Guarding live parts.....	3
296-307-36212	Workspace that must be provided by the employer.....	4
296-307-36215	Splices.	4
296-307-36218	Protection provided against combustible materials.	4
296-307-36221	Marking electrical equipment.....	4
296-307-36224	Marking disconnecting means.	4
296-307-36227	Access and working space for electrical equipment over 600 volts, nominal, or less.	5
296-307-36230	Access and working space for electrical equipment over 600 volts, nominal.	6
296-307-364	Electrical installation and maintenance.	8
296-307-36403	Installation and maintenance of flexible cords and cables.	8
296-307-36406	Installation and maintenance of attachment plugs and receptacles.	8
296-307-36409	Safety measures employees must take when equipment causes electrical shock.	9
296-307-36412	Grounding and bonding requirements that apply to equipment Installation and maintenance.	9
296-307-36415	Disconnecting means.....	9
296-307-36418	Identification and load rating of electrical equipment.....	9
296-307-36421	Installing equipment in wet locations.....	10
296-307-366	Wiring design and protection.	10
296-307-36603	Use and identification of grounded and grounding conductors.	10
296-307-36606	Ampere rating for outlet devices.....	10
296-307-36609	Conductors.....	10
296-307-36612	Design and protection requirements that apply to service-entrances.	11
296-307-36615	Overcurrent protection.....	12
296-307-36618	Grounding for premises wiring systems.	12
296-307-36621	Grounding the conductor in AC premises wiring.....	13
296-307-36624	General requirements that apply to grounding conductors.	13
296-307-36627	Continuous path to ground.....	14
296-307-36630	Grounding supports, enclosures, and equipment.	14
296-307-36633	Grounding fixed equipment.....	16

WAC	Page
296-307-36636	16
296-307-368	17
296-307-36803	17
296-307-36806	17
296-307-36809	18
296-307-36812	19
296-307-36815	19
296-307-36818	20
296-307-36821	20
296-307-36824	20
296-307-36827	20
296-307-36830	21
296-307-36833	21
296-307-36836	22
296-307-36839	22
296-307-36842	22
296-307-36845	22
296-307-36848	23
296-307-36851	24
296-307-36854	25
296-307-36857	25
296-307-36860	25
296-307-370	25
296-307-37003	25
296-307-37006	26
296-307-37009	26
296-307-37012	26
296-307-372	27
296-307-37203	27
296-307-37206	27
296-307-37209	30
296-307-37212	31
296-307-37215	31
296-307-37218	31
296-307-374	31
296-307-37403	31
296-307-37406	33
296-307-37409	33
296-307-37412	34
296-307-376	35
296-307-37603	35

WAC	Page
296-307-37606	Qualified person working on energized parts. 35
296-307-37609	Working near low voltage lines. 35
296-307-37612	Qualified persons working near overhead lines. 35
296-307-37615	Vehicles and mechanical equipment near overhead lines. 35
296-307-37618	Lighting for employees working near exposed energized parts. 36
296-307-37621	Working near exposed energized parts in confined spaces. 36
296-307-37624	Housekeeping requirements that apply to working near exposed energized parts. 37
296-307-37627	Qualified persons that may defeat an electrical safety interlock. 37
296-307-378	Safety-related work practices. 37
296-307-37801	Scope. 37
296-307-37803	Training employees on safety practices. 38
296-307-37805	Identification and use of safety-related work practices. 39
296-307-37807	Work on exposed deenergized parts. 39
296-307-37809	An employer must have a written copy of lockout-tagout procedures. ... 40
296-307-37811	Deenergizing equipment. 40
296-307-37813	Application of locks and tags. 40
296-307-37815	Verifying deenergization. 41
296-307-37817	Reenergizing equipment. 41
296-307-37819	Portable electric equipment. 41
296-307-37821	Electric power and lighting circuits. 42
296-307-37823	Test instruments and equipment. 43
296-307-37825	Flammable materials. 43
296-307-380	Electrical protective equipment. 43
296-307-38003	Use of protective equipment. 43
296-307-38006	General protective equipment and tools. 44
296-307-38009	Manufacturing and marking requirements that apply to electrical protective devices. 44
296-307-38012	Electrical requirements that apply to electrical protective devices. 45
296-307-38015	Workmanship and finish requirements that apply to electrical protective devices. 46
296-307-38018	Use and maintenance of electrical protective devices. 46

WAC 296-307-360 Electrical.

WAC 296-307-36005 Scope.

- (1) Chapter 296-307 WAC Part T covers methods to protect against electrical hazards in agricultural workplaces.
- (2) Chapter 296-307 WAC Part T does not cover:
 - (a) Installations in watercraft, or automotive vehicles; or
 - (b) Electric welding. (See chapter 296-307 WAC Part V.)
- (3) Unless otherwise provided in this chapter all electrical work, installation, and wire capacities must be according to the National Electrical Code, NFPA 70-1973; ANSI C1-1971, and all other applicable standards administered by the department of labor and industries.

WAC 296-307-36010 Definitions that apply to this part.

The following definitions apply to this part:

Acceptable. An installation or equipment that is acceptable to the department and meets the requirements of this section. An installation or equipment is acceptable if:

- (1) It is accepted, certified, listed, labeled, or otherwise determined to be safe by a nationally recognized testing laboratory; or
- (2) For installations or equipment that no nationally recognized testing laboratory accepts, certifies, lists, labels, or determines to be safe, it is inspected or tested by another federal agency, or by state, municipal, or other local authority responsible for enforcing occupational safety provisions of the National Electrical Code, and complies with the provisions of the National Electrical Code, and complies with the provisions of the National Electrical Code as applied in this section; or
- (3) For custom-made equipment or related installations that are designed, fabricated for, and intended for use by a particular customer, it is determined to be safe for its intended use by its manufacturer on the basis of test data that the employer keeps and make available for our inspection.

Accepted. An installation that has been inspected and certified by a nationally recognized testing laboratory to meet specified plans or procedures of applicable codes.

Bonding jumper. A reliable conductor that provides the correct electrical conductivity between metal parts that are required to be electrically connected.

Branch circuits. The part of a wiring system extending beyond the final overcurrent device protecting the circuit. A device not approved for branch circuit protection, such as thermal cutout or motor overload protective device, is not considered as the overcurrent device protecting the circuit.

Certified. Equipment that:

- (a) Has been tested and found by a nationally recognized testing laboratory to meet nationally recognized standards, or to be safe for use in a specified manner; or
- (b) Is a kind whose production is periodically inspected by a nationally recognized testing laboratory; and
- (c) Bears a label, tag, or other record of certification.

Exposed. A live part that can be accidentally touched or approached nearer than a safe distance. This term applies to parts that are not suitably guarded, isolated, or insulated.

Fixed equipment. Equipment fastened or connected by permanent wiring methods.

Ground. A conducting connection, whether intentional or accidental, between an electrical circuit or equipment and earth, or to some conducting body that serves in place of the earth.

Grounded. Connected to earth or to some conducting body that serves in place of the earth.

Isolated. Equipment that is not readily accessible except through special means of access.

Labeled. Equipment that has an attached label, symbol, or other identifying mark of a nationally recognized testing laboratory that:

- (a) Makes periodic inspections of the production of such equipment; and
- (b) Whose labeling indicates compliance with nationally recognized standards or tests to determine safe use in a specified manner.

Qualified person. A person who is familiar with the construction and operation of the equipment and the hazards involved.

Note 1: Whether an employee is considered a “qualified person” depends on various circumstances in the workplace. It is possible and likely for an individual to be considered “qualified” with regard to certain equipment in the workplace, but “unqualified” as to other equipment.

Note 2: An employee undergoing on-the-job training and who, in the course of such training, has demonstrated an ability to perform duties safely at his or her level of training and who is under the direct supervision of a qualified person is considered a qualified person for the performance of those duties.

Shock hazard. Exists at an accessible part in a circuit between the part and ground, or other accessible parts if the potential is more than 42.4 volts peak and the current through a 1,500 ohm load is more than 5 milliamperes.

Weatherproof. Constructed or protected so that exposure to the weather does not interfere with successful operation. Rainproof, raintight, or watertight equipment may be considered weatherproof where weather conditions other than wetness, such as snow, ice, dust, or temperature extremes, are not a factor.

WAC 296-307-362 General electrical requirements.

WAC 296-307-36203 The following electrical equipment must be approved.

The conductors and equipment required or permitted by this section must be approved.

WAC 296-307-36206 Determining electrical equipment safety.

- (1) Electrical equipment must be free from hazards to employees. Safety of equipment must be determined using the following considerations:
 - (a) Suitability for installation and use according to the requirements of this part. Suitability of equipment for a specific purpose may be shown by listing or labeling for that purpose.
 - (b) Mechanical strength and durability, including, for parts designed to enclose and protect other equipment, the adequacy of the protection provided.
 - (c) Electrical insulation.
 - (d) Heating effects under conditions of use.
 - (e) Arcing effects.
 - (f) Classification by type, size, voltage, current capacity, specific use.
 - (g) Other factors that contribute to the practical safeguarding of employees using or likely to come in contact with the equipment.
- (2) Listed or labeled equipment must be used or installed according to any instructions included in the listing or labeling.

WAC 296-307-36209 Guarding live parts.

- (1) Unless otherwise indicated, live parts of electric equipment operating at 50 volts or more must be guarded against accidental contact by an approved cabinet or other form of approved enclosure, or by any of the following:
 - (a) Location in a room, vault, or similar enclosure that is accessible only to qualified persons.
 - (b) Suitable permanent substantial partitions or screens arranged so that only qualified persons have access to the area within reach of the live parts. Any openings in such partitions or screens must be small enough and located so that employees are not likely to come into accidental contact with live parts or to bring conducting objects into contact with them.
 - (c) Location on a suitable balcony, gallery, or platform elevated and accessible only to qualified persons.
 - (d) Elevation of eight feet or more above the floor or other working surface.

- (2) In locations where electric equipment would be exposed to physical damage, enclosures or guards must be arranged and be strong enough to prevent damage.
- (3) Entrances to rooms and other guarded locations containing exposed live parts must be marked with conspicuous warning signs forbidding unqualified persons to enter.
- (4) Electrical repairs must be made only by qualified persons authorized by the employer.
- (5) Fuse handling equipment, insulated for the circuit voltage, must be used to remove or install fuses when the fuse terminals are energized.
- (6) Employees must be prohibited from working closely enough to an electric power circuit to contact it unless the employee is protected against electric shock.

Note: The circuit must be protected by deenergizing the circuit and grounding it, by guarding it, by effective insulation, or other means.

- (7) In work areas where the exact location of underground electric power lines is unknown, employees using jack-hammers, bars or other hand tools that may contact a line must have insulated protective gloves.

WAC 296-307-36212 Workspace that must be provided by the employer.

- (1) When parts are exposed, the minimum clearance for the workspace must be at least six feet six inches high, or at least a radius of three feet wide.
- (2) There must be enough clearance to permit at least a 90° opening of all doors or hinged panels.

WAC 296-307-36215 Splices.

Conductors must be spliced or joined with splicing devices suitable for the use or by brazing, welding, or soldering with a fusible metal or alloy. Soldered splices must first be spliced or joined so they are mechanically and electrically secure without solder and then soldered. (Rosin-core solder should be used instead of acid core solder when joining electrical conductors.) All splices and joints and the free ends of conductors must be covered with an insulation equivalent to that of the conductors or with an insulating device suitable for the purpose.

WAC 296-307-36218 Protection provided against combustible materials.

Parts of electric equipment that in ordinary operation produce arcs, sparks, flames, or molten metal must be enclosed or separated and isolated from all combustible material.

WAC 296-307-36221 Marking electrical equipment.

All electrical equipment in use must have the manufacturer's name, trademark, or other descriptive marking of the organization responsible for the product on the equipment. Other markings must be provided giving voltage, current, wattage, or other ratings as necessary. The marking must be durable enough to withstand the environment.

WAC 296-307-36224 Marking disconnecting means.

Each disconnecting means required by this part for motors and appliances must be legibly marked to indicate its purpose, unless located and arranged so the purpose is evident. Each service, feeder, and branch circuit, at its disconnecting means or overcurrent device, must be legibly marked to indicate its purpose, unless located and arranged so the purpose is evident. These markings must be durable enough to withstand the environment involved.

WAC 296-307-36227 Access and working space for electrical equipment of 600 volts, nominal, or less.

Sufficient access and working space must be provided and maintained about all electric equipment to permit ready and safe operation and maintenance of such equipment.

- (1) Unless otherwise indicated, the dimension of the working space in the direction of access to live parts operating at 600 volts or less and likely to require examination, adjustment, servicing, or maintenance while alive must be at least that indicated in the table below. Also, workspace must be at least 30 inches wide in front of the electric equipment. Distances must be measured from the live parts if they are exposed, or from the enclosure front or opening if the live parts are enclosed. Concrete, brick, or tile walls are considered grounded. Working space is not required behind assemblies such as dead-front switchboards or motor control centers where there are no renewable or adjustable parts such as fuses or switches on the back and where all connections are accessible from other directions.

Working Clearances

Nominal voltage to ground	Minimum clear distance for condition (ft.)		
	(a)	(b)	(c)
0-150	13	13	3
151-600	13	3 1/2	4

Conditions:

- (a) Exposed live parts on one side and no live or grounded parts on the other side of the working space, or exposed live parts on both sides guarded by suitable wood or other insulating material. Insulated wire or insulated busbars operating at 300 volts or less are not considered live parts.
- (b) Exposed live parts on one side and grounded parts on the other side.
- (c) Exposed live parts on both sides of the workspace (not guarded as in (a)) with the operator between.

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- (2) Working space required by this part must not be used for storage. When normally enclosed live parts are exposed for inspection or servicing, the working space, if in a passageway or general open space, must be suitably guarded.
 - (3) At least one entrance of sufficient area must be provided to give access to the working space about electric equipment.
 - (4) Where there are live parts normally exposed on the front of switchboards or motor control centers, the working space in front of such equipment must be at least 3 feet.
 - (5) All working spaces around service equipment, switchboards, panelboards, and motor control centers installed indoors must be adequately lit.
 - (6) The minimum headroom of working spaces about service equipment, switchboards, panelboards, or motor control centers must be 6 feet 3 inches.

Motor control center. An assembly of one or more enclosed sections having a common power bus and principally containing motor control units.

WAC 296-307-36230 Access and working space for electrical equipment over 600 volts, nominal.

- (1) Conductors and equipment used on circuits exceeding 600 volts, nominal, must meet all requirements of WAC 296-307-36221 and the additional requirements of this section. This section does not apply to equipment on the supply side of the service conductors.
- (2) Electrical installations in a vault, room, closet or area surrounded by a wall, screen, or fence, with access controlled by lock and key or other approved means, are considered accessible to qualified persons only. A wall, screen, or fence less than 8 feet high is not considered to prevent access unless it has other features that provide a degree of isolation equivalent to an 8 foot fence. The entrances to all buildings, rooms, or enclosures containing exposed live parts or exposed conductors operating at over 600 volts, nominal, must be kept locked or under the observation of a qualified person at all times.
 - (a) Electrical installations with exposed live parts must be accessible to qualified persons only.
 - (b) Electrical installations that are open to unqualified persons must be made with metal-enclosed equipment or enclosed in a vault or in an area, with access controlled by a lock. If metal-enclosed equipment is installed so that the bottom of the enclosure is less than 8 feet above the floor, the door or cover must be kept locked. Metal-enclosed switchgear, unit substations, transformers, pull boxes, connection boxes, and other similar associated equipment must be marked with appropriate caution signs. If equipment is exposed to physical damage from vehicular traffic, guards must be provided to prevent damage. Ventilating or similar openings in metal-enclosed equipment must be designed so that foreign objects inserted through these openings will be deflected from energized parts.
- (3) The employer must provide and maintain enough space around electric equipment to permit ready and safe operation and maintenance of equipment. Where

energized parts are exposed, the minimum clear workspace must be at least 6 feet 6 inches high (measured vertically from the floor or platform), or less than 3 feet wide (measured parallel to the equipment). The depth must meet the requirements of Table T. The workspace must be adequate to permit at least a 90-degree opening of doors or hinged panels.

- (a) The minimum clear working space in front of electric equipment such as switchboards, control panels, switches, circuit breakers, motor controllers, relays, and similar equipment must be at least that specified in Table T unless otherwise indicated. Distances must be measured from the live parts if they are exposed, or from the enclosure front or opening if the live parts are enclosed. However, working space is not required in back of equipment such as deadfront switchboards or control assemblies where there are no renewable or adjustable parts (such as fuses or switches) on the back and where all connections are accessible from another direction. Where rear access is required to work on deenergized parts on the back of enclosed equipment, a minimum working space of 30 inches horizontally must be provided.

Table T Minimum Depth of Clear Working Space in Front of Electric Equipment

Nominal voltage to ground	Conditions (ft.)		
	(a)	(b)	(c)
601 to 2,500	3	4	5
2,501 to 9,000	4	5	6
9,001 to 25,000	5	6	9
25,001 to 75kV ¹	6	8	10
Above 75kV ¹	8	10	12

Note: Minimum depth of clear working space in front of electric equipment with a nominal voltage to ground above 25,000 volts may be the same as for 25,000 volts under conditions (a), (b) and (c) for installations built prior to April 16, 1981.

Conditions:

- a. Exposed live parts on one side and no live or grounded parts on the other side of the working space, or exposed live parts on both sides guarded by suitable wood or other insulating materials. Insulated wire or insulated busbars operating at 300 volts or less are not considered live parts.
 - b. Exposed live parts on one side and grounded parts on the other side. Concrete, brick, or tile walls will be considered grounded surfaces.
 - c. Exposed live parts on both sides of the workspace (not guarded as in (a)) with the operator between.
- (b) All working spaces around electric equipment must be adequately lit. The lighting

outlets must be arranged so that anyone changing lamps or making repairs on the lighting system will not be endangered by live parts or other equipment. The points of control must be located so that no one is likely to come in contact with any live part or moving part of the equipment while turning on the lights.

- (c) Unguarded live parts above working space must be elevated to at least the height specified below:

Elevation of Unguarded Energized Parts Above Working Space

Nominal voltage between phases	Minimum elevation
601 to 7,500	8 feet 6 inches
7,501 to 35,000	9 feet
Over 35kV	9 feet + 0.37 inches per kV above 35kV

Note: Minimum elevation may be 8 feet for installations built prior to April 16, 1981, if the nominal voltage between phases is in the range of 601-6600 volts.

- (4) Entrance and access to workspace must meet the following requirements:
 - (a) At least one entrance that is at least 24 inches wide and 6 feet 6 inches high must be provided to give access to the working space around electric equipment. On switchboard and control panels over 48 inches wide, there must be one entrance at each end of the board where practical. Where bare energized parts at any voltage or insulated energized parts above 600 volts are located adjacent to the entrance, they must be suitably guarded.
 - (b) Permanent ladders or stairways must be provided to give safe access to the working space around electric equipment installed on platforms, balconies, mezzanine floors, or in attic or roof rooms or spaces.

WAC 296-307-364 Electrical installation and maintenance.

WAC 296-307-36403 Installation and maintenance of flexible cords and cables.

- (1) Extension cords used with portable electric tools and appliances must be three wire and must be fitted with an approved grounding attachment plug and receptacle providing ground continuity.

Exception:

This does not apply to cords used with portable tools and equipment provided by an approved system of double insulation or its equivalent.

- (2) Worn or frayed electric cables are prohibited.

WAC 296-307-36406 Installation and maintenance of attachment plugs and receptacles.

- (1) Attachment plugs used in work areas must be constructed so that they will endure rough use and have a suitable cord grip to prevent strain on the terminal screws.
- (2) Attachment plugs must be approved grounding plugs.
- (3) Receptacles for attachment plugs must have approved concealed contacts with a contact for extending ground continuity. Receptacles must be designed and constructed to ensure that the plug can be pulled out without leaving any live parts exposed to accidental contact.
- (4) Polarized attachment plugs, receptacles, and cord connectors must be wired to maintain continuity.
- (5) Polarized attachment plugs, receptacles, and cord connectors for plugs and polarized plugs must have the terminal intended for connection to the grounded (white) conductor identified by a metal coating that is mostly white. If the terminal is not visible, its entrance hole must be marked with the word "white," or the color white.
- (6) The terminal for the connection of the equipment grounding conductor must be:
 - (a) A green colored, not easily removed terminal screw with hexagonal head; or
 - (b) A green colored, hexagonal, not easily removed terminal nut; or
 - (c) A green colored pressure wire connector.

If the terminal for the grounding conductor is not visible, the conductor entrance hole must be marked with the word "green" or the color green.

Note: Two-wire attachment plugs, unless of the polarity type, need not have their terminals marked for identification.

- (7) Where different voltages, or types of current (A.C. or D.C.) are to be supplied by portable cords, receptacles must be designed so that attachment plugs used on the circuits are not interchangeable.
- (8) Attachment plugs or other connectors supplying equipment at more than 300 volts must be skirted or otherwise designed so that arcs are confined.

WAC 296-307-36409 Safety measures employees must employees must take when equipment causes electrical shock.

Employees must report all shocks received from electrical equipment, no matter how slight, immediately to the employer. The equipment causing the shock must be checked and any necessary corrective action taken immediately.

WAC 296-307-36412 Grounding and bonding requirements that apply to equipment installation and maintenance.

- (1) The path to ground must have enough carrying capacity to conduct safely the currents likely to be imposed on it; and have low enough impedance to limit the potential above ground and to result in the operation of the overcurrent devices in the circuit.
- (2) Driven rod electrodes must, where practical, have a resistance to ground of a maximum of 25 ohms. Where the resistance is over 25 ohms, two electrodes connected in parallel must be used.
- (3) Grounding circuits must be checked to ensure that the circuit between the ground and the grounded power conductor has a resistance that is low enough to permit sufficient current to flow to cause the fuse or circuit breaker to interrupt the current.
- (4) Conductors used for bonding and grounding equipment must be large enough to carry the anticipated current.

WAC 296-307-36415 Disconnecting means.

- (1) Disconnecting means must be located or shielded so that employees will not be injured. Using open knife switches is prohibited.
- (2) Boxes for disconnecting means must be securely and rigidly fastened to the surface upon which they are mounted, and fitted with covers.

WAC 296-307-36418 Identification and load rating of electrical equipment.

- (1) Name plates, rating data, and marks of identification on electrical equipment and electrically operated machines must not be removed, defaced or obliterated.
- (2) In existing installations, no changes in circuit protection must be made to increase the load beyond the load rating of the circuit wiring, as specified in the National Electrical Code, NFPA 70-1973; ANSI C1-1972, Article 310.
- (3) Tampering with, bridging, or using oversize fuses is prohibited. If fuses blow repeatedly, employees must immediately report the trouble to the employer or to an authorized electrician.
- (4) Attempting to start electric motors that kick out repeatedly is prohibited.

WAC 296-307-36421 Installing equipment in wet locations.

- (1) Cabinets, cutout boxes, fittings, boxes, and panelboard enclosures in damp or wet locations must be installed to prevent moisture or water from entering and accumulating within the enclosures. In wet locations the enclosures must be weatherproof.
- (2) Switches, circuit breakers, and switchboards installed in wet locations must be enclosed in weatherproof enclosures.

WAC 296-307-366 Wiring design and protection.

WAC 296-307-36603 Use and identification of grounded and grounding conductors.

- (1) A conductor used as a grounded conductor must be identified separately from all other conductors. A conductor used as an equipment grounding conductor must be identified separately from all other conductors.
- (2) A grounded conductor must not be attached to any terminal or lead to reverse the designated polarity.
- (3) Using a grounding terminal or grounding-type device on a receptacle, cord connector, or attachment plug for anything other than grounding is prohibited.

WAC 296-307-36606 Ampere rating for outlet devices.

Outlet devices must have an ampere rating at least equal to the load served.

WAC 296-307-36609 Conductors.

This section applies to branch circuit, feeder, and service conductors rated 600 volts, nominal, or less and run outdoors as open conductors.

- (1) Conductors supported on poles must provide a horizontal climbing space of at least the following:
 - (a) For power conductors below communication conductors, 30 inches.
 - (b) For power conductors alone or above communication conductors:
 - (i) 300 volts or less, 24 inches;
 - (ii) More than 300 volts, 30 inches.
 - (c) For communication conductors below power conductors with power conductors of:
 - (i) 300 volts or less, 24 inches;
 - (ii) More than 300 volts, 30 inches.
- (2) Open conductors must provide at least the following minimum clearances:
 - (a) 10 feet, above finished grade, sidewalks, or from any platform or projection from which they might be reached;
 - (b) 12 feet, over areas subject to vehicular traffic other than truck traffic;
 - (c) 15 feet, over areas that are subject to truck traffic; except
 - (d) 18 feet, over public streets, alleys, roads, and driveways.
- (3) Conductors must have a clearance of at least 3 feet from windows, doors, porches, fire escapes, or similar locations. Conductors run above the top level of a window are

considered to be out of reach from that window and, therefore, do not have to be 3 feet away.

- (4) Conductors must have a clearance of at least 8 feet from the highest point of roofs they pass over.

Exceptions:

- (a) Where the voltage between conductors is 300 volts or less and the roof has a slope of at least 4 inches in 12, the clearance from the roofs must be at least 3 feet; or
- (b) Where the voltage between conductors is 300 volts or less, the conductors do not pass over more than 4 feet of the overhang portion of the roof, and they are terminated at a through-the-roof raceway or approved support, the clearance from the roofs must be at least 18 inches.

- (5) Lamps for outdoor lighting must be located below all live conductors, transformers, or other electric equipment, unless such equipment is controlled by a disconnecting means that can be locked in the open position or unless adequate clearances or other safeguards are provided for relamping operations.

WAC 296-307-36612 Design and protection requirements that apply to service-entrances.

- (1) Disconnecting means for service-entrances must meet the following requirements:
- (a) Means must be provided to disconnect all conductors in a building or other structure from the service-entrance conductors. The disconnecting means must plainly indicate whether it is in the open or closed position and must be installed at a readily accessible location nearest the point of entrance of the service-entrance conductors.
 - (b) Each service disconnecting means must disconnect all ungrounded conductors at the same time.
- (2) The following additional requirements apply to services over 600 volts, nominal.
- (a) Service-entrance conductors installed as open wires must be guarded to make them accessible only to qualified persons.
 - (b) Signs warning of high voltage must be posted where other than qualified employees might come in contact with live parts.

WAC 296-307-36615 Overcurrent protection.

- (1) The following requirements apply to overcurrent protection of circuits rated 600 volts, nominal, or less.
- (a) Conductors and equipment must be protected from overcurrent according to their ability to safely conduct current.

- (b) Except for motor running overload protection, overcurrent devices must not interrupt the continuity of the grounded conductor unless all conductors of the circuit are opened at the same time.
 - (c) Except for service fuses, all cartridge fuses that are accessible to other than qualified persons and all fuses and thermal cutouts on circuits over 150 volts to ground must have disconnecting means. This disconnecting means must be installed so that the fuse or thermal cutout can be disconnected from its supply without disrupting service to equipment and circuits unrelated to those protected by the overcurrent device.
 - (d) Overcurrent devices must be readily accessible to each employee or authorized building management personnel. These overcurrent devices must be located where they will be protected against physical damage and away from easily ignitable material.
 - (e) Fuses and circuit breakers must be located or shielded so that employees will not be burned or otherwise injured by their operation.
 - (f) Circuit breakers must meet the following requirements:
 - (i) Circuit breakers must clearly indicate whether they are in the open (off) or closed (on) position.
 - (ii) Where circuit breaker handles on switchboards are operated vertically rather than horizontally or rotationally, the up position of the handle must be the closed (on) position.
 - (iii) If used as switches in 120-volt, fluorescent lighting circuits, circuit breakers must be approved for the purpose and marked "SWD."
- (2) Feeders and branch circuits over 600 volts, nominal, must have short-circuit protection.

WAC 296-307-36618 Grounding for premises wiring systems.

The following systems that supply premises wiring must be grounded:

- (1) All 3-wire DC systems must have their neutral conductor grounded.
- (2) Two-wire DC systems operating at 50-300 volts between conductors must be grounded.

Exception: This requirement does not apply if:

1. They supply only industrial equipment in limited areas and are equipped with a ground detector; or
2. They are rectifier-derived from an AC system that meets the requirements of subsections (3), (4), and (5) of this section; or
3. They are fire-protective signaling circuits with a maximum current of 0.030 amperes.

- (3) AC circuits of less than 50 volts must be grounded if they are installed as overhead conductors outside of buildings or if they are supplied by transformers and the transformer primary supply system is ungrounded or exceeds 150 volts to ground.

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- (4) AC systems of 50-1000 volts must be grounded under any of the following conditions:
- (a) If the system can be grounded so that the maximum voltage to ground on the ungrounded conductors is a maximum of 150 volts;
 - (b) If the system is nominally rated 480Y/277 volt, 3-phase, 4-wire in which the neutral is used as a circuit conductor;
 - (c) If the system is nominally rated 240/120 volt, 3-phase, 4-wire in which the midpoint of one phase is used as a circuit conductor; or
 - (d) If a service conductor is uninsulated.
- (5) Exceptions: AC systems of 50-1000 volts are not required to be grounded under any of the following conditions:
- (a) If the system is used exclusively to supply industrial electric furnaces for melting, refining, tempering, and the like.
 - (b) If the system is separately derived and is used exclusively for rectifiers supplying only adjustable speed industrial drives.
 - (c) If the system is separately derived and is supplied by a transformer that has a primary voltage rating less than 1000 volts, if all of the following conditions are met:
 - (i) The system is used exclusively for control circuits;
 - (ii) The conditions of maintenance and supervision ensure that only qualified persons will service the installation;
 - (iii) Continuity of control power is required; and
 - (iv) Ground detectors are installed on the control system.

WAC 296-307-36621 Grounding the conductor in AC premises wiring.

For AC premises wiring systems the identified conductor must be grounded.

WAC 296-307-36624 General requirements that apply to grounding conductors.

- (1) For a grounded system, a grounding electrode conductor must be used to connect both the equipment grounding conductor and the grounded circuit conductor to the grounding electrode. Both the equipment grounding conductor and the grounding electrode conductor must be connected to the grounded circuit conductor on the supply side of the service disconnecting means, or on the supply side of the system disconnecting means or overcurrent devices if the system is separately derived.
- (2) For an ungrounded service-supplied system, the equipment grounding conductor must be connected to the grounding electrode conductor at the service equipment. For an ungrounded separately derived system, the equipment grounding conductor must be connected to the grounding electrode conductor at, or ahead of, the system disconnecting means or overcurrent devices.

- (3) On extensions of existing branch circuits that do not have an equipment grounding conductor, grounding-type receptacles may be grounded to a grounded cold water pipe near the equipment.

WAC 296-307-36627 Continuous path to ground.

The path to ground from circuits, equipment, and enclosures must be permanent and continuous.

WAC 296-307-36630 Grounding supports, enclosures, and equipment.

- (1) Metal cable trays, metal raceways, and metal enclosures for conductors must be grounded.

Exceptions:

1. Metal enclosures such as sleeves that are used to protect cable assemblies from physical damage need not be grounded; or
2. Metal enclosures for conductors added to existing installations of open wire, knob-and-tube wiring, and nonmetallic-sheathed cable need not be grounded if all of the following conditions are met:
 - a. Runs are less than 25 feet;
 - b. Enclosures are free from probable contact with ground, grounded metal, metal laths, or other conductive materials; and
 - c. Enclosures are guarded against employee contact.

- (2) Metal enclosures for service equipment must be grounded.
- (3) Frames of electric ranges, wall-mounted ovens, counter-mounted cooking units, clothes dryers, and metal outlet or junction boxes that are part of the circuit for these appliances must be grounded.
- (4) Exposed noncurrent-carrying metal parts of fixed equipment that may become energized must be grounded under any of the following conditions:
- (a) If within 8 feet vertically or 5 feet horizontally of ground or grounded metal objects and subject to employee contact;
 - (b) If located in a wet or damp location and not isolated;
 - (c) If in electrical contact with metal;
 - (d) If in a hazardous (classified) location;
 - (e) If supplied by a metal-clad, metal-sheathed, or grounded metal raceway wiring method;
 - (f) If equipment operates with any terminal at over 150 volts to the ground; however, the following need not be grounded:

- (i) Enclosures for switches or circuit breakers used for other than service equipment and accessible to qualified persons only;
 - (ii) Metal frames of electrically heated appliances that are permanently and effectively insulated from ground; and
 - (iii) The cases of distribution apparatus such as transformers and capacitors mounted on wooden poles that are over 8 feet above ground or grade level.
- (5) Under any of the conditions below, exposed noncurrent-carrying metal parts of cord-connected and plug-connected equipment that may become energized must be grounded.
- (a) When equipment is in hazardous (classified) locations.
 - (b) When equipment is operated at over 150 volts to ground.

Exception: Guarded motors and metal frames of electrically heated appliances need not be grounded if the appliance frames are permanently and effectively insulated from ground.

- (c) When equipment is one of the following:
 - (i) Refrigerators, freezers, and air conditioners;
 - (ii) Clothes-washing, clothes-drying and dishwashing machines, sump pumps, and electrical aquarium equipment;
 - (iii) Hand-held motor-operated tools;
 - (iv) The following motor-operated appliances: Hedge clippers, lawn mowers, snow blowers, and wet scrubbers;
 - (v) Cord-connected and plug-connected appliances used in damp or wet locations or by employees standing on the ground or on metal floors or working inside of metal tanks or boilers;
 - (vi) Tools likely to be used in wet and conductive locations; and
 - (vii) Portable hand lamps.

Tools likely to be used in wet and conductive locations need not be grounded if supplied through an isolating transformer with an ungrounded secondary of a maximum of 50 volts. Listed or labeled portable tools and appliances protected by an approved system of double insulation, or its equivalent, need not be grounded. The equipment must be distinctively marked to indicate that the tool or appliance uses an approved system of double insulation.

- (6) The metal parts of the following nonelectrical equipment must be grounded: Frames and tracks of electrically operated cranes; frames of nonelectrically driven elevator cars to which electric conductors are attached; hand operated metal shifting ropes or cables of electric elevators, and metal partitions, grill work, and other metal enclosures around equipment of over 750 volts between conductors.

WAC 296-307-36633 Grounding fixed equipment.

- (1) Noncurrent-carrying metal parts of fixed equipment, if required to be grounded by this section, must be grounded by an equipment grounding conductor that is contained within the same raceway, cable, or cord, or runs with or encloses the circuit conductors. For DC circuits only, the equipment grounding conductor may be run separately from the circuit conductors.
- (2) Electric equipment is considered grounded if it is secured to, and in electrical contact with, a metal rack or structure that is provided for its support and the metal rack or structure is grounded as described above.

For installations made before May 30, 1982, electric equipment is also considered grounded if it is secured to, and in metallic contact with, the grounded structural metal frame of a building. Metal car frames supported by metal hoisting cables attached to or running over metal sheaves or drums of grounded elevator machines are also considered grounded.

WAC 296-307-36636 Grounding high voltage systems.

Grounded high voltage (1000 volts or more) systems and circuits must meet all requirements of WAC 296-307-366 and the additional requirements of this section.

- (1) Systems supplying portable or mobile high voltage equipment, other than substations installed on a temporary basis, must meet the following requirements:
 - (a) Portable and mobile high voltage equipment must be supplied from a system having its neutral grounded through an impedance. If a delta-connected high voltage system is used to supply the equipment, a system neutral must be derived.
 - (b) Exposed noncurrent-carrying metal parts of portable and mobile equipment must be connected by an equipment grounding conductor to the point at which the system neutral impedance is grounded.
 - (c) Ground-fault detection and relaying must be provided to automatically deenergize any high voltage system component that has developed a ground fault. The continuity of the equipment grounding conductor must be continuously monitored to deenergize automatically the high voltage feeder to the portable equipment on loss of continuity of the equipment grounding conductor.
 - (d) The grounding electrode to which the portable or mobile equipment system neutral impedance is connected must be isolated from and separated in the ground by at least 20 feet from any other system or equipment grounding electrode. There must be no direct connection between the grounding electrodes, such as buried pipe, fence, etc.
- (2) All noncurrent-carrying metal parts of portable equipment and fixed equipment including their associated fences, housings, enclosures, and supporting structures must be grounded. However, equipment that is guarded by location and isolated from ground need not be grounded. Additionally, pole-mounted distribution apparatus over 8 feet above ground or grade level need not be grounded.

WAC 296-307-368 Wiring methods, components, and equipment for general use.

WAC 296-307-36803 Factory-assembled equipment.

WAC 296-307-368 does not apply to conductors that are an integral part of factory-assembled equipment.

WAC 296-307-36806 Temporary wiring.

Temporary electrical power and lighting wiring methods may be of a class less than would be required for a permanent installation. All requirements for permanent wiring apply to temporary wiring installations, except as indicated in this section.

- (1) Temporary electrical power and lighting installations 600 volts, nominal, or less must only be used:
 - (a) During and for remodeling, maintenance, repair, or demolition of buildings, structures, or equipment, and similar activities;
 - (b) For experimental or development work; and
 - (c) For a maximum of 90 days for Christmas lighting and similar purposes.
- (2) Temporary wiring over 600 volts, nominal, must only be used during periods of tests, experiments, or emergencies.
- (3) General requirements for temporary wiring.
 - (a) Working spaces, walkways, and similar locations must be kept clear of power cords.
 - (b) All temporary wiring must be grounded. (See NFPA 70 Art. 250.)
 - (c) All wiring equipment must be maintained as vapor-tight, dust-tight, or fiber-tight as their approval requires. There must be no loose or missing screws, gaskets, threaded connections, or other conditions that impair the required tightness.
 - (d) Take precautions to make necessary open wiring accessible only to authorized personnel.
 - (e) Feeders must originate in an approved distribution center. The conductors must be run as multiconductor cord or cable assemblies, or, where not subject to physical damage, they may be run as open conductors on insulators not more than 10 feet apart.
 - (f) Branch circuits must originate in an approved power outlet or panelboard. Conductors must be multiconductor cord or cable assemblies or open conductors. If run as open conductors they must be fastened at ceiling height every 10 feet. A branch-circuit conductor must not be laid on the floor. Each branch circuit that supplies receptacles or fixed equipment must have a separate equipment grounding conductor if run as open conductors.
 - (g) Receptacles must be of the grounding type. Unless installed in a complete metallic raceway, each branch circuit must have a separate equipment grounding conductor and all receptacles must be electrically connected to the grounding conductor.
 - (h) A bare conductor or an earth return must not be used to wire any temporary circuit.
 - (i) Suitable disconnecting switches or plug connectors must be installed to permit the disconnection of all ungrounded conductors of each temporary circuit.

- (j) Lamps for general illumination must be protected from accidental contact or breakage. Lamps must be elevated at least 7 feet from normal working surface or by a suitable fixture or lampholder with a guard.
 - (k) Flexible cords and cables must be protected from accidental damage. Sharp corners and projections must be avoided. Where passing through doorways or other pinch points, flexible cords and cables must be protected to avoid damage.
- (4) General requirements for temporary lighting.
- (a) Temporary lights must have guards to prevent accidental contact with the bulb.
- Note:** Guards are not required when the entire bulb is below the rim and completely surrounded and protected by the reflector.
- (b) Temporary lights must have heavy duty electric cords with connections and insulation maintained in safe condition.
 - (c) Temporary lights must not be suspended by their electric cords unless cords and lights are designed for suspension.
 - (d) Brass shell, paper-lined lamp holders are prohibited.
 - (e) Portable extension lamps used where flammable vapors or gases, combustible dusts, or easily ignitable fibers or flyings are present, must be specifically approved as complete assemblies for the type of hazard.

WAC 296-307-36809 Cable trays.

- (1) Only the following may be installed in cable tray systems.
 - (a) Mineral-insulated metal-sheathed cable (Type MI);
 - (b) Armored cable (Type AC);
 - (c) Metal-clad cable (Type MC);
 - (d) Power-limited tray cable (Type PLTC);
 - (e) Nonmetallic-sheathed cable (Type NM or NMC);
 - (f) Shielded nonmetallic-sheathed cable (Type SNM);
 - (g) Multiconductor service-entrance cable (Type SE or USE);
 - (h) Multiconductor underground feeder and branch-circuit cable (Type UF);
 - (i) Power and control tray cable (Type TC);
 - (j) Other factory-assembled, multiconductor control, signal, or power cables that are specifically approved for installation in cable trays; or
 - (k) Any approved conduit or raceway with its contained conductors.

- (2) In industrial establishments only, where conditions of maintenance and supervision ensure that only qualified persons will service the installed cable tray system, the following cables may also be installed in ladder, ventilated trough, or 4 inch ventilated channel-type cable trays:

Single conductor cables that are 250 MCM or larger and are Types RHH, RHW, MV, USE, or THW, and other 250 MCM or larger single conductor cables if specifically approved for installation in cable trays. Where exposed to direct rays of the sun, cables must be sunlight-resistant.

- (3) Cable trays in hazardous (classified) locations must contain only the cable types permitted in such locations.

Exception: Cable tray systems must not be used in hoistways or where subjected to severe physical damage.
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WAC 296-307-36812 Open wiring on insulators.

- (1) Open wiring on insulators is only permitted on systems of 600 volts, nominal, or less for industrial or agricultural establishments and for services.
- (2) Conductors must be rigidly supported on noncombustible, nonabsorbent insulating materials and must not contact any other objects.
- (3) In dry locations with no exposure to severe physical damage, conductors may be separately enclosed in flexible nonmetallic tubing. The tubing must be in continuous lengths a maximum of 15 feet and secured to the surface by straps at maximum intervals of 4 feet 6 inches.
- (4) Open conductors must be separated from contact with walls, floors, and wood cross members, or partitions through which they pass by tubes or bushings of noncombustible, nonabsorbent insulating material. If the bushing is shorter than the hole, a waterproof sleeve of nonconductive material must be inserted in the hole and an insulating bushing slipped into the sleeve at each end to keep the conductors completely out of contact with the sleeve. Each conductor must be carried through a separate tube or sleeve.
- (5) Conductors within 7 feet of the floor are considered exposed to physical damage. Where open conductors cross ceiling joints and wall studs and are exposed to physical damage, they must be protected.

WAC 296-307-36815 Wiring requirements that apply to cabinets, boxes, and fittings.

- (1) Conductors entering boxes, cabinets, or fittings must be protected from abrasion, and openings through which conductors enter must be closed. Unused openings in cabinets, boxes, and fittings must also be closed.
- (2) All pull boxes, junction boxes, and fittings must have covers approved for the purpose. All metal covers must be grounded. In completed installations each outlet box must have a cover, faceplate, or fixture canopy. A cover of an outlet box with holes through which a flexible cord pendant passes must have bushings designed for the purpose or have a smooth, well-rounded surface for the cord to run on.

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- (3) All pull and junction boxes for systems over 600 volts, nominal, must meet the following requirements:
- (a) Boxes must provide a complete enclosure for the contained conductors or cables.
 - (b) Boxes must be closed by suitable covers securely fastened in place. Underground box covers that weigh over 100 pounds meet this requirement. Covers for boxes must be permanently marked "HIGH VOLTAGE." The marking must be on the outside of the box cover and must be readily visible and legible.

WAC 296-307-36818 Switches.

- (1) Single-throw knife switches must be connected so that the blades are dead when the switch is in the open position. Single-throw knife switches must be placed so that gravity will not tend to close them. Single-throw knife switches approved for use in the inverted position must have a locking device that keeps the blades open when set. Double-throw knife switches may be mounted so that the throw will be either vertical or horizontal. However, if the throw is vertical a locking device must be provided to ensure that the blades remain open when so set.
- (2) Flush snap switches that are mounted in ungrounded metal boxes and located within reach of conducting floors or other conducting surfaces must have faceplates of nonconducting, noncombustible material.

WAC 296-307-36821 Location of switchboards and panelboards.

Switchboards that have any exposed live parts must be located in permanently dry locations and accessible only to qualified persons. Panelboards must be mounted in cabinets, cutout boxes, or enclosures approved for the purpose and must be dead front. However, panelboards other than the dead front externally operable type are permitted where accessible only to qualified persons. Exposed blades of knife switches must be dead when open.

WAC 296-307-36824 Insulating conductors.

All conductors used for general wiring must be insulated unless otherwise permitted in this section. The conductor insulation must be approved for the voltage, operating temperature, and location of use. Insulated conductors must be distinguishable by appropriate color or other means as grounded conductors, ungrounded conductors, or equipment grounding conductors.

WAC 296-307-36827 Use of flexible cords and cables.

- (1) Flexible cords and cables must be approved and suitable for conditions of use and location. Flexible cords and cables must be used only for:
 - (a) Pendants;
 - (b) Wiring of fixtures;
 - (c) Connection of portable lamps or appliances;
 - (d) Elevator cables;

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- (e) Wiring of cranes and hoists;
 - (f) Connection of stationary equipment to facilitate frequent interchange;
 - (g) Prevention of the transmission of noise or vibration;
 - (h) Appliances where the fastening means and mechanical connections are designed to permit removal for maintenance and repair; or
 - (i) Data processing cables approved as a part of the data processing system.
- (2) If used as permitted above, the flexible cord must have an attachment plug and must be energized from an approved receptacle outlet.
- (3) Unless permitted in subsection (1) of this section, flexible cords and cables must not be used:
- (a) As a substitute for the fixed wiring of a structure;
 - (b) Where run through holes in walls, ceilings, or floors;
 - (c) Where run through doorways, windows, or similar openings;
 - (d) Where attached to building surfaces; or
 - (e) Where concealed behind building walls, ceilings, or floors.
- (4) Flexible cords used in show windows and showcases must be Type S, SO, SJ, SJO, ST, STO, SJT, SJTO, or AFS except for the wiring of chain-supported lighting fixtures and supply cords for portable lamps and other merchandise being displayed or exhibited.

WAC 296-307-36830 Identification, splicing and termination of flexible cords and cables.

- (1) A conductor of a flexible cord or cable that is used as a grounded conductor or an equipment grounding conductor must be distinguishable from other conductors. Types SJ, SJO, SJT, SJTO, S, SO, ST, and STO must be durably marked on the surface with the type designation, size, and number of conductors.
- (2) Flexible cords must be used only in continuous lengths without splice or tap. Vulcanized splices or equivalent means such as systems using shrinkable materials may be used to repair flexible cords. Hard service flexible cords No. 12 or larger may be repaired by splice if the splice retains the insulation, outer sheath properties, and usage characteristics of the cord being spliced.
- (3) Flexible cords must be connected to devices and fittings so that strain relief is provided to prevent pull from being directly transmitted to joints or terminal screws.

WAC 296-307-36833 Multiconductor portable cable.

Multiconductor portable cable for use in supplying power to portable or mobile equipment at over 600 volts, nominal, must consist of No. 8 or larger conductors employing flexible stranding. Cables operated at over 2,000 volts must be shielded to confine the voltage stresses to the insulation. Grounding conductors must be provided. Connectors for these cables must be locking with provisions to prevent their opening or closing while energized. Strain relief must

be provided at connections and terminations. Portable cables must not be operated with splices unless the splices are permanent molded, vulcanized, or other approved type. Termination enclosures must be suitably marked with a high voltage hazard warning, and terminations must be accessible only to authorized and qualified personnel.

WAC 296-307-36836 Use of fixture wires.

- (1) A fixture wire must be approved for the voltage, temperature, and location of use. A fixture wire used as a grounded conductor must be identified.
- (2) Fixture wires may be used:
 - (a) For installation in lighting fixtures and in similar equipment where enclosed or protected and not subject to bending or twisting in use; or
 - (b) For connecting lighting fixtures to the branch-circuit conductors supplying the fixtures.
- (3) Fixture wires must not be used as branch-circuit conductors except as permitted for Class 1 power limited circuits.

WAC 296-307-36839 Wiring for lighting fixtures, lampholders, lamps, and receptacles.

- (1) Fixtures, lampholders, lamps, rosettes, and receptacles must have no live parts normally exposed to employee contact. However, rosettes and cleat-type lampholders and receptacles located at least 8 feet above the floor may have exposed parts.
- (2) Handlamps of the portable type supplied through flexible cords must have a handle of molded composition or other material approved for the purpose, and a substantial guard must be attached to the lampholder or the handle.
- (3) Lampholders of the screw-shell type must be installed for use as lampholders only. Lampholders installed in wet or damp locations must be weatherproof.
- (4) Fixtures installed in wet or damp locations must be approved for the purpose and must be constructed or installed so that water cannot enter or accumulate in wireways, lampholders, or other electrical parts.

WAC 296-307-36842 Wiring for receptacles, cord connectors, and attachment plugs (caps).

- (1) Receptacles, cord connectors, and attachment plugs must be constructed so that no receptacle or cord connector will accept an attachment plug with a different voltage or current rating than that for which the device is intended. However, a 20-ampere T-slot receptacle or cord connector may accept a 15-ampere attachment plug of the same voltage rating.
- (2) A receptacle installed in a wet or damp location must be suitable for the location.

WAC 296-307-36845 Wiring for appliances.

- (1) Appliances, other than those in which the current-carrying parts at high temperatures are necessarily exposed, must have no live parts normally exposed to employee contact.

- (2) Each appliance must have a disconnecting means.
- (3) Each appliance must be marked with its rating in volts and amperes or volts and watts.

WAC 296-307-36848 Wiring for motors, motor circuits, and controllers.

- (1) If specified that one piece of equipment must be “in sight from” another piece of equipment, one must be visible and not more than 50 feet from the other.
- (2) Disconnecting means must meet the following requirements:
 - (a) A disconnecting means must be located in sight from the controller location. However, a single disconnecting means may be located adjacent to a group of coordinated controllers mounted adjacent to each other or a multimotor continuous process machine. The controller disconnecting means for motor branch circuits over 600 volts, nominal, may be out of sight of the controller, if the controller is marked with a warning label giving the location and identification of the disconnecting means which is to be locked in the open position.
 - (b) The disconnecting means must disconnect the motor and the controller from all ungrounded supply conductors and must be designed so that no pole can be operated independently.
 - (c) If a motor and the driven machinery are not in sight from the controller location, the installation must meet one of the following conditions:
 - (i) The controller disconnecting means must be able to be locked in the open position.
 - (ii) A manually operable switch that will disconnect the motor from its source of supply must be placed in sight from the motor location.
 - (d) The disconnecting means must plainly indicate whether it is in the open (off) or closed (on) position.
 - (e) The disconnecting means must be readily accessible. If more than one disconnect is provided for the same equipment, only one need be readily accessible.
 - (f) An individual disconnecting means must be provided for each motor, but a single disconnecting means may be used for a group of motors under any of the following conditions:
 - (i) If a number of motors drive special parts of a single machine or piece of apparatus, such as a metal or woodworking machine, crane, or hoist; or
 - (ii) If a group of motors is under the protection of one set of branch-circuit protective devices; or
 - (iii) If a group of motors is in a single room in sight from the location of the disconnecting means.
- (3) Motors, motor-control apparatus, and motor branch-circuit conductors must be protected against overheating from motor overloads or failure to start, and against short-circuits or

ground faults. Overload protection is not required if it will stop a motor where a shutdown is likely to introduce additional or increased hazards, as in the case of fire pumps, or where continued operation of a motor is necessary for a safe shutdown of equipment or process and motor overload sensing devices are connected to a supervised alarm.

- (4) Live parts of all voltages must be protected according to the following:
- (a) Stationary motors with commutators, collectors, and brush rigging located inside of motor end brackets and not conductively connected to supply circuits operating at more than 150 volts to ground may have those parts unguarded. Exposed live parts of motors and controllers operating at 50 volts or more between terminals must be guarded against accidental contact by any of the following:
 - (i) By installation in a room or enclosure that is accessible only to qualified persons;
 - (ii) By installation on a suitable balcony, gallery, or platform, elevated and arranged to exclude unqualified persons; or
 - (iii) By elevation 8 feet or more above the floor.
 - (b) Where live parts of motors or controllers operating at over 150 volts to ground are guarded against accidental contact only by location, and where adjustment or other attendance may be necessary during the operation of the apparatus, suitable insulating mats or platforms must be provided so that the attendant cannot readily touch live parts unless standing on the mats or platforms.

WAC 296-307-36851 Wiring for transformers.

- (1) This section applies to the installation of all transformers.

Exceptions:

1. Current transformers;
2. Dry-type transformers installed as a component part of other apparatus;
3. Transformers that are an integral part of a high frequency or electrostatic-coating apparatus;
4. Transformers used with Class 2 and Class 3 circuits, sign and outline lighting, electric discharge lighting, and power-limited fire-protective signaling circuits; and
5. Liquid-filled or dry-type transformers used for research, development, or testing, where effective safeguard arrangements are provided.

- (2) The operating voltage of exposed live parts of transformer installations must be indicated by warning signs or visible markings on the equipment or structure.
- (3) Dry-type, high fire point liquid-insulated, and askarel-insulated transformers installed indoors and rated over 35kV must be in a vault.

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- (4) If they present a fire hazard to employees, oil-insulated transformers installed indoors must be in a vault.
 - (5) Combustible material, combustible buildings and parts of buildings, fire escapes, and door and window openings must be safeguarded from fires that may originate in oil-insulated transformers attached or adjacent to a building or combustible material.
 - (6) Transformer vaults must be constructed to contain fire and combustible liquids within the vault and to prevent unauthorized access. Locks and latches must be arranged so that a vault door can be readily opened from the inside.
 - (7) Any pipe or duct system foreign to the vault installation must not enter or pass through a transformer vault.
 - (8) Materials must not be stored in transformer vaults.

WAC 296-307-36854 Wiring for capacitors.

- (1) All capacitors, except surge capacitors or capacitors included as a component part of other apparatus, must have an automatic means of draining the stored charge after the capacitor is disconnected from its source of supply.
- (2) Capacitors rated over 600 volts, nominal, must meet the following additional requirements:
 - (a) Isolating or disconnecting switches (with no interrupting rating) must be interlocked with the load interrupting device or must have prominently displayed caution signs to prevent switching load current.
 - (b) For series capacitors, the proper switching must be ensured by any of the following:
 - (i) Mechanically sequenced isolating and bypass switches;
 - (ii) Interlocks; or
 - (iii) Switching procedure prominently displayed at the switching location.

WAC 296-307-36857 Ventilation for stored batteries.

The employer must ensure that there is sufficient diffusion and ventilation of gases from storage batteries to prevent the accumulation of explosive mixtures.

WAC 296-307-36860 Miscellaneous requirements that apply to wiring methods.

- (1) Metal raceways, cable armor, and other metal enclosures for conductors must be metallically joined into a continuous electric conductor and must be connected to all boxes, fittings, and cabinets to provide effective electrical continuity.
- (2) All wiring systems are prohibited from being installed in ducts used to transport dust, loose stock or flammable vapors. All wiring system are prohibited from being installed in any duct used for vapor removal or for ventilation of commercial-type cooking equipment, or in any shaft containing only such ducts.

WAC 296-307-370 Special purpose equipment and installations.

WAC 296-307-37003 Cranes, hoists, and runways.

The installation of electric equipment and wiring used with cranes, monorail hoists, hoists, and all runways must meet the following requirements:

- (1) Disconnecting means must meet the following requirements:
 - (a) A readily accessible disconnecting means is provided between the runway contact conductors and the power supply.
 - (b) Another disconnecting means, capable of being locked in the open position, is provided in the leads from the runway contact conductors or other power supply on any crane or monorail hoist.
 - (i) If this additional disconnection means is not readily accessible from the crane or monorail hoist operating station, means is provided at the operating station, to open the power circuit to all motors of the crane or monorail hoist.
 - (ii) The additional disconnect may be omitted if a monorail hoist or hand-propelled crane bridge installation meets all of the following:
 - (A) The unit is floor controlled;
 - (B) The unit is within view of the power supply disconnecting means; and
 - (C) No fixed work platform has been provided for servicing the unit.
- (2) A limit switch or other device must be provided to prevent the load block from passing the safe upper limit of travel of any hoisting mechanism.
- (3) The dimension of the working space in the direction of access to live parts that may require examination, adjustment, servicing, or maintenance while alive must be a minimum of 2 feet 6 inches. Where controls are enclosed in cabinets, the door must either open at least 90 degrees or be removable.

WAC 296-307-37006 Elevators, dumbwaiters, escalators, and moving walks.

- (1) Elevators, dumbwaiters, escalators, and moving walks must have a single means for disconnecting all ungrounded main power supply conductors for each unit.
- (2) If interconnections between control panels are necessary for operation of the system on a multicar installation that remains energized from a source other than the disconnecting means, a warning sign must be mounted on or adjacent to the disconnecting means. The sign must be clearly legible and must read "Warning-Parts of the control panel are not deenergized by this switch."
- (3) If control panels are not located in the same space as the drive machine, they must be located in cabinets with doors or panels capable of being locked closed.

WAC 296-307-37009 Disconnecting means for electric welders.

- (1) A disconnecting means must be provided in the supply circuit for each motor-generator arc welder, and for each AC transformer and DC rectifier arc welder that is not equipped with a disconnect mounted as an integral part of the welder.
- (2) A switch or circuit breaker must be provided by which each resistance welder and its control equipment can be isolated from the supply circuit. The ampere rating of this disconnecting means must not be less than the supply conductor ampacity.

WAC 296-307-37012 Electrically driven or controlled irrigation machines.

- (1) If an electrically driven or controlled irrigation machine has a stationary point, a driven ground rod must be connected to the machine at the stationary point for lightning protection.
- (2) The main disconnecting means for a center pivot irrigation machine must be located at the point of connection of electrical power to the machine and must be readily accessible and capable of being locked in the open position. A disconnecting means must be provided for each motor and controller.

WAC 296-307-372 Hazardous (classified) locations.

WAC 296-307-37203 Scope.

WAC 296-307-372 covers the requirements for electric equipment and wiring in locations that are classified based on the properties of the flammable vapors, liquids or gases, or combustible dusts or fibers that may be present and the likelihood that a flammable combustible concentration or quantity is present. Each room, section, or area must be considered individually to determine its classification.

All requirements in this part apply to hazardous locations, unless otherwise indicated.

WAC 296-307-37206 Classifications that apply to this section.

These hazardous locations are classified as follows:

- (1) **Class I locations.** Locations in which flammable gases or vapors are or may be present in the air in quantities sufficient to produce explosive or ignitable mixtures. They include the following:
 - (a) Class I, Division 1 locations. Locations where:
 - (i) Hazardous concentrations of flammable gases or vapors may exist under normal operating conditions; or
 - (ii) Hazardous concentrations of such gases or vapors may exist frequently because of repair or maintenance operations or because of leakage; or
 - (iii) Breakdown or faulty operation of equipment or processes might release hazardous concentrations of flammable gases or vapors, and might also cause simultaneous failure of electric equipment.

This classification usually includes locations where:

- (A) Volatile flammable liquids or liquefied flammable gases are transferred from one container to another;
- (B) Interiors of spray booths and areas in the vicinity of spraying and painting operations where volatile flammable solvents are used;
- (C) Locations containing open tanks or vats of volatile flammable liquids;
- (D) Drying rooms or compartments for the evaporation of flammable solvents;
- (E) Locations containing fat and oil extraction equipment using volatile flammable solvents;
- (F) Gas generator rooms and other portions of gas manufacturing plants where flammable gas may escape;
- (G) Inadequately ventilated pump rooms for flammable gas or for volatile flammable liquids;
- (H)
- (I) The interiors of refrigerators and freezers in which volatile flammable materials are stored in open, lightly stoppered, or easily ruptured containers; and
- (J) All other locations where ignitable concentrations of flammable vapors or gases are likely to occur in the course of normal operations.

(b) Class I, Division 2 locations. Locations where:

- (i) Volatile flammable liquids or flammable gases are handled, processed, or used, but in which the hazardous liquids, vapors, or gases are normally confined within closed containers or systems from which they can escape only in an accidental rupture or breakdown of containers or systems, or in case of abnormal operation of equipment; or
- (ii) Hazardous concentrations of gases or vapors are normally prevented by positive mechanical ventilation, and which might become hazardous through failure or abnormal operation of the ventilating equipment; or
- (iii) They are adjacent to a Class I, Division 1 location, and to which hazardous concentrations of gases or vapors might occasionally be communicated unless prevented by adequate positive-pressure ventilation from a source of clean air, and effective safeguards against ventilation failure are provided.

This classification usually includes locations where:

- (A) Volatile flammable liquids or flammable gases or vapors are used, but which would become hazardous only in case of an accident or unusual operating condition. The quantity of flammable material that might escape in case of accident, the adequacy of ventilating equipment, the

total area involved, and the record of the industry or business with respect to explosions or fires are all factors to consider in determining the classification.

- (B) Piping without valves, checks, meters, and similar devices would not ordinarily introduce a hazardous condition even though used for flammable liquids or gases. Locations used for the storage of flammable liquids or a liquefied or compressed gases in sealed containers are not normally considered hazardous unless also subject to other hazardous conditions.
- (C) Electrical conduits and their enclosures separated from process fluids by a single seal or barrier are Division 2 locations if the outside of the conduit and enclosures is a nonhazardous location.

(2) **Class II locations.** Locations that are hazardous because of the presence of combustible dust. They include the following:

(a) Class II, Division 1 locations. Locations where:

- (i) Combustible dust is or may be suspended in the air under normal operating conditions, in quantities sufficient to produce explosives or ignitable mixtures; or
- (ii) Mechanical failure or abnormal operation of machinery or equipment might produce explosive or ignitable, and might also provide a source of ignition through simultaneous failure of electric equipment, operation of protection devices, or from other causes; or
- (iii) Combustible dusts of an electrically conductive nature may be present.

This classification may include areas of grain handling and processing plants, starch plants, sugar-pulverizing plants, malting plants, hay-grinding plants, coal pulverizing plants, areas where metal dusts and powders are produced or processed, and other similar locations that contain dust producing machinery and equipment (except where the equipment is dust-tight or vented to the outside). These areas would have combustible dust in the air, under normal operating conditions, in quantities sufficient to produce explosive or ignitable mixtures.

Combustible dusts that are electrically nonconductive include dusts produced in the handling and processing of grain and grain products, pulverized sugar and cocoa, dried egg and milk powders, pulverized spices, starch and pastes, potato and wood flour, oil meal from beans and seed, dried hay, and other organic materials that may produce combustible dusts when processed or handled. Dusts containing magnesium or aluminum are particularly hazardous and the use of extreme caution is necessary to avoid ignition and explosion.

(b) Class II, Division 2 location. Locations where:

- (i) Combustible dust is not normally suspended in the air in quantities sufficient to produce explosive or ignitable mixtures; and dust accumulations are normally

insufficient to interfere with the normal operation of electrical equipment or other apparatus; or

- (ii) Dust may be in suspension in the air as a result of infrequent malfunctioning of handling or processing equipment, and resulting dust accumulations may be ignitable by abnormal operation or failure of electrical equipment or other apparatus.

This classification includes locations where dangerous concentrations of suspended dust would not be likely but where dust accumulations might form on or in the vicinity of electric equipment. These areas may contain equipment from which appreciable quantities of dust would escape under abnormal operating conditions or be adjacent to a Class II Division 1 location into which an explosive or ignitable concentration of dust may be suspended under abnormal operating conditions.

- (3) **Class III locations.** Locations that are hazardous because of the presence of easily ignitable fibers or flyings but in which such fibers or flyings are not likely to be suspended in the air in quantities sufficient to produce ignitable mixtures. They include the following:

- (a) **Class III, Division 1 locations.** Locations where easily ignitable fibers or materials producing combustible flyings are handled, manufactured, or used.

Such locations usually include combustible fiber manufacturing and processing plants; cotton gins and cottonseed mills; flax-processing plants; and industries involving similar hazardous processes or conditions.

Easily ignitable fibers and flyings include rayon, cotton (including cotton linters and cotton waste), sisal or henequen, istle, jute, hemp, tow, cocoa fiber, oakum, baled waste kapok, Spanish moss, excelsior, and other materials of similar nature.

- (b) **Class III, Division 2 locations.** Locations where easily ignitable fibers are stored or handled, except in process of manufacture.

WAC 296-307-37209 Equipment, wiring methods, and installations in hazardous locations.

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

- (1) Equipment and associated wiring approved as intrinsically safe are permitted in any hazardous location for which it is approved.
- (2) Requirements to be approved for the hazardous location:
 - (a) Equipment must be approved for the class of location and for the ignitable or combustible properties of the specific gas, vapor, dust, or fiber that will be present.
 - (b) Equipment must be marked to show the class, group, and operating temperature or temperature range, based on operation in a 40 degrees C (104 degrees Fahrenheit) ambient, for which it is approved. The temperature marking must be a maximum of the ignition temperature of the specific gas or vapor to be encountered. The

following provisions apply to specific equipment:

- (i) Nonheat-producing equipment, such as junction boxes, conduit, and fittings, and heat-producing equipment with a maximum temperature of 100 degrees C (212 degrees Fahrenheit) need not have a marked operating temperature or temperature range.
 - (ii) Fixed lighting fixtures marked for use in Class I, Division 2 locations only, need not be marked to indicate the group.
 - (iii) Fixed general-purpose equipment in Class I locations (other than lighting fixtures) that is acceptable for use in Class I, Division 2 locations need not be marked with the class, group, division, or operating temperature.
 - (iv) Fixed dust-tight equipment (other than lighting fixtures) that 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.
- (3) Equipment that is safe for the location must be of a type and design that provides protection from the hazards arising from combustible and flammable vapors, liquids, gases, dusts, or fibers.

Note: Equipment that meets the requirements of The National Electrical Code, NFPA 70, must be considered in compliance with the requirements of WAC 296-307-372.

WAC 296-307-37212 Installing conduit in hazardous locations.

All conduits must be threaded and wrench-tight. Where it is impractical to make a threaded joint tight, a bonding jumper must be used.

WAC 296-307-37215 Equipment to be used in Division 1 and 2 locations.

Equipment that has been approved for a Division 1 location may be installed in a Division 2 location of the same class and group. General-purpose equipment or equipment in general-purpose enclosures may be installed in Division 2 locations if the equipment does not constitute a source of ignition under normal operating conditions.

WAC 296-307-37218 Motors and generators used in hazardous locations.

In Class I, Division 1 locations, motors, generators and other rotating electric machinery must be:

- (1) Approved for Class I, Division 1 locations (explosion-proof); or
- (2) Of the totally enclosed type supplied with positive-pressure ventilation from a source of clean air with discharge to a safe area, arranged to prevent energizing of the machine until ventilation has been established and the enclosure has been purged with at least 10 volumes of air, and also arranged to automatically deenergize the equipment when the air supply fails; or

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- (3) Of the totally enclosed inert-gas-filled type supplied with a suitable reliable source of inert gas for pressuring the enclosure, with devices provided to ensure a positive pressure in the enclosure and arranged to automatically deenergize the equipment when the gas supply fails; or
 - (4) Of a type designed to be submerged in a liquid that is flammable only when vaporized and mixed with air, or in a gas or vapor at a pressure greater than atmospheric and which is flammable only when mixed with air; and the machine is arranged to prevent energizing it until it has been purged with the liquid or gas to exclude air, and also arranged to automatically deenergize the equipment when the supply of liquid, or gas or vapor fails or the pressure is reduced to atmospheric.

Totally enclosed type (2) and (3) motors must have no external surface with a Celsius operating temperature greater than 80% of the ignition temperature of the gas or vapor involved, as determined by ASTM test procedure (Designation: D-2155-69). Appropriate devices must be provided to detect an increase in temperature of the motor beyond design limits and automatically deenergize the equipment or provide an adequate alarm. Auxiliary equipment must be approved for the location in which it is installed.

WAC 296-307-374 *Special systems.*

WAC 296-307-37403 Systems over 600 volts, nominal.

- (1) Wiring methods for fixed installations over 600 volts, nominal, must meet the following requirements:
 - (a) Above-ground conductors must be installed in rigid metal conduit, in intermediate metal conduit, in cable trays, in cablebus, in other suitable raceways, or as open runs of metal-clad cable suitable for the use and purpose. Open runs of nonmetallic-sheathed cable or of bare conductors or busbars must be installed in locations accessible only to qualified persons. Metallic shielding components, such as tapes, wires, or braids for conductors, must be grounded. Open runs of insulated wires and cables with a bare lead sheath or a braided outer covering must be supported to prevent physical damage to the braid or sheath.
 - (b) Conductors emerging from the ground must be enclosed in approved raceways.
- (2) Interrupting and isolating devices must meet the following requirements:
 - (a) Circuit breaker installations located indoors must consist of metal-enclosed units or fire-resistant cell-mounted units. Circuit breakers must be open mounted only in locations that are accessible only to qualified persons. A means of indicating the open and closed position of circuit breakers must be provided.
 - (b) Fused cutouts installed in buildings or transformer vaults must be approved for the purpose. They must be readily accessible for fuse replacement.
 - (c) A means must be provided to completely isolate equipment for inspection and repairs. Isolating means that are not designed to interrupt the load current of the circuit must be either interlocked with an approved circuit interrupter or provided

with a sign warning against opening them under load.

- (3) Mobile and portable equipment must meet the following requirements:
- (a) A metallic enclosure must be provided on the mobile machine for enclosing the terminals of the power cable. The enclosure must include provisions for a solid connection for the ground wire terminal to effectively ground the machine frame. The method of cable termination used must prevent any strain or pull on the cable from stressing the electrical connections. The enclosure must be lockable so only authorized qualified persons may open it and must be marked with a sign warning of the presence of energized parts.
 - (b) All energized switching and control parts must be enclosed in grounded metal cabinets or enclosures. Circuit breakers and protective equipment must have the operating means projecting through the metal cabinet or enclosure so these units can be reset without opening locked doors. Enclosures and metal cabinets must be locked so that only authorized qualified persons have access and must be marked with a sign warning of the presence of energized parts. Collector ring assemblies on revolving machines (shovels, draglines, etc.) must be guarded.
- (4) Tunnel installations of high-voltage power distribution and utilization equipment that is portable or mobile, such as substations, trailers, cars, mobile shovels, draglines, hoists, drills, dredges, compressors, pumps, conveyors, and underground excavators must meet the following requirements:
- (a) Conductors in tunnels must be installed in one or more of the following:
 - (i) Metal conduit or other metal raceway;
 - (ii) Type MC cable; or
 - (iii) Other approved multiconductor cable.Conductors must also be located or guarded to protect them from physical damage. Multiconductor portable cable may supply mobile equipment. An equipment grounding conductor must be run with circuit conductors inside the metal raceway or inside the multiconductor cable jacket. The equipment grounding conductor may be insulated or bare.
 - (b) Bare terminals of transformers, switches, motor controllers, and other equipment must be enclosed to prevent accidental contact with energized parts. Enclosures used in tunnels must be drip-proof, weatherproof, or submersible as required by environmental conditions.
 - (c) A disconnecting means that simultaneously opens all ungrounded conductors must be installed at each transformer or motor location.
 - (d) All nonenergized metal parts of electric equipment and metal raceways and cable sheaths must be effectively grounded and bonded to all metal pipes and rails at the portal and at maximum intervals of 1000 feet throughout the tunnel.

WAC 296-307-37406 Emergency power systems.

This section applies to circuits, systems, and equipment intended to supply power for illumination and special loads, in the event of failure of the normal supply.

- (1) Emergency circuit wiring must be kept entirely independent of all other wiring and equipment and must not enter the same raceway, cable, box, or cabinet as other wiring.

Exception: This does not apply where common circuit elements suitable for the purpose are required, or for transferring power from the normal to the emergency source.

- (2) Where emergency lighting is necessary, the system must be arranged so that the failure of any individual lighting element, such as a burned out light bulb, cannot leave any space in total darkness.

WAC 296-307-37409 Classification of Class 1, Class 2, and Class 3 remote control, signaling, and power-limited circuits.

- (1) Class 1, Class 2, or Class 3 remote control, signaling, or power-limited circuits are characterized by their usage and electrical power limitation which differentiates them from light and power circuits. These circuits are classified according to their voltage and power limitations as follows.
 - (a) Class 1 circuits.
 - (i) A Class 1 power-limited circuit is supplied from a source with a maximum rated output of 30 volts and 1000 volt-amperes.
 - (ii) A Class 1 remote control circuit or a Class 1 signaling circuit has a maximum voltage of 600 volts; however, the power output of the source need not be limited.
 - (b) Class 2 and Class 3 circuits.
 - (i) Power for Class 2 and Class 3 circuits is limited either inherently (in which no overcurrent protection is required) or by a combination of a power source and overcurrent protection.
 - (ii) The maximum circuit voltage is 150 volts AC or DC for a Class 2 inherently limited power source, and 100 volts AC or DC for a Class 3 inherently limited power source.
 - (iii) The maximum circuit voltage is 30 volts AC and 60 volts DC for a Class 2 power source limited by overcurrent protection, and 150 volts AC or DC for a Class 3 power source limited by overcurrent protection.
 - (c) The maximum circuit voltages in (a) and (b) of this subsection apply to sinusoidal AC or continuous DC power sources, and where wet contact is unlikely.
- (2) A Class 2 or Class 3 power supply unit must be durably and visibly marked to indicate the class of supply and its electrical rating.

WAC 296-307-37412 Fire protective signaling systems.

- (1) Fire protective signaling circuits must be classified either as nonpower limited or power limited.
- (2) The power sources for use with fire protective signaling circuits must be either power limited or nonlimited as follows:
 - (a) The power supply of nonpower-limited fire protective signaling circuits must have a maximum output voltage of 600 volts.
 - (b) The power for power-limited fire protective signaling circuits must be either inherently limited, in which no overcurrent protection is required, or limited by a combination of power source and overcurrent protection.
- (3) Nonpower-limited fire protective signaling circuits and Class 1 circuits may occupy the same enclosure, cable, or raceway if all conductors are insulated for maximum voltage of any conductor within the enclosure, cable or raceway. Power supply and fire protective signaling circuit conductors are permitted in the same enclosure, cable, or raceway only if connected to the same equipment.
- (4) Where open conductors are installed, power-limited fire protective signaling circuits must be separated at least 2 inches from conductors of any light, power, Class 1, and nonpower-limited fire protective signaling circuits unless using a special and equally protective method of conductor separation. Cables and conductors of two or more power-limited fire protective signaling circuits or Class 3 circuits are permitted in the same cable, enclosure, or raceway. Conductors of one or more Class 2 circuits are permitted within the same cable, enclosure, or raceway with conductors of power-limited fire protective signaling circuits if the insulation of Class 2 circuit conductors in the cable, enclosure, or raceway is at least that needed for the power-limited fire protective signaling circuits.
- (5) Fire protective signaling circuits must be identified at terminal and junction locations in a manner that will prevent unintentional interference with the signaling circuit during testing and servicing. Power-limited fire protective signaling circuits must be visibly and durably marked at terminations.

WAC 296-307-376 Working on or near exposed energized parts.**WAC 296-307-37603 Scope.**

WAC 296-307-376 applies to work performed on exposed live parts (involving either direct contact or contact by means of tools or materials) or near enough to them for employees to be exposed to any hazard they present.

WAC 296-307-37606 Qualified person working on energized parts.

Only qualified persons may work on electric circuit parts of equipment that have not been deenergized under the procedures of WAC 296-307-37807. Qualified persons must be capable of working safely on energized circuits and must be familiar with the proper use of special

precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools.

WAC 296-307-37609 Working near low voltage lines.

When employees are working near energized electrical service conductors operating at 750 volts or less, employees must work in a manner to prevent contact with the energized conductors.

WAC 296-307-37612 Qualified persons working near overhead lines.

When a qualified person is working near overhead lines, whether in an elevated position or on the ground, the person must not approach, or take any conductive object without an approved insulating handle, closer to exposed energized parts than shown in WAC 296-307-150 unless:

- (1) The person is insulated from the energized part (gloves, with sleeves if necessary, rated for the voltage involved are considered to be insulation of the person from the energized part on which work is performed); or
- (2) The energized part is insulated both from all other conductive objects at a different potential and from the person; or
- (3) The person is insulated from all conductive objects at a potential different from that of the energized part.

WAC 296-307-37615 Vehicles and mechanical equipment near overhead lines.

- (1) Any vehicle or mechanical equipment that may have parts of its structure elevated near energized overhead lines must be operated so that a clearance of 10 ft. is maintained. If the voltage is higher than 50kV, the clearance must be increased 0.4 inch for every 1kV over the voltage. The clearance may be reduced only if:
 - (a) The vehicle is in transit with its structure lowered, the clearance may be reduced to 4 ft. If the voltage is higher than 50kV, the clearance must be increased 0.4 inch for every 1kV over that voltage.
 - (b) Insulating barriers are installed to prevent contact with the lines, and if the barriers are rated for the voltage of the line being guarded and are not a part of or an attachment to the vehicle or its raised structure, the clearance may be reduced to a distance within the designed working dimensions of the insulating barrier.
- (2) If the equipment is an aerial lift insulated for the voltage involved, and if the work is performed by a qualified person, the clearance (between the uninsulated portion of the aerial lift and the power line) may be reduced to the distance given in WAC 296-307-150.
- (3) Employees standing on the ground must not contact the vehicle or mechanical equipment or any of its attachments, unless:
 - (a) The employee is using protective equipment rated for the voltage; or
 - (b) The equipment is located so that no uninsulated part of its structure (that portion of the structure that provides a conductive path to employees on the ground) can

come closer to the line than permitted in this section.

- (4) If any vehicle or mechanical equipment that may have parts of its structure elevated near energized overhead lines is intentionally grounded, employees working on the ground near the point of grounding must not stand at the grounding location whenever there is a possibility of overhead line contact. Additional precautions, such as the use of barricades or insulation, must be taken to protect employees from hazardous ground potentials, depending on earth resistivity and fault currents, which can develop within the first few feet or more outward from the grounding point.

WAC 296-307-37618 Lighting for employees working near exposed energized parts.

- (1) Employees must not enter spaces containing exposed energized parts, unless lighting is provided that enables the employees to perform the work safely.
- (2) Where lack of lighting or an obstruction prevents an employee from seeing the work to be performed, employees must not perform tasks near exposed energized parts. Employees must not reach blindly into areas that may contain energized parts.

WAC 296-307-37621 Working near exposed energized parts in confined spaces.

- (1) For working in a confined or enclosed space (such as a manhole or vault) that contains exposed energized parts, the employer must provide, and the employee must use, protective shields, protective barriers, or insulating materials that are necessary to avoid contact with these parts. Doors, hinged panels, and the like must be secured to prevent swinging into an employee and causing the employee to contact exposed energized parts.
- (2) Conductive materials and equipment that are in contact with any part of an employee's body must be handled in a manner that will prevent them from contacting exposed energized conductors or circuit parts. If an employee handles long conductive objects (such as ducts and pipes) in areas with exposed live parts, the employer must institute work practices (such as the use of insulation, guarding, and material handling techniques) that will minimize the hazard.
- (3) Portable ladders must have nonconductive siderails if they are used where the employee or the ladder could contact exposed energized parts.
- (4) Conductive articles of jewelry and clothing must not be worn if they might contact exposed energized parts.

WAC 296-307-37624 Housekeeping requirements that apply to working near exposed energized parts.

- (1) Where live parts present an electrical contact hazard, employees must not perform housekeeping duties near enough to the parts that there is a possibility of contact, unless adequate safeguards (such as insulating equipment or barriers) are provided.
- (2) Electrically conductive cleaning materials (including conductive solids such as steel wool, metalized cloth, and silicon carbide, as well as conductive liquid solutions) must not be used in proximity to energized parts unless procedures are followed that will prevent electrical contact.

WAC 296-307-37627 Qualified persons that may defeat an electrical safety interlock.

Only a qualified person following the requirements of this section may defeat an electrical safety interlock, and then only temporarily while he or she is working on the equipment. The interlock system must be returned to its operable condition when this work is completed.

WAC 296-307-378 Safety-related work practices.**WAC 296-307-37801 Scope.**

- (1) WAC 296-307-376 and 296-307-378 cover electrical safety-related work practices for both qualified persons (those who have training in avoiding the electrical hazards of working on or near exposed energized parts) and unqualified persons (those with little or no such training) working on, near, or with the following installations:
 - (a) Installations of electric conductors and equipment within or on buildings or other structures, and on other premises such as yards, parking, and other lots, and industrial substations;
 - (b) Installations of conductors that connect to the supply of electricity;
 - (c) Installations of other outside conductors on the premises; and
 - (d) Installations of optical fiber cable where such installations are made along with electric conductors.
- (2) WAC 296-307-367 and 296-307-378 cover work performed by unqualified persons on, near, or with the installations listed in subsection (3) of this section.
- (3) WAC 296-307-376 and 296-307-378 do not apply to work performed by qualified persons on or directly associated with the following installations:
 - (a) Installations for the generation, control, transformation, transmission, and distribution of electric energy (including communication and metering) located in buildings used for such purposes or located outdoors.

Work on or directly associated with generation, transmission, or distribution installations includes:

 - (i) Work performed directly on installations, such as repairing distribution lines or repairing a feed-water pump for the boiler in a generating plant.
 - (ii) Work directly associated with installations, such as line-clearance tree trimming and replacing utility poles.
 - (iii) Work on electric utilization circuits in a generating plant where:
 - (A) The circuits are combined with installations of power generation equipment or circuits; and
 - (B) The generation equipment or circuits present greater electrical hazards than those posed by the utilization equipment or circuits (such as exposure to higher voltages or lack of overcurrent protection).

- (b) Installations in watercraft, railway rolling stock, aircraft, or automotive vehicles other than mobile homes and recreational vehicles.
- (c) Installations of railways for generation, transformation, transmission, or distribution of power used exclusively for operation of rolling stock or installations of railways used exclusively for signaling and communication purposes.

WAC 296-307-37803 Training employees on safety practices.

- (1) The training requirements in this section apply to employees who face a risk of electrical shock that is not reduced to a safe level by the electrical installation requirements of WAC 296-307-362 through 296-307-374.
- (2) Training contents must include the following:
 - (a) Employees must be trained in and familiar with the safety-related work practices required by WAC 296-307-376 through 296-307-378 that apply to their job assignments.
 - (b) Employees who are covered by this section but who are not qualified persons must also be trained in and familiar with any electrically related safety practices that are not covered by this standard, but that are necessary for their safety.
 - (c) Qualified persons must, at a minimum, be trained in and familiar with the following:
 - (i) The skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment;
 - (ii) The skills and techniques necessary to determine the nominal voltage of exposed live parts; and
 - (iii) The clearance distance specified in WAC 296-307-376 and the corresponding voltages to which the qualified person will be exposed.

Note 1:	For the purposes of WAC 296-307-376 and 296-307-378, an employee must have the training required for a qualified person in order to be considered a qualified person.
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Note 2:	Qualified persons whose work on energized equipment involves either direct contact or contact by means of tools or materials must also have the training needed to meet WAC 296-307-376.
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- (3) The employer must provide either classroom or on-the-job training. The degree of training provided must be determined by the risk to the employee.

WAC 296-307-37805 Identification and use of safety-related work practices.

Safety-related work practices must be used to prevent electric shock or other injuries resulting from either direct or indirect electrical contacts, when work is performed near or on equipment or circuits that are or may be energized. The specific safety-related work practices must be consistent with the nature and extent of the associated electrical hazards.

- (1) When an employee may be exposed to live parts, they must be deenergized before the employee works on or near them, unless deenergizing introduces other hazards or is infeasible due to equipment design or operational limitations. Live parts that operate at less than 50 volts to ground need not be deenergized if there will be no increased exposure to electrical burns or to explosion due to electric arcs.

Note 1:	Examples of other hazards include deactivation of emergency alarm systems, shutdown of hazardous location ventilation equipment, or removal of illumination for an area.
Note 2:	An example of work that may be performed on or near energized circuit parts because of unfeasibility due to equipment design or operational limitations is testing of electric circuits that can only be performed with the circuit energized.

- (2) If the exposed live parts are not deenergized (for reasons of increased or additional hazards or unfeasibility), other safety-related work practices must be used to protect employees who may be exposed to the electrical hazards involved. Such work practices must protect employees against contact with energized circuit parts directly with any part of their body or indirectly through some other conductive object. The work practices must be suitable for the voltage level of the exposed electric conductors or circuit parts.

WAC 296-307-37807 Work on exposed deenergized parts.

- (1) This section applies to work on exposed deenergized parts or near enough to them to expose the employee to any electrical hazard they present. Conductors and parts of electric equipment that have been deenergized but have not been locked out or tagged must be treated as energized parts, and WAC 296-307-376 applies to work on or near them.
- (2) While any employee is exposed to contact with parts of fixed electric equipment or circuits which have been deenergized, the circuits energizing the parts must be locked out or tagged or both according to the requirements of this section. The requirements must be followed in the order in which they are presented.

Fixed equipment. Equipment that is fastened or connected by permanent wiring methods.

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| <p>Note: Lockout and tagging procedures that comply with WAC 296-307-320 will also be deemed to comply with WAC 296-307-37807 through 296-307-37817 if:</p> <ol style="list-style-type: none"> 1. The procedures address the electrical safety hazards covered by this part; and 2. The procedures include the requirements of WAC 296-307-37813(4) and 296-307-37815(2). |
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WAC 296-307-37809 An employer must have a written copy of lockout-tagout procedures.

The employer must maintain a written copy of the procedures outlined in WAC 296-307-37807 through 296-307-37817 and must make it available for inspection by us or by employees. The written procedures may be in the form of a copy of WAC 296-307-37807 through 296-307-37817.

WAC 296-307-37811 Deenergizing equipment.

- (1) Safe procedures for deenergizing circuits and equipment must be determined before circuits or equipment are deenergized.
- (2) The circuits and equipment to be worked on must be disconnected from all electric energy sources. Control circuit devices, such as push buttons, selector switches, and interlocks, must not be used as the sole means for deenergizing circuits or equipment. Interlocks for electric equipment must not be used as a substitute for lockout and tagging procedures.
- (3) Stored electric energy which might endanger employees must be released. Capacitors must be discharged and high capacitance elements must be short-circuited and grounded, if the stored electric energy might endanger employees.

<p>Note: Capacitors or associated equipment handled in meeting this requirement must be treated as energized.</p>
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- (4) Stored nonelectrical energy in devices that could reenergize electric circuit parts must be blocked or relieved to the extent that the circuit parts could not be accidentally energized by the device.

WAC 296-307-37813 Application of locks and tags.

- (1) A lock and a tag must be placed on each disconnecting means used to deenergize circuits and equipment on which work is to be performed, except as provided in subsections (3) and (5) of this section. The lock must be attached to prevent anyone from operating the disconnecting means unless they resort to undue force or the use of tools.
- (2) Each tag must have a statement prohibiting unauthorized operation of the disconnecting means and removal of the tag.
- (3) If a lock cannot be applied, or if tagging procedures will provide a level of safety equivalent to that obtained by the use of a lock, a tag may be used without a lock.
- (4) A tag used without a lock must be supplemented by at least one additional safety measure that provides a level of safety equivalent to that obtained by the use of a lock. Examples of additional safety measures include the removal of an isolating circuit element, blocking of a controlling switch, or opening of an extra disconnecting device.
- (5) A lock may be placed without a tag only under the following conditions:
 - (a) Only one circuit or piece of equipment is deenergized; and
 - (b) The lockout period does not extend beyond the work shifts; and
 - (c) Employees exposed to the hazards associated with reenergizing the circuit or equipment are familiar with this procedure.

WAC 296-307-37815 Verifying deenergization.

The requirements of this section must be met before any circuits or equipment can be considered and worked as deenergized.

- (1) A qualified person must operate the equipment operating controls or otherwise verify that the equipment cannot be restarted.
- (2) A qualified person must use test equipment to test the circuit elements and electrical parts of equipment to which employees will be exposed and must verify that the circuit elements and equipment parts are deenergized. The test must also determine if any energized conditions exists as a result of inadvertently induced voltage or unrelated voltage backfeed even though specific parts of the circuit have been deenergized and presumed to be safe. If the circuit to be tested is over 600 volts, nominal, the test equipment must be checked for proper operation immediately before and immediately after this test.

WAC 296-307-37817 Reenergizing equipment.

These requirements must be met, in the order given, before circuits or equipment are reenergized, even temporarily.

- (1) A qualified person must conduct tests and visual inspections as necessary to verify that all tools, electrical jumpers, shorts, grounds, and other devices have been removed, so that the circuits and equipment can be safely energized.
- (2) Employees exposed to the hazards associated with reenergizing the circuit or equipment must be warned to stay clear of circuits and equipment.
- (3) Each lock and tag must be removed by the employee who applied it or under his or her direct supervision. However, if this employee is absent from the workplace, then the lock or tag must be removed by a qualified person designated to perform this task if:
 - (a) The employer ensures that the employee who applied the lock or tag is not available at the workplace; and
 - (b) The employer ensures that the employee is aware that the lock or tag has been removed before resuming work at that workplace.
- (4) There must be a visual determination that all employees are clear of the circuits and equipment.

WAC 296-307-37819 Portable electric equipment.

This section applies to using cord-connected and plug-connected equipment, including flexible cord sets (extension cords).

- (1) Portable equipment must be handled in a manner that will not cause damage. Flexible electric cords connected to equipment must not be used for raising or lowering the equipment. Flexible cords must not be fastened with staples or otherwise hung in a way that could damage the outer jacket or insulation.
- (2) Visual inspection requirements:
 - (a) Portable cord-connected and plug-connected equipment and flexible cord sets must be visually inspected before use on any shift for external defects (such as loose parts, deformed and missing pins, or damage to outer jackets or insulation) and for

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- evidence of possible internal damage (such as pinched or crushed outer jacket). Cord-connected and plug-connected equipment and flexible cord sets that remain connected once they are in place and are not exposed to damage need not be visually inspected until they are relocated.
- (b) If there is a defect or evidence of damage that might expose an employee to injury, the defective or damaged items must be removed from service, and employee shall not be allowed to use it until repairs and tests necessary to render the equipment safe have been made.
 - (c) When an attachment plug is to be connected to a receptacle (including any on a cord set), the relationship of the plug and receptacle contacts must first be checked to ensure they are of proper mating configurations.
- (3) Requirements for grounding-type equipment:
- (a) A flexible cord used with grounding-type equipment must contain an equipment grounding conductor.
 - (b) Attachment plugs and receptacles must not be connected or altered in a manner that would prevent proper continuity of the equipment grounding conductor at the point where plugs are attached to receptacles. These devices must not be altered to allow the grounding pole of a plug to be inserted into slots intended for connection to the current-carrying conductors.
 - (c) Adapters that interrupt the continuity of the equipment grounding connection are prohibited.
- (4) Portable electric equipment and flexible cords used in highly conductive work locations, or in locations where employees are likely to contact water or conductive liquids, must be approved for those locations.
- (5) Connecting attachment plugs.
- (a) Employees' hands must not be wet when plugging and unplugging flexible cords and cord-connected and plug-connected equipment, if energized equipment is involved.
 - (b) Energized plug and receptacle connections must be handled only with insulating protective equipment if the condition of the connection could provide a conducting path to the employee's hand. For example: If a cord connector is wet from being immersed in water.
 - (c) Locking-type connectors must be properly secured after connection.

WAC 296-307-37821 Electric power and lighting circuits.

- (1) Load rated switches, circuit breakers, or other devices specifically designed as disconnecting means must be used for the opening, reversing, or closing of circuits under load conditions. Any cable connectors other than the load-break type, fuses, terminal

lugs, and cable splice connections are prohibited for such purposes, except in an emergency.

- (2) After a circuit is deenergized by a circuit protective device, the circuit must not be manually reenergized until it has been determined that the equipment and circuit can be safely energized. This repetitive manual reclosing of circuit breakers or reenergizing circuits through replaced fuses is prohibited.

Note: When it can be determined from the design of the circuit and the overcurrent devices involved that the automatic operation of a device was caused by an overload rather than a fault connection, no examination of the circuit or connected equipment is needed before the circuit is reenergized.

- (3) Overcurrent protection of circuits and conductors must not be modified, even on a temporary basis, beyond that allowed by this part for the installation safety requirements for overcurrent protection.

WAC 296-307-37823 Test instruments and equipment.

- (1) Only qualified persons may perform testing work on electric circuits or equipment.
- (2) Test instruments and equipment and all associated test leads, cables, power cords, probes, and connectors must be visually inspected for external defects and damage before the equipment is used. If there is a defect or evidence of damage that might expose an employee to injury, the defective or damaged item must be removed from service, and no employee may use it until necessary repairs and tests to render the equipment safe have been made.
- (3) Test instruments and equipment and their accessories must be rated for the circuits and equipment to which they will be connected and must be designed for the environment in which they will be used.

WAC 296-307-37825 Flammable materials.

Where flammable materials are present only occasionally, electric equipment capable of igniting them must not be used, unless measures are taken to prevent hazardous conditions from developing.

Such materials include, but are not limited to: flammable gases, vapors, or liquids; combustible dust; and ignitable fibers or flyings.

Note: Electrical installation requirements for locations where flammable materials are present on a regular basis are contained in WAC 296-307-372.

WAC 296-307-380 Electrical protective equipment.

WAC 296-307-38003 Use of protective equipment.

- (1) Employees working in the areas where there are potential electrical hazards must have and use electrical protective equipment that is appropriate for the specific parts of the body to be protected and for the work to be performed.
- (2) If the insulating capability of protective equipment may be subject to damage during use, the insulating material must be protected.

For example: An outer covering of leather is sometimes used to protect rubber insulating material.

- (3) Employees must wear nonconductive head protection wherever there is a danger of head injury from electric shock or burns due to contact with exposed energized parts.
- (4) Employees must wear protective equipment for the eyes or face wherever there is danger of injury to the eyes or face from electrical arcs or flashes or from flying objects resulting from electrical explosion.

WAC 296-307-38006 General protective equipment and tools.

- (1) When working near exposed energized conductors or circuit parts, each employee must use insulated tools or handling equipment if the tools or handling equipment might make contact with such conductors or parts. If the insulating capability of insulated tools or handling equipment is subject to damage, the insulating material must be protected.
- (2) Ropes and handlines used near exposed energized parts must be nonconductive.
- (3) Protective shields, protective barriers, or insulating materials must be used to protect each employee from shock, burns, or other electrically related injuries while that employee is working near exposed energized parts that might be accidentally contacted or where dangerous electric heating or arcing might occur. When normally enclosed live parts are exposed for maintenance or repair, they must be guarded to protect unqualified persons from contact with the live parts.
- (4) Altering techniques must be used to warn and protect employees from hazards that could cause injury due to electric shock, burns, or failure of electric equipment parts.
- (5) Safety signs, safety symbols, or accident prevention tags must be used where necessary to warn employees about electrical hazards that may endanger them, as required by WAC 296-307-330.

WAC 296-307-38009 Manufacturing and marking requirements that apply to electrical protective devices.

Insulating blankets, matting, covers, line hose, gloves, and sleeves made of rubber must meet the following manufacture and marking requirements:

- (1) Blankets, gloves, and sleeves must be produced by a seamless process.
- (2) Each item must be clearly marked as follows:
 - (a) All classified equipment must be marked with its class number.

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- (b) Nonozone-resistant equipment other than matting must be marked Type I.
 - (c) Ozone-resistant equipment other than matting must be marked Type II.
 - (d) Other relevant markings, such as the manufacturer's identification and the size of the equipment, may also be provided.
- (3) Markings must be nonconducting and must be applied so they do not impair the insulating qualities of the equipment.
 - (4) Markings on gloves must be on the cuff.

WAC 296-307-38012 Electrical requirements that apply to electrical protective devices.

Insulating blankets, matting, covers, line hose, gloves, and sleeves made of rubber must meet the following electrical requirements:

- (1) Equipment must be capable of withstanding the a-c proof-test voltage specified in Table 1 or the d-c proof-test voltage specified in Table 2.
 - (a) The proof-test must reliably indicate that the equipment can withstand the voltage involved.
 - (b) The test voltage must be applied continuously for three minutes for equipment other than matting and must be applied continuously for one minute for matting.
 - (c) Gloves must also be capable of withstanding the a-c proof-test voltage specified in Table 1 after a sixteen-hour water soak.
- (2) When the a-c proof-test is used on gloves, the 60 hertz proof-test current must not exceed the values specified in Table 1 at any time during the test period.
 - (a) If the a-c proof-test is made at a frequency other than 60 hertz, the permissible proof-test current must be computed from the direct ratio of the frequencies.
 - (b) For the test, gloves (right side out) must be filled with tap water and immersed in water to a depth that is in accordance with Table 3. Water must be added to or removed from the glove, as necessary, so that the water level is the same inside and outside the glove.
 - (c) After the sixteen-hour water soak, the 60 hertz proof-test current may exceed the values given in Table 1 by not more than 2 milliamperes.
- (3) Equipment that has been subjected to a minimum breakdown voltage test must not be used for electrical protection.
- (4) Material used for Type II insulating equipment must be capable of withstanding an ozone test, with no visible effects. The ozone test must reliably indicate that the material will resist ozone exposure in actual use. Any visible signs of ozone deterioration of the material, such as checking, cracking, breaks, or pitting, is evidence of failure to meet the requirements for ozone-resistant material.

Note: Rubber insulating equipment meeting the following national consensus standards is considered to be in compliance with WAC 296-307-38009, 296-307-38012, and 296-307-38015:

1. American Society for Testing and Materials (ASTM) D 120-87, Specification for Rubber Insulating Gloves.
2. ASTM D 178-93, Specification for Rubber Insulating Matting.
3. ASTM D 1048-93, Specification for Rubber Insulating Blankets.
4. ASTM D 1049-93, Specification for Rubber Insulating Covers.
5. ASTM D 1050-90, Specification for Rubber Insulating Line Hose.
6. ASTM D 1051-87, Specification for Rubber Insulating Sleeves.

These standards contain specifications for conducting the tests required in this section.

WAC 296-307-38015 Workmanship and finish requirements that apply to electrical protective devices.

Insulating blankets, matting, covers, line hose, gloves, and sleeves made of rubber must meet the following workmanship and finish requirements:

- (1) Equipment must be free of harmful physical irregularities that can be detected by the tests or inspections required in WAC 296-307-38012.
- (2) Surface irregularities that may be present on all rubber goods because of imperfections on forms or molds or because of inherent difficulties in the manufacturing process and that may appear as indentations, protuberances, or imbedded foreign material are acceptable if:
 - (a) The indentation or protuberance blends into a smooth slope when the material is stretched.
 - (b) Foreign material remains in place when the insulating material is folded and stretches with the insulating material surrounding it.

WAC 296-307-38018 Use and maintenance of electrical protective devices.

- (1) Electrical protective equipment must be maintained in a safe, reliable condition.
- (2) The following specific requirements apply to insulating blankets, covers, line hose, gloves, and sleeves made of rubber:
 - (a) Maximum use voltages must meet the requirements in Table 4.
 - (b) Insulating equipment must be inspected for damage before each day's use and immediately following any incident that can reasonably be suspected of having caused damage. Insulating gloves must be given an air test, along with the inspection.
 - (c) Insulating equipment with any of the following defects must not be used:

- (i) A hole, tear, puncture, or cut;
 - (ii) Ozone cutting or ozone checking (the cutting action produced by ozone on rubber under mechanical stress into a series of interlacing cracks);
 - (iii) An embedded foreign object;
 - (iv) Any of the following texture changes: Swelling, softening, hardening, or becoming sticky or inelastic;
 - (v) Any other defect that damages the insulating properties.
- (d) Insulating equipment found to have other defects that might affect its insulating properties must be removed from service and returned for testing under (h) of this subsection.
- (e) Insulating equipment must be cleaned as needed to remove foreign substances.
- (f) Insulating equipment must be stored in such a location and in such a manner as to protect it from light, temperature extremes, excessive humidity, ozone, and other injurious substances and conditions.
- (g) Protector gloves must be worn over insulating gloves.
- (h) Electrical protective equipment must be subjected to periodic electrical tests. Test voltages and the maximum intervals between tests must be according to Table 4 and Table 5.
- (i) The test method used must reliably indicate whether the insulating equipment can withstand the voltages involved.

Note: Standard electrical test methods considered as meeting this requirement are given in the following national consensus standards:

1. American Society for Testing and Materials (ASTM) D 120-87, Specification for Rubber Insulating Gloves.
2. ASTM D 1048-93, Specification for Rubber Insulating Blankets.
3. ASTM D 1049-93, Specification for Rubber Insulating Covers.
4. ASTM D 1050-90, Specification for Rubber Insulating Line Hose.
5. ASTM D 1051-87, Specification for Rubber Insulating Sleeves.
6. ASTM F 478-92, Specification for In-Service Care of Insulating Line Hose and Covers.
7. ASTM F 479-88a, Specification for In-Service Care of Insulating Blankets.
8. ASTM F 496-93b, Specification for In-Service Care of Insulating Gloves and Sleeves.

- (j) Insulating equipment that fails inspections or electrical tests must not be used by employees, except as follows:
- (i) Rubber insulating line hose could be used in shorter lengths with the defective portion cut off.

- (ii) Rubber insulating blankets could be repaired using a compatible patch that results in physical and electrical properties equal to those of the blanket.
- (iii) Rubber insulating blankets could be salvaged by severing the defective area from the undamaged portion of the blanket. The resulting undamaged area must not be smaller than twenty-two inches by twenty-two inches (560 mm by 560 mm) for Class 1, 2, 3, and 4 blankets.
- (k) Repaired insulating equipment must be retested before it may be used by employees.
- (l) The employer must certify that equipment has been tested in accordance with the requirements of (h), (i), and (k) of this subsection. The certification must identify the equipment that passed the test and the date it was tested.

Note: This requirement may be met by marking the equipment and entering the results of the tests and the dates of testing onto logs.

Table 1 A-C Proof-Test Requirements Maximum proof-test current, mA (gloves only)

Class of equipment	Proof-test voltage rms V	267 mm (10.5 in.) glove	356 mm (14 in.) glove	406 mm (16 in.) glove	457 mm (18 in.) glove
0	5,000	8	12	14	16
1	10,000		14	16	18
2	20,000		16	18	20
3	30,000		18	20	22
4	40,000			22	24

Table 2 D-C Proof-Test Requirements

Class of equipment	Proof-test voltage
0	20,000
1	40,000
2	50,000
3	60,000
4	70,000

Note: The d-c voltages listed in this table are not appropriate for proof testing rubber insulating line hose or covers. For this equipment, d-c proof-tests must use a voltage high enough to indicate that the equipment can be safely used at the voltages listed in Table 3. See ASTM D 1050-90 and ASTM D 1049-88 for further information on proof tests for rubber insulating line hose and covers.

d

Table 3 Glove Tests-Water Level ^{1, 2}

Class of glove	A-C proof-test		D-C proof-test	
	mm.	in.	mm.	in.
0	38	1.5	38	1.5
1	38	1.5	51	2.0
2	64	2.5	76	3.0
3	89	3.5	102	4.0
4	127	5.0	153	6.0

¹ The water level is given as the clearance from the cuff of the glove to the water line, with a tolerance of 13 mm. (0.5 in.).
² If atmospheric conditions make the specified clearances impractical, the clearances may be increased by a maximum of 25 mm. (1 in.).

Table 4 Rubber Insulating Equipment Voltage Requirements

Class of equipment	Maximum use voltage ¹ a-c-rms	Retest voltage ² a-c-rms	Retest voltage ² d-c-rms
0	1,000	5,000	20,000
1	7,500	10,000	40,000
2	17,000	20,000	50,000
3	26,500	30,000	60,000
4	36,000	40,000	70,000

Note: Rubber gloves must only be used on voltages of 5,000 volts phase to phase or less.

¹ The maximum use voltage is the a-c voltage (rms) classification of the protective equipment that designates the maximum nominal design/voltage of the energized system that may be safely worked. The nominal design voltage is equal to the phase-to-phase voltage on multiphase circuits. However, the phase-to-ground potential is considered to be the nominal design/voltage:
 (a) If there is no multiphase exposure in a system area and if the voltage exposure is limited to the phase-to-ground potential, or
 (b) If the electrical equipment and devices are insulated or isolated or both so that the multiphase exposure on a grounded wye circuit is removed.

² The proof-test voltage must be applied continuously for at least one minute, but no more than three minutes.

Table 5 Rubber Insulating Equipment Test Intervals

Type of equipment	When to test
Rubber insulating line hose	Upon indication that insulating value is suspect
Rubber insulating covers	Upon indication that insulating value is suspect
Rubber insulating blankets	Before first issue and every 12 months thereafter
Rubber insulating gloves	Before first issue and every 6 months thereafter
Rubber insulating sleeves	Before first issue and every 12 months thereafter

- (3) Where switches or fuses of more than 150 volts to ground are not guarded during ordinary operations, suitable insulating floors, mats or platforms must be provided on which the operator must stand while handling the switches.

PART U-1
HAZARDOUS MATERIALS-ANHYDROUS AMMONIA

WAC		Page
296-307-400	Anhydrous ammonia.....	1
296-307-40001	Scope.....	1
296-307-40003	Definitions that apply to this section.....	1
296-307-40005	Storage and handling of anhydrous ammonia.	1
296-307-40007	Systems mounted on farm wagons (implements of husbandry) for the transportation of ammonia.	1
296-307-40009	Systems mounted on farm wagons implements of husbandry) for the application of ammonia.	3
296-307-40011	Approved anhydrous ammonia equipment.	3
296-307-40013	Construction, original test, and requalification of nonrefrigerated containers.	4
296-307-40015	Marking nonrefrigerated containers and systems (other than DOT containers).	5
296-307-40017	Locations for anhydrous ammonia containers.	6
296-307-40019	Container accessories.	7
296-307-40021	Piping, tubing, and fittings.	7
296-307-40023	Specifications for hoses.	8
296-307-40025	Safety-relief devices.....	8
296-307-40027	Emergency precautions when handling anhydrous ammonia.	11
296-307-40029	Filling densities.....	12
296-307-40031	Transfer of liquids.	13
296-307-40033	Tank car unloading points and operations.	14
296-307-40035	Liquid-level gauging device.....	15
296-307-40037	Maintenance of aboveground uninsulated containers.	15
296-307-40039	Electrical equipment and wiring.	15

WAC 296-307-400 Anhydrous ammonia.**WAC 296-307-40001 Scope.**

WAC 296-307-400 covers the transportation and application of anhydrous ammonia.

WAC 296-307-40003 Definitions that apply to this section.

Certified. The equipment has been tested by a nationally recognized testing laboratory and meets nationally recognized standards or is safe for a specific use; or is a kind whose production is periodically inspected by a nationally recognized testing laboratory, and bears identification of certification.

DOT. The Federal Department of Transportation.

DOT container. A container constructed according to the requirements of 49 C.F.R. chapter 1.

DOT cylinder. A cylinder that meets the requirements of 49 C.F.R chapter 1.

Labeled. The equipment has an attached label, symbol, or other identifying mark of a nationally recognized testing laboratory that makes periodic inspections of the production of such equipment, and the label indicates compliance with nationally recognized standards or tests.

WAC 296-307-40005 Storage and handling of anhydrous ammonia.

- (1) All employees must use at least gloves and goggles and may supplement with a face shield while working on or with charged anhydrous ammonia equipment.
- (2) The employer must ensure that equipment is inspected before each day's work. Conditions that would contribute to leaks must be corrected.
- (3) Hose end-valves must be closed when not in use to prevent accidental discharge in case the main valve is opened.
- (4) Relief and vapor valves must discharge away from the operator's working position.

WAC 296-307-40007 Systems mounted on farm wagons (implements of husbandry) for the transportation of ammonia.

All anhydrous ammonia containers with a capacity of 3,000 gallons or less and equipment mounted on farm wagons (implements of husbandry) that is used to transport ammonia must meet the requirements of this section.

WAC 296-307-40011 through 296-307-40037 also apply unless otherwise noted.

- (1) Containers must meet the following mounting requirements:
 - (a) The farm wagon or container has a stop so the container does not dislodge from its mounting when a farm wagon stops suddenly.

- (b) The container is anchored to the farm wagon at one or more places on each side of the container.
 - (c) The weight of containers mounted on four-wheel farm wagons, is distributed evenly over both axles.
 - (d) When the cradle and the container are not welded together, material between them eliminates metal-to-metal friction.
- (2) Container accessories must meet the following requirements:
- (a) Each container has a fixed maximum liquid-level gauge.
 - (b) All containers with more than 250-gallon capacity have a pressure gauge with a dial graduated from 0-400 psi.
 - (c) The filling connection is fitted with one of the following:
 - (i) A combination back-pressure check valve and excess-flow valve; or
 - (ii) One double or two single back-pressure check valves; or
 - (iii) A positive shut-off valve that has either an internal back-pressure check valve or an internal excess flow valve.
 - (d) All containers with more than 250-gallon capacity are equipped for spray loading or with an approved vapor return valve.
 - (e) All vapor and liquid connections have approved excess flow valves or quick-closing internal valves that are only open for operating.
- Exception:** Safety-relief valves and connections that are specifically exempted by WAC 296-307-40019(5) are exempt from this requirement.
- (f) Fittings are protected from physical damage by a rigid guard. The guard is designed to withstand force from any direction, equal to twice the weight of the container and lading, at a safety factor of four. If the guard is fully enclosed, the safety-relief valves are properly vented through the guard.
 - (g) If a liquid withdrawal line is installed in the bottom of a container, the connections and hose are at least as high as the lowest horizontal edge of the farm wagon axle.
 - (h) Both ends of the hose are secure while in transit.
- (3) Each side and the rear end of the container must be marked in letters at least four inches high, with the words "ANHYDROUS AMMONIA" or, "CAUTION-AMMONIA," or marked according to DOT regulations.
- (4) Farm wagons (implements of husbandry) must meet all state regulations and the following requirements:
- (a) All farm wagons must be securely attached to the vehicle drawing them by drawbars with safety chains.

- (b) A farm wagon must be constructed so that it will follow the path of the towing vehicle and will prevent the towed wagon from whipping or swerving dangerously from side to side.
- (c) All farm wagons must have five gallons or more of readily available clean water.

WAC 296-307-40009 Systems mounted on farm wagons (implements of husbandry) for the application of ammonia.

This section applies to systems mounted on farm equipment that are used for the field application of ammonia.

WAC 296-307-40011 through 296-307-40037 also apply unless otherwise noted.

- (1) All containers must be securely mounted.
- (2) Container valves and accessories must meet the following requirements:
 - (a) Each container has a fixed maximum liquid-level gauge.
 - (b) The filling connection is fitted with one of the following:
 - (i) A combination back-pressure check valve and excess-flow valve; or
 - (ii) One double or two single back-pressure check valves; or
 - (iii) A positive shut-off valve that has either an internal back-pressure check valve or an internal excess flow valve.
 - (c) An excess-flow valve is not required in the vapor connection if the controlling orifice is a maximum of 7/16 inch in diameter and the valve is a hand-operated shut-off valve. To assist in filling applicator tanks, the employer may bleed vapors to the open air, if this requirement is met.
 - (d) Metering devices may be connected directly to the tank withdrawal valve. The employer may use a union type connection between the tank valve and metering device. The employer may use remote mounting of metering devices if the hose meets the requirements of Appendix B. When the applicator tank is trailed and the metering device is remotely mounted, such as on the tractor tool bar, the employer must use an automatic break-away type, self-closing coupling.
 - (e) No excess-flow valve is required in the liquid withdrawal line if the controlling orifice between the contents of the container and the outlet of the shut-off valve is a maximum of 7/16 inch in diameter.

WAC 296-307-40011 Approved anhydrous ammonia equipment.

All equipment must be approved by one of the following methods:

- (1) The equipment was installed before February 8, 1973, and was approved and tested, and installed according to either the requirements of the American National Standard for the Storage and Handling of Anhydrous Ammonia, K61.1, or the Fertilizer Institute Standards

for the Storage and Handling of Agricultural Anhydrous Ammonia, M-1, in effect at the time of installation; or

- (2) The equipment is accepted, or certified, or listed, or labeled, or otherwise determined to be safe by a nationally recognized testing laboratory; or
 - (a) The equipment is a type that no nationally recognized testing laboratory accepts, certifies, lists, labels, or determines to be safe; and
 - (b) The equipment is inspected or tested by an authority responsible for enforcing occupational safety provisions of a law, code, or regulation pertaining to the storage, handling, transport, and use of anhydrous ammonia; and
 - (c) The equipment is found in compliance with either the requirements of the American National Standard for the Storage and Handling of Anhydrous Ammonia, K61.1, or the Fertilizer Institute Standards for the Storage and Handling of Agricultural Anhydrous Ammonia, M-1, in effect at the time of installation; or
- (4) For a custom-designed and custom-built unit:
 - (a) The employer cannot find a nationally recognized testing laboratory or authority responsible for the enforcement of a law, code or regulation pertaining to the storage, transportation and use of anhydrous ammonia that is willing to accept, certify, list, label or determine to be safe the employer's custom equipment; and
 - (b) The employer has on file a document attesting to its safe condition following appropriate tests. The document must be signed by a registered professional engineer or qualified person. The document must describe the test bases, test data and results, and also the qualifications of the certifying person.

WAC 296-307-40013 Construction, original test, and requalification of nonrefrigerated containers.

The code is the Unfired Pressure Vessel Code of the American Society of Mechanical Engineers (Section VIII of the ASME Boiler Construction Code), 1952, 1956, 1959, 1962, 1965, 1968 and 1971 editions, the joint code of the American Petroleum Institute and the American Society of Mechanical Engineers (API-ASME Code) 1951 edition, and amendments or later editions, as adopted.

- (1) Containers used with systems covered in WAC 296-307-40005 and 296-307-40007 must be constructed and tested according to the code.

Exception: Construction under Table UW-12 at a basic joint efficiency of under 80% is prohibited. Containers built according to code are exempt from paragraphs UG-125 to UG-128, inclusive, and paragraphs UG-132 and UG-133 of the code.

Note: This subsection allows the continued use or reinstallation of containers constructed and maintained according to the 1949, 1950, 1952, 1956, 1959, 1962, 1965 and 1968 editions of the Unfired Pressure Vessel Code of the ASME or any revisions thereof in effect at the time of fabrication.

- (2) Containers more than 36 inches in diameter or 250 gallons water capacity must be constructed to meet one or more of the following requirements:
 - (a) Containers must be stress relieved after fabrication according to the code; or
 - (b) Cold-formed heads, when used, must be stress relieved; or
 - (c) Hot-formed heads must be used.
- (3) Welding to the shell, head, or any other part of the container subject to internal pressure must be according to the code. Other welding is permitted only on saddle plates, lugs, or brackets attached to the container by the container manufacturer.

Containers used with systems covered in subsection (4) of this section must be constructed and tested in accordance with the DOT specifications.
- (4) Containers must comply with department of transportation specifications and must be maintained, filed, packaged, marked, labeled and shipped to comply with current DOT regulations and American National Standard Method of Marking Portable Compressed Gas Containers to identify the Material Contained, Z48.1-1954 R1970. See Appendix C for availability.

WAC 296-307-40015 Marking nonrefrigerated containers and systems (other than DOT containers).

- (1) System nameplates, when required, must be permanently attached to the system so they are readily accessible for inspection.
- (2) Each container or system covered in WAC 296-307-40005 and 296-307-40007 must be marked as follows:
 - (a) With indication that the container or system meets the requirements of the code under which the container is constructed.
 - (b) With indication on the container and system nameplate when the system is designed for underground installation.
 - (c) With the name and address of the supplier of the container or the trade name of the container and with the date of fabrication.
 - (d) With the water capacity of the container in pounds at 60°F or gallons, United States standard.
 - (e) With the design pressure in pounds per square inch gauge.
 - (f) With the wall thickness of the shell and heads.

- (g) With indication of the maximum fill level for liquid anhydrous ammonia between 20° F and 100°F. Markings must be in increments of not more than 20°F.

Exception: Containers with fixed maximum level indicators, such as fixed length dip tubes, or containers that are filled by weight are exempt from this requirement.

- (h) With the outside surface area in square feet.
- (i) With minimum temperature in Fahrenheit for which the container is designed.
- (j) The marking must be on the container itself or on a permanently attached nameplate.
- (3) All main operating valves on permanently installed containers with a capacity of over 3,000 water gallons must be identified to show whether the valve is in liquid or vapor service. The valve must be identified as follows:
- (a) The word LIQUID (or LIQUID VALVE), VAPOR (or VAPOR VALVE), as appropriate, must be placed on or within twelve inches of the valve by means of a stencil tag or decal.
- (b) Liquid valves must be painted orange and vapor valves must be painted yellow. The legend ORANGE-LIQUID, YELLOW-VAPOR must be displayed in one or more conspicuous places at each permanent storage location. The legend must have letters at least two inches high and must be placed against a contrasting background.
- (4) "Marking refrigerated containers." Each refrigerated container must be marked with a name plate on the outer covering in an accessible place as specified in the following:
- (a) With the notation, "Anhydrous Ammonia";
- (b) With the name and address of the builder and the date of fabrication;
- (c) With the water capacity in the container in gallons, U.S. Standard
- (d) With the design pressure;
- (e) With the minimum temperature in degrees Fahrenheit for which the container was designed;
- (f) The maximum allowable water level to which the container may be filled for test purposes;
- (g) With the density of the product in pounds per cubic foot for which the container was designed;
- (h) With the maximum level to which the container may be filled with liquid anhydrous ammonia.

WAC 296-307-40017 Locations for anhydrous ammonia containers.

- (1) When selecting the location for a storage container, the employer must take into account the physiological effects of ammonia and adjacent fire hazards. Containers located indoors must be in areas especially approved for container storage.
- (2) Containers must be located at least fifty feet from a dug well or other sources of potable water supply, unless the container is a part of a water treatment installation.
- (3) Permanent storage containers must be located outside densely populated areas.
- (4) Containers must be located according to the following:

Minimum distances (feet) from container to:

Nominal capacity of container	Line of adjoining property that may be built upon, highways and main line of railroad	Place of public assembly	Institution occupancy
Over 500 to 2,000	25	150	250
Over 2,000 to 30,000	50	300	500
Over 30,000 to 100,000	50	450	750
Over 100,000	50	600	1,000

- (5) Storage areas must be kept free of readily ignitable materials such as waste, weeds and long dry grass.

WAC 296-307-40019 Container accessories.

- (1) All accessories must be designed for at least the maximum working pressure of the part of the system on which they are installed. All accessories must be fabricated from materials suitable for anhydrous ammonia service.
- (2) All connections to containers must have shut-off valves located as close to the container as practical.

Exception: Safety-relief devices, gauging devices, or those fitted with a No. 54 drill size orifice are exempt from this requirement.

- (3) All required excess flow valves must close automatically at the rated flows of vapor or liquid specified by the manufacturer. The connections, lines, valves, and fittings must have a greater capacity than the rated flow of the excess flow valve.
- (4) Liquid-level gauging devices that require bleeding to the atmosphere and that are constructed so that outward flow is a maximum of that passed by a No. 54 drill size opening may be installed without excess flow valves.

- (5) Openings from the container or through fittings attached directly on container to which pressure gauge connections are made may be installed without excess flow valves if the openings are a maximum of No. 54 drill size.
- (6) Required excess flow and back pressure check valves must be located inside the container or outside as close as practical to where the line enters the container. When located outside, the installation must be made to prevent any stress beyond the excess flow or back pressure check valve from causing a break between the container and the valve.
- (7) Excess flow valves must be designed with a bypass that is a maximum of No. 60 drill size opening to allow equalization of pressures.
- (8) Shut-off valves provided with an excess flow valve must be designed for proper installation in a container connection so that the excess flow valve will close if the shut-off valve breaks.
- (9) All excess flow valves must be plainly and permanently marked with the name or trademark of the manufacturer, the catalog number, and the rated capacity.

WAC 296-307-40021 Piping, tubing, and fittings.

- (1) All piping, tubing and fittings must be made of material suitable for anhydrous ammonia service.
- (2) All piping, tubing and fittings must be designed for a pressure of at least the maximum pressure to which they may be subjected in service.
- (3) All piping must be well supported and allow for expansion and contraction. All refrigeration system piping must conform to the Refrigeration Piping Code (ANSI B31.5 1966 addenda B31.1a-1968), a section of the American Standard Code for Pressure Piping, as it applies to ammonia.
- (4) Piping used on nonrefrigerated systems must meet the requirements of ASTM A-53-1969 Grade B Electric Resistance Welded and Electric Flash Welded Pipe. Pipe must be at least Schedule 40 when joints are welded, or welded and flanged. Pipe must be at least Schedule 80 when joints are threaded. Brass, copper, or galvanized steel pipe or tubing is prohibited.
- (5) All metal flexible connections for permanent installations must have a minimum working pressure of 250 psig (safety factor of 4). For temporary installations, the employer may use hose that meets the requirements of WAC 296-307-40023.
- (6) Cast iron fittings are prohibited. The employer must use fittings made especially for ammonia service of malleable or nodular iron that meet the requirements of Specification ASTM A47 or ASTM A395.
- (7) All piping, tubing, and fittings must allow for expansion, contraction, jarring, vibration, and settling.
- (8) The employer must make adequate provision to protect all exposed piping from physical damage from moving machinery, the presence of automobiles or trucks, or other strain on the piping.
- (9) Joint compounds must be resistant to ammonia.

- (10) After assembly, all piping and tubing must be tested and proved to be free from leaks at pressure that is at least equal to the normal operating pressure of the system.

WAC 296-307-40023 Specifications for hoses.

- (1) Hose used in ammonia service and subject to container pressure must meet the requirements of the joint Rubber Manufacturers Association and the Fertilizer Institute "Hose Specifications for Anhydrous Ammonia."
- (2) Hose subject to container pressure must be designed for a minimum working pressure of 350 psig and a minimum burst pressure of 1750 psig. Hose assemblies must be able to withstand a test pressure of 500 psig.
- (3) Hose and hose connections on the low pressure side of flow control or pressure reducing valves on devices discharging to atmospheric pressure must be designed for the maximum low side working pressure. All connections must be designed, constructed, and installed to prevent leaks when connected.
- (4) Where liquid transfer hose is not drained after transfer operations, the hose must have an approved shut-off valve at the discharge end. The employer must provide a method to prevent excessive hydrostatic pressure in the hose. (See WAC 296-307-40025.)
- (5) On all hose 1/2-inch outside diameter and larger, used for the transfer of anhydrous ammonia liquid or vapor, the employer must ensure that the following information is etched, cast, or impressed at five-foot intervals:
 - (a) Anhydrous Ammonia;
 - (b) xxx psig (Maximum working pressure);
 - (c) Manufacturer's Name or Trademark;
 - (d) Year of Manufacture.

WAC 296-307-40025 Safety-relief devices.

- (1) Every container used in systems covered by WAC 296-307-400 must have one or more spring-loaded safety-relief valves or the equivalent.
- (2) The discharge from safety-relief valves must be vented away from the container, upward, and unobstructed to the atmosphere. All safety-relief valve discharge openings must have suitable raincaps that allow free discharge of the vapor and prevent water from entering. The employer must provide a method to drain condensate. The rate of discharge must be as follows:

Surface area sq ft	Flow rate CFM air	Surface area sq ft	Flow rate CFM air	Surface area sq ft	Flow rate CFM air
20	258	185	1,600	900	5,850
25	310	190	1,640	950	6,120
30	360	195	1,670	1,000	6,380
35	408	200	1,710	1,050	6,640
40	455	210	1,780	1,100	6,900
45	501	220	1,850	1,150	7,160
50	547	230	1,920	1,200	7,410

Surface area sq ft	Flow rate CFM air	Surface area sq ft	Flow rate CFM air	Surface area sq ft	Flow rate CFM air
55	591	240	1,980	1,250	7,660
60	635	250	2,050	1,300	7,910
65	678	260	2,120	1,350	8,160
70	720	270	2,180	1,400	8,410
75	762	280	2,250	1,450	8,650
80	804	290	2,320	1,500	8,900
85	845	300	2,380	1,550	9,140
90	885	310	2,450	1,600	9,380
95	925	320	2,510	1,650	9,620
100	965	330	2,570	1,700	9,860
105	1,010	340	2,640	1,750	10,090
110	1,050	350	2,700	1,800	10,330
115	1,090	360	2,760	1,850	10,560
120	1,120	370	2,830	1,900	10,800
125	1,160	380	2,890	1,950	11,030
130	1,200	390	2,950	2,000	11,260
135	1,240	400	3,010	2,050	11,490
140	1,280	450	3,320	2,100	11,720
145	1,310	500	3,620	2,150	11,950
150	1,350	550	3,910	2,200	12,180
155	1,390	600	4,200	2,250	12,400
160	1,420	650	4,480	2,300	12,630
165	1,460	700	4,760	2,350	12,850
170	1,500	750	5,040	2,400	13,080
175	1,530	800	5,300	2,450	13,300
180	1,570	850	5,590	2,500	13,520

Surface area = total outside surface area of container in square feet. When the surface area is not stamped on the name plate or when the marking is not legible, calculate the area with one of the following formulas:

- (a) Hemispherical heads: Area = (Length in feet) X (outside diameter in feet) X 3.1416.
- (b) Other than hemispherical heads: Area = (Length in feet) + (0.3 outside diameter in feet) X (outside diameter in feet) X 3.1416.
- (c) Spherical container: Area = (outside diameter in feet)² X 3.1416.

- (d) Flow rate: CFM air = cubic feet per minute of air required at standard conditions, 60F and atmospheric pressure (14.7 psia).

For containers with total outside surface area greater than 2,500 sq. ft., the formula is: Flow rate CFM air = $22.11 A^{0.82}$ where A = outside surface area of the container in square feet.

- (3) Container safety-relief valves must be set for start to discharge as follows, according to the design pressure of the container.

Containers	Minimum	Maximum *
ASME U-68, U-69	110%	125%
ASME U-200, U-201	95%	100%
ASME 1952, 1956, 1959, 1962, 1965, 1968 or 1971	95%	100%
API-ASME	95%	100%
U.S. Coast Guard	As required by USCG regulations	
DOT	As required by DOT regulations	
*Note: Plus a relief valve manufacturer's tolerance of ten percent.		

- (4) Safety-relief devices used in systems covered by WAC 296-307-400 must be constructed to discharge at a rate equal to or greater than the rates required in subsection (2) of this section before the pressure exceeds 120% (not including the tolerance referred to in subsection (3) of this section) of the maximum permitted start-to-discharge pressure setting of the device.
- (5) Safety-relief valves must be arranged to minimize tampering. If the pressure setting adjustment is external, the relief valves must have a sealable adjustment.
- (6) Shut-off valves installed between the safety-relief valves and the containers or systems described in WAC 296-307-400 are prohibited.

Exception: A shut-off valve may be used where the arrangement of the valve allows the required capacity flow through the relief valves.

Exception example 1: A three-way valve installed under two safety-relief valves, each of which has the required rate of discharge and is installed to allow either of the safety-relief valves to be closed off, but does not allow both safety valves to be closed off at the same time.

Exception example 2: Two separate relief valves are installed with individual shut-off valves. The two shut-off valve stems must be mechanically interconnected to allow the full required flow of one safety-relief valve at all times.

Exception example 3: A safety-relief valve manifold that allows one valve of two, three, four or more to be closed off and the remaining valve or valves will provide not less than the rate of discharge shown on the manifold nameplate.

- (7) Safety-relief valves must have direct communication with the vapor space of the container.
- (8) Each safety-relief valve used with systems described in WAC 296-307-400 must be plainly and permanently marked as follows:
 - (a) With the letters "AA" or the symbol NH₃.
 - (b) The pressure in pounds per square inch gauge (psig) at which the valve is set to start to discharge.
 - (c) The rate of discharge of the valve in cubic feet per minute of air at 60°F and atmospheric pressure (14.7 psia).
 - (d) The manufacturer's name and catalog number.

For example: A safety-relief valve marked AA-250-4200 (air) mean the valve is suitable for use on an anhydrous ammonia container; that it is set to start to discharge at 250 psig; and that its rate of discharge is 4,200 cubic feet per minute of air.

- (9) No connection to the safety-relief valve may restrict the flow capacity on either the upstream or downstream side.
- (10) The manufacturer or supplier of a safety-relief valve manifold must publish complete data showing the flow rating through the combined assembly of the manifold with safety-relief valves installed. The manifold flow rating must be determined by testing the manifold with all but one valve discharging. The flow rate must be determined by the restricted opening or openings or those having the lowest flow. The valve must be marked as required in subsection (7) of this section.
- (11) A hydrostatic relief valve must be installed between each pair of valves in the liquid ammonia piping or hose where liquid may be trapped to release into the atmosphere at a safe location.
- (12) Discharge from safety-relief devices must not terminate in or beneath any building.

WAC 296-307-40027 Emergency precautions when handling anhydrous ammonia.

- (1) The employer must train employees required to handle ammonia in the safe operating practices and the proper action to take in an emergency. Employees must be instructed to use the equipment listed in subsection (3) of this section in an emergency.
- (2) If ammonia system leaks, the employees trained for and designated to act in emergencies must:
 - (a) See that anyone not required to deal with an emergency is evacuated from the contaminated area.
 - (b) Have 2 suitable gas masks in readily accessible locations. Full face masks with

ammonia canisters as certified by NIOSH under 42 CFR Part 84, are suitable for emergency action for most leaks, particularly those that occur outdoors. For protection in concentrated ammonia atmospheres, self-contained breathing apparatus is required.

- (c) Wear gauntlet type plastic or rubber gloves and wear plastic or rubber suits in heavily contaminated atmospheres.
 - (d) Shut off the appropriate valves.
- (3) All storage systems must have on hand at least the following equipment for emergency and rescue purposes:
- (a) *One full face gas mask with anhydrous ammonia refill canisters.
 - (b) **One pair of protective gloves.
 - (c) **One pair of protective boots.
 - (d) **One protective slicker and/or protective pants and jacket.
 - (e) Easily accessible shower and/or at least 50 gallons of clean water in an open top container.
 - (f) Tight-fitting vented goggles or one full face shield.

*If ammonia vapors are detected when the mask is applied, leave the area immediately. The life of a canister in service is controlled by the percentage of vapors to which it is exposed. Canisters must not be opened until ready for use and should be discarded after use or as recommended by the canister manufacturer. Unopened canisters may be guaranteed for as long as three years and all should be dated when received. In addition, an independently supplied air mask of the type used by fire departments may be used for emergencies.

**Gloves, boots, slickers, jackets, and pants must be made of rubber or other material impervious to ammonia.

- (4) Where several persons are usually present, additional safety equipment may be necessary.
- (5) Each tank motor vehicle transporting anhydrous ammonia, except farm applicator vehicles, must carry a container of at least five gallons of water and must have a full face gas mask, a pair of tight-fitting goggles or one full face shield. The driver must be instructed in their use and the proper action to take to provide for the driver's safety.
- (6) If a leak occurs in transportation equipment and it is impractical to stop the leak, the driver should move the vehicle to an isolated location.
- (7) If liquid ammonia contacts the skin or eyes, the affected area should be promptly and thoroughly flushed with water. Do not use neutralizing solutions or ointments on affected areas. A physician must treat all cases of eye exposure to liquid ammonia.

WAC 296-307-40029 Filling densities.

Filling density means the percent ratio of the weight of the gas in a container to the weight of water at 60°F that the container will hold. One pound of water equals 27.737 cubic inches at 60°F. To determine the weight capacity of the tank in pounds, the weight of a gallon (231 cubic inches) of water at 60°F in air must be 8.32828 pounds.

- (1) The filling densities for nonrefrigerated containers must not exceed the following:

	Aboveground	Underground
(i) Uninsulated	56%	58%
(ii) Insulated	57%	
(iii) DOT containers must be filled according to DOT regulations.		
This corresponds to 82% by volume at -28°F, 85% by volume at 5°F, 87.5% by volume at 30°F, and 90.6% by volume at 60°F.		

- (2) When containers are filled according to liquid level by any gauging method other than a fixed length dip tube gauge, each container must have a thermometer well so that the internal liquid temperature can be easily determined and the amount of liquid and vapor in the container corrected to a 60°F basis.

WAC 296-307-40031 Transfer of liquids.

- (1) Anhydrous ammonia must always be at a temperature suitable for the material of construction and design of the receiving containers. Ordinary steels are not suitable for refrigerated ammonia. See Appendix R of API Standard 620 "Recommended Rules for Design and Construction of Large Welded Low-Pressure Storage Tanks" for materials for low temperature service.
- (2) At least one attendant must supervise the transfer of liquids from the time the connections are first made until they are finally disconnected.
- (3) Flammable gases or gases that will react with ammonia (such as air) must not be used to unload tank cars or transport trucks.
- (4) Containers must be charged or used only on authorization of the owner.
- (5) Containers must be gauged and charged only in the open atmosphere or in buildings approved for that purpose.
- (6) Pumps used for transferring ammonia must be recommended and labeled for ammonia service by the manufacturer.
 - (a) Pumps must be designed for at least 250 psig working pressure.
 - (b) Positive displacement pumps must have installed, off the discharge port, a constant differential relief valve discharging into the suction port of the pump through a line large enough to carry the full capacity of the pump at relief valve setting. The setting and installation must be according to the pump manufacturer's recommendations.

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- (c) On the discharge side of the pump, before the relief valve line, there must be a pressure gauge graduated from 0 to 400 psig installed.
 - (d) Plant piping must contain shut-off valves located as close as practical to pump connections.
- (7) Compressors used for transferring or refrigerating ammonia must be recommended and labeled for ammonia service by the manufacturer.
- (a) Compressors, except those used for refrigeration, must be designed for at least 250 psig working pressure. Crank cases of compressors not designed to withstand system pressure must be protected with a suitable safety-relief valve.
 - (b) Plant piping must have shut-off valves located as close as practical to compressor connections.
 - (c) A safety-relief valve large enough to discharge the full capacity of the compressor must be connected to the discharge before any shut-off valve.
 - (d) Compressors must have pressure gauges at suction and discharge graduated to at least one and one-half times the maximum pressure that can develop.
 - (e) Adequate means, such as drainable liquid trap, must be provided on the compressor suction to minimize the entry of liquid into the compressor.
 - (f) Where necessary to prevent contamination, an oil separator must be provided on the discharge side of the compressor.
- (8) Loading and unloading systems must be protected by suitable devices to prevent emptying of the storage container or the container being loaded or unloaded if the hose is cut. Backflow check valves or properly sized excess flow valves must be installed where necessary to provide this protection. In the event that valves are not practical, remotely operated shut-off valves may be installed.
- (9) Meters used to measure liquid anhydrous ammonia must be recommended and labeled for ammonia service by the manufacturer.
- (a) Liquid meters must be designed for a minimum working pressure of 250 psig.
 - (b) The metering system must incorporate devices that will prevent the inadvertent measurement of vapor.

WAC 296-307-40033 Tank car unloading points and operations.

- (1) Provisions for unloading tank cars must meet DOT requirements.
- (2) Unloading operations must be performed by reliable employees who are properly instructed and responsible for careful compliance with all procedures.
- (3) Caution signs must be placed on the track or car to give necessary warning to anyone approaching car from the open end of the siding. The signs must be left up until after car is unloaded and disconnected from discharge connections. Signs must be of metal or other suitable material, at least 12 by 15 inches, and bear the words "STOP-Tank car

connected” or “STOP-Men at work.” The word “STOP” must be in letters at least four inches high and the other words in letters at least two inches high. The letters must be white on a blue background.

- (4) The track of a tank car siding must be substantially level.
- (5) Brakes must be set and wheels blocked on all cars being unloaded.
- (6) Tank cars of anhydrous ammonia must be unloaded only at approved locations meeting the requirements of WAC 296-307-40025(4) and 296-307-40031(8).

WAC 296-307-40035 Liquid-level gauging device?

- (1) Each container except those filled by weight must have an approved liquid-level gauging device.
- (2) All gauging devices must be arranged so that the maximum liquid level to which the container is filled is easily determined.
- (3) Gauging devices that require bleeding of the product to the atmosphere such as the rotary tube, fixed tube, and slip tube devices, must be designed so that the maximum opening of the bleed valve is a maximum of No. 54 drill size unless provided with an excess flow valve.
- (4) Gauging devices must have a design pressure equal to or greater than the design pressure of the container on which they are installed.
- (5) Fixed liquid-level gauges must be designed so that the maximum volume of the container filled by liquid is a maximum of 85% of its water capacity. The coupling into which the fixed liquid-level gauge is threaded must be placed at the 85% level of the container. If located elsewhere, the dip tube of this gauge must be installed so that it cannot be readily removed.

Note: This does not apply to refrigerated storage.

- (6) Columnar gauge glasses must be restricted to stationary storage installation. They must have shut-off valves having metallic hand wheels, excess flow valves, and extra heavy glass adequately protected by a metal housing applied by the gauge manufacturer. They must be shielded against the direct rays of the sun.

WAC 296-307-40037 Maintenance of aboveground uninsulated containers.

Aboveground uninsulated containers should have a reflective surface maintained in good condition. We recommend white for painted surfaces, but other light reflecting colors are acceptable.

WAC 296-307-40039 Electrical equipment and wiring.

- (1) Electrical equipment and wiring for use in ammonia installations must be general purpose or weather resistant as appropriate.

- (2) Where concentrations of ammonia in the air in excess of 16% by volume are likely to be encountered, electrical equipment and wiring must be specified by and installed according to chapter 296-307 WAC Part T, for Class I, Group D locations.

PART U-2
HAZARDOUS MATERIALS-LIQUEFIED PETROLEUM GAS

WAC		Page
296-307-410	Storage and handling of liquefied petroleum gases.....	1
296-307-41001	Scope.....	1
296-307-41003	LP-gas installations not covered by this part.....	1
296-307-41005	Definitions that apply to this part.....	1
296-307-41007	Odorizing LP-gas.....	2
296-307-41009	Approval of LP-gas containers and equipment.....	2
296-307-41011	Construction and test requirements for containers.....	3
296-307-41013	Welding containers.....	3
296-307-41015	Marking containers.....	3
296-307-41017	Container locations.....	4
296-307-41019	Valves and accessories.....	5
296-307-41021	Piping, tubing, and fittings.....	6
296-307-41023	Specifications for hoses.....	9
296-307-41025	Safety devices.....	9
296-307-41027	Construction and installation of indirect fired vaporizers.....	13
296-307-41029	Construction and installation of atmospheric vaporizers.....	14
296-307-41031	Construction and installation of direct gas-fired vaporizers.....	14
296-307-41033	Construction and installation of direct gas-fired tank heaters.....	15
296-307-41035	Construction and installation of dehydrators.....	16
296-307-41037	Maximum filling densities.....	17
296-307-41039	LP-gas in buildings.....	18
296-307-41041	Transferring of liquids.....	19
296-307-41043	Training for workers.....	20
296-307-41045	Fire protection for LP-gas installations.....	20
296-307-41047	Electrical requirements that apply to LP-gas installations.....	20
296-307-41049	Liquid-level gauging devices.....	24
296-307-41051	Requirements that apply to appliances.....	27
296-307-415	Cylinder systems.....	27
296-307-41501	Scope.....	27
296-307-41503	Cylinder system.....	27
296-307-41505	Marking containers used in cylinder systems.....	27
296-307-41507	Additional requirements that apply to cylinder systems installed outdoors.....	28
296-307-41509	Additional requirements that apply to cylinder systems installed indoors.....	28
296-307-41511	Valves and accessories.....	31
296-307-41513	Safety devices for cylinder systems.....	31
296-307-41515	Other requirements that apply to cylinder systems.....	32
296-307-420	Systems using non-DOT containers.....	32

WAC	Page
296-307-42001	Scope..... 32
296-307-42003	Design and classification of non-DOT containers. 32
296-307-42005	Valves and accessories, filler pipes, and discharge pipes for non-DOT containers. 33
296-307-42007	Additional requirements that apply to safety devices for non-DOT containers. 34
296-307-42009	Reinstallation of non-DOT containers..... 36
296-307-42011	Maximum capacity for non-DOT containers..... 36
296-307-42013	Installing non-DOT containers. 36
296-307-42015	Protecting non-DOT containers. 38
296-307-42017	Non-DOT containers in industrial plants. 38
296-307-42019	Container-charging plants..... 39
296-307-42021	Fire protection for non-DOT containers. 39
296-307-42023	Other requirements that apply to non-DOT containers..... 39
296-307-425	LP-gas as a motor fuel. 40
296-307-42501	Scope..... 40
296-307-42503	Using LP-gas used as a motor fuel. 40
296-307-42505	Design and classification of fuel containers. 41
296-307-42507	Installing fuel containers..... 41
296-307-42509	Valves and accessories..... 42
296-307-42511	Piping, tubing, and fittings. 43
296-307-42513	Safety devices. 43
296-307-42515	Vaporizers. 43
296-307-42517	Gas regulating and mixing equipment..... 44
296-307-42519	Maximum container capacity. 44
296-307-42521	Stationary engines used indoors. 44
296-307-42523	Portable engines used indoors. 45
296-307-42525	Industrial trucks used indoors. 45
296-307-42527	LP-gas-fueled vehicles to be garaged. 45
296-307-430	Storage of containers awaiting use or resale..... 45
296-307-43001	Scope..... 45
296-307-43003	Storage of containers..... 46
296-307-43005	Containers stored within buildings frequented by the public..... 46
296-307-43007	How must containers be stored in buildings not frequented by the public..... 46
296-307-43009	Containers stored within special buildings or rooms. 46
296-307-43011	Containers stored outdoors..... 47
296-307-43013	Fire protection provided for stored containers..... 47
296-307-435	LP-gas system installations on commercial vehicles. 48
296-307-43501	Scope..... 48
296-307-43503	Container construction. 48

WAC	Page
296-307-43505	Maximum capacity allowed for LP-gas installations on commercial vehicles..... 50
296-307-43507	Location of systems. 51
296-307-43509	Valves and accessories..... 51
296-307-43511	Safety devices. 51
296-307-43513	Systems used on commercial vehicles..... 52
296-307-43515	Enclosures and mountings..... 52
296-307-43517	Piping, tubing, and fittings..... 52
296-307-43519	Appliances..... 52
296-307-43521	General precautions the employer must follow for LP-gas system installations on commercial vehicles..... 53
296-307-43523	Containers to be charged..... 54
296-307-43525	Fire protection for mobile cook units. 54
296-307-440	LP-gas service stations..... 54
296-307-44001	Scope..... 54
296-307-44003	Design and classification of storage containers. 54
296-307-44005	Valves and accessories..... 55
296-307-44007	Safety devices. 55
296-307-44009	Maximum capacity allowed for containers. 56
296-307-44011	Installation of storage containers. 56
296-307-44013	Protecting equipment against tampering..... 58
296-307-44015	Transport truck unloading point..... 58
296-307-44017	Piping, valves, and fittings. 58
296-307-44019	Pumps and accessory equipment. 59
296-307-44021	LP-gas dispensing devices. 59
296-307-44023	Smoking is prohibited at LP-gas service stations..... 60
296-307-44025	Fire protection at LP-gas service stations. 60

WAC 296-307-410 Storage and handling of liquefied petroleum gases.

WAC 296-307-41001 Scope.

Chapter 296-307 WAC Part U2 covers the storage and handling of liquefied petroleum gases. The requirements of WAC 296-307-410 apply to all LP-gas installations covered by this part.

For additional requirements related to:	See WAC:
Cylinder systems	296-307-415
Systems using non-DOT containers	296-307-420
LP-gas as a motor fuel	296-307-425
Storage of containers awaiting use or resale	296-307-430
LP-gas installations on commercial vehicles	296-307-435
LP-gas service stations	296-307-440

WAC 296-307-41003 LP-gas installations not covered by this part.

- (1) This part does not apply to:
 - (a) LP-gas refrigerated storage systems;
 - (b) LP-gas used with oxygen;
 - (c) LP-gas used in utility gas plants (covered by the National Fire Protection Association Standard for the Storage and Handling of Liquefied Petroleum Gases at Utility Gas Plants, NFPA No. 59-1968);
 - (d) Low-pressure (less than 1/2 pound per square inch or 14 inches water column) LP-gas piping systems, and the installation and operation of residential and commercial appliances supplied through such systems. The National Fire Protection Association Standard for the Installation of Gas Appliances and Gas Piping, NFPA 54-1969 apply to these systems.
- (2) LP-gas installations, equipment, and appliances that met the requirements of the National Fire Protection Association Standard for the Storage and Handling of Liquefied Petroleum Gases NFPA No. 58-1972, 1973 at the time of manufacture or installation may be used if they do not create a hazard to employees.

WAC 296-307-41005 Definitions that apply to this part.

Adequate ventilation (for fire prevention during normal operation). The concentration of the gas in a gas-air mixture does not exceed 25% of the lower flammable limit.

Containers. All vessels, such as tanks, cylinders, or drums, used to transport or store LP-gases.

DOT. The federal Department of Transportation.

DOT container. A container that meets DOT regulations.

DOT cylinder. A cylinder that meets DOT regulations.

DOT regulations/requirements/specifications. The DOT regulations of 49 C.F.R. part 178.

Liquefied petroleum gases and LP-gas. Any material that is composed mostly of any of the following: Hydrocarbons, or mixtures of them; propane; propylene; butanes (normal butane or iso-butane); and butylenes.

PSIA. Pounds per square inch absolute.

PSIG. Pounds per square inch gauge.

Systems. An assembly of the container or containers, major devices such as vaporizers, safety-relief valves, excess flow valves, regulators, and piping connecting such parts.

Vaporizer-burner. An integral vaporizer-burner unit, dependent upon the heat generated by the burner to vaporize the liquid used for dehydrators or dryers.

WAC 296-307-41007 Odorizing LP-gas.

The employer must ensure that all LP-gas is odorized by an approved agent to indicate by distinct odor, the presence of gas down to concentration in air of a maximum of 1/5 the lower limit of flammability.

Exception: Odorization is not required if it will create a hazard in further processing, or if it serves no useful purpose as a warning agent.

Note: The odorization requirement may be met by using 1.0 pounds of ethyl mercaptan, 1.0 pounds of thiophene, or 1.4 pounds of amyl mercaptan per ten thousand gallons of LP-gas. The employer may use any odorant and quantity that meets the requirements of this section.

WAC 296-307-41009 Approval of LP-gas containers and equipment.

- (1) Each system of DOT containers must have approved container valves, connectors, manifold valve assemblies, and regulators.
- (2) Each non-DOT system using containers of 2,000 gallons or less water capacity, must have a container assembly, one or more regulators, and other necessary parts. The entire system, or the container assembly with the regulators, must be individually listed by a nationally recognized testing laboratory.

Container assembly. The container and fittings for all openings, including shut-off valves, excess flow valves, liquid-level gauging devices, safety-relief devices, and protective housing.

-
- (3) In systems using containers of over 2,000 gallons water capacity, each regulator, container, valve, excess flow valve, gauging device, and relief valve, must be listed by a nationally recognized testing laboratory.
 - (4) All DOT containers must be constructed, tested, and stamped according to the DOT specifications effective at the date of their manufacture.

WAC 296-307-41011 Construction and test requirements for containers.

- (1) Containers must be designed, constructed, and tested according to the Rules for Construction of Unfired Pressure Vessels, section VIII, Division 1, American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, 1968 edition, unless otherwise specified.
- (2) Containers constructed according to the 1949 and earlier editions of the ASME Code are exempt from U-2 through U-10 and U-19 of the code. Containers constructed according to U-70 in the 1949 and earlier editions do not meet the requirements of this section.
- (3) Containers designed, constructed, and tested prior to July 1, 1961, according to the Code for Unfired Pressure Vessels for Petroleum Liquids and Gases, 1951 edition with 1954 Addenda, of the American Petroleum Institute and the American Society of Mechanical Engineers are considered in compliance. Containers constructed according to API-ASME Code do not have to comply with section I or with the appendix to section I. W-601 through W-606 in the 1943 and earlier editions do not apply.

WAC 296-307-41013 Welding containers.

- (1) The employer must ensure that all welding to the shell, head, or any other part of the container subject to internal pressure, meets the requirements of the code under which the tank was fabricated. The employer may weld on saddle plates, lugs, or brackets attached to the container by the tank manufacturer.
- (2) When the employer must repair or modify DOT containers by welding, the employer must return the container to a qualified manufacturer, making containers of the same type, to make the repair or modification according to DOT regulations.

WAC 296-307-41015 Marking containers.

- (1) The employer must ensure that containers are marked according to DOT regulations or with the following:
 - (a) Indication that the container meets the requirements of the code under which it is constructed, and all marks required by that code.
 - (b) Indication whether the container is designed for underground or aboveground installation or both. If intended for both and different style hoods are provided, the marking must indicate the proper hood for each type of installation.
 - (c) The name and address of the supplier of the container, or with the trade name of the container.
 - (d) The water capacity of the container in pounds or gallons, United States standard.

- (e) The pressure in psig, for which the container is designed.
- (f) The wording "This container must not contain a product with a vapor pressure greater than psig at 100°F."
- (g) The tare weight, for containers with a water capacity of three hundred pounds or less.
- (h) Indication of the maximum fill level for liquid at temperatures between 20°F and 130 °F. Markings must be in maximum increments of 20°F. This marking may be located on the liquid level gauging device.

<p>Exception: Containers provided with fixed maximum level indicators or that are filled by weighing are exempt from this requirement.</p>

- (i) The outside surface area in square feet.
- (2) The markings must be on a metal nameplate attached to the container so that it is visible after the container is installed.
 - (3) When LP-gas and one or more other gases are stored or used in the same area, the containers must be marked to identify their content. Marking must be according to American National Standard Z48.1-1954, "Method of Marking Portable Compressed Gas Containers to Identify the Material Contained."

WAC 296-307-41017 Container locations.

The employer must ensure that containers are located according to the following:

- (1) Containers and first stage regulating equipment are located outdoors.
Containers may be located indoors under any of the following conditions:
 - (a) In buildings used exclusively for container charging, vaporization pressure reduction, gas mixing, gas manufacturing, or distribution;
 - (b) When portable use is necessary and meets the requirements of WAC 296-307-41509;
 - (c) LP-gas fueled stationary or portable engines that meet the requirements of WAC 296-307-42521 or 296-307-42523;
 - (d) LP-gas fueled industrial trucks that meet the requirements of WAC 296-307-42525;
 - (e) LP-gas fueled vehicles garaged according to WAC 296-307-42527; or
 - (f) Containers awaiting use or resale when stored according to WAC 296-307-430.
- (2) Each individual container is located away from the nearest important building, group of buildings, or line of adjoining property that may be built on, according to Table U-1.

TABLE U-1 Minimum Distances

Water capacity per container	Containers		Between above-ground containers
	Underground	Aboveground	
Less than 125 gals ^a	10 feet	None	None
125-250 gals	10 feet	10 feet	None
251-500 gals	10 feet	10 feet	3 feet
501-2,000 gals	25 feet ^b	25 feet ^b	3 feet
2,001-30,000 gals	50 feet	50 feet	5 feet
30,001-70,000 gals	50 feet	75 feet	1/4 sum of diameters of adjacent containers
70,001-90,000 gals	50 feet	100 feet	1/4 sum of diameters of adjacent containers

- (a) If the total water capacity of a multicontainer installation at a consumer site is 501 gallons or more, the minimum distance must comply with this table, applying the aggregate capacity instead of the capacity per container. For multiple installations, installations must be at least twenty-five feet apart. Do not apply the MINIMUM DISTANCES BETWEEN ABOVEGROUND CONTAINERS to such installations.
- (b) Distance requirements may be reduced to 10 feet for a single container of 1200 gallons water capacity or less, if the container is at least 25 feet from any other LP-gas container of more than 125 gallons water capacity.
- (c) In buildings devoted exclusively to gas manufacturing and distributing operations, the distances may be reduced if no containers of more than 500 gallons water capacity are located closer than ten feet to gas manufacturing and distributing buildings.
- (3) Containers installed for use must not be stacked one above the other.
- (4) In industrial installations involving containers of 180,000 gallons total water capacity or more, where serious exposures from the container to adjacent properties are common, firewalls or other means of protection designed and constructed according to good engineering practices are required.
- (5) Readily ignitable material such as weeds and long dry grass is removed within ten feet of any container.
- (6) The minimum separation between LP-gas containers and flammable liquid tanks is twenty feet; the minimum separation between a container and the centerline of the dike is ten feet.

Exception: This does not apply when LP-gas containers of 125 gallons or less capacity are installed adjacent to Class III flammable liquid tanks of 275 gallons or less capacity.

- (7) The accumulation of flammable liquids under adjacent LP-gas containers is prevented by a means such as diking, diversion curbs, or grading.
- (8) When dikes are used with flammable liquid tanks, no LP-gas containers are located within the diked area.

WAC 296-307-41019 Valves and accessories.

- (1) Valves, fittings, and accessories connected directly to the container including primary shut-off valves, must have a rated working pressure of at least 250 psig and must be of material and design suitable for LP-gas service. The use of cast iron for container valves, fittings, and accessories is prohibited. Container valves may be made of malleable or nodular iron.
- (2) Connections to containers must have shut-off valves located as close to the container as practical.

Exception: This does not apply to safety-relief connections, liquid level gauging devices, and plugged openings.

- (3) All required excess flow valves must close automatically at the rated flows of vapor or liquid specified by the manufacturer. The connections, lines, valves, and fittings must have a greater capacity than the rated flow of the excess flow valve.
- (4) Liquid level gauging devices that are constructed so that outward flow is a maximum of that passed by a No. 54 drill size opening may be installed without excess flow valves.
- (5) Openings from container or through fittings attached directly on container to which pressure gauge connection is made, need not have shut-off or excess flow valves if such openings are restricted to not larger than No. 54 drill size opening.
- (6) Required excess flow and back pressure check valves must be located inside the container or outside where the line enters the container. When located outside, the installation must be made to prevent any stress beyond the excess flow or back pressure check valve from causing a break between the container and the valve.

Exception: This does not apply to systems using containers with a water capacity greater than 2-1/2 pounds (nominal one pound LP-gas capacity).

- (7) Excess flow valves must be designed with a bypass that is a maximum of No. 60 drill size opening to allow equalization of pressures.
- (8) Containers of more than 30 gallons water capacity and less than 2,000 gallons water capacity, filled on a volumetric basis, and manufactured after December 1, 1963, must be equipped for filling into the vapor space.

WAC 296-307-41021 Piping, tubing, and fittings.

- (1) Pipe must be wrought iron or steel (black or galvanized), brass, copper, or aluminum alloy. Aluminum alloy pipe must be at least Schedule 40 according to the specifications for Aluminum Alloy Pipe, ANSI H38.7-1969 (ASTM, B241-1969), and must be suitably marked at each end of each length indicating compliance with ANSI specifications. Alloy 5456 is prohibited.

Exception: This does not apply to piping for LP-gas used as a motor fuel or to piping on commercial vehicles.

- (2) Aluminum alloy pipe must be protected against external corrosion whenever:
- (a) It is in contact with dissimilar metals other than galvanized steel; or
 - (b) Its location is subject to repeated wetting by such liquids as water (except rain water), detergents, sewage, or leaking from other piping; or
 - (c) It passes through flooring, plaster, masonry, or insulation. Galvanized sheet steel or pipe, galvanized inside and out, are considered suitable protection.
- (3) Aluminum pipe must be three-fourths inch nominal and shall not be used for pressures exceeding 20 psig. Aluminum alloy pipe must not be installed within six inches of the ground.
- (a) Vapor piping with operating pressures not exceeding 125 psig must be suitable for a working pressure of at least 125 psig. Pipe must be at least Schedule 40 ASTM A-53-69, Grade B Electric Resistance Welded and Electric Flash Welded Pipe or equal.
 - (b) Vapor piping with operating pressures over 125 psig and all liquid piping must be suitable for a working pressure of at least 250 psig. Pipe must be at least Schedule 80 if joints are threaded or threaded and back welded. At least Schedule 40 (ASTM A-53-1969 Grade B Electric Resistance Welded and Electric Flash Welded Pipe or equal) must be used if joints are welded, or welded and flanged.
- (4) Tubing must be seamless copper, brass, steel, or aluminum alloy. Copper tubing must be of Type K or L or equivalent as covered in the Specification for Seamless Copper Water Tube, ANSI H23.1-1970 (ASTM B88-1969). Aluminum alloy tubing must be of Type A or B or equivalent as covered in Specification ASTM B210-1968 and must be suitably marked every 18 inches indicating compliance with ASTM specifications. The minimum nominal wall thickness of copper tubing and aluminum alloy tubing must be as specified in Table U-2 and Table U-3.

TABLE U-2 Wall Thickness of Copper Tubing¹

Note: The standard tube size is one-eighth inch smaller than its nominal outside diameter.

Standard size (inches)	Nominal O.D. (inches)	Nominal wall thickness (inches)	
		Type K	Type L
¼	0.375	0.035	0.030

Standard size (inches)	Nominal O.D. (inches)	Nominal wall thickness (inches)	
		Type K	Type L
3/8	0.500	0.049	0.035
1/2	0.625	0.049	0.040
5/8	0.750	0.049	0.042
3/4	0.875	0.065	0.045
1	1.125	0.065	0.050
1 1/4	1.375	0.065	0.055
1 1/2	1.625	0.072	0.060
2	2.125	0.083	0.070

¹Based on data in Specification for Seamless Copper Water Tubing, ANSI H23.1-1970 (ASTM B-88-69).

TABLE U-3 Wall Thickness of Aluminum Alloy Tubing¹

Outside diameter (inches)	Nominal wall thickness (inches)	
	Type A	Type B
3/8	0.035	0.049
1/2	0.035	0.049
5/8	0.042	0.049
3/4	0.049	0.058

¹Based on data in Standard Specification for Aluminum-Alloy Drawn Seamless Coiled Tubes for Special Purpose Applications, ASTM B210-68.

- (5) Aluminum alloy tubing must be protected against external corrosion whenever:
- It is in contact with dissimilar metals other than galvanized steel; or
 - Its location is subject to repeated wetting by liquids such as water (except rainwater), detergents, sewage, or leakage from other piping; or
 - It passes through flooring, plaster, masonry, or insulation. Galvanized sheet steel or pipe, galvanized inside and out, are considered suitable protection.
- (6) The maximum outside diameter for aluminum alloy tubing must be three-fourths inch and must not be used for pressures exceeding 20 psig. Aluminum alloy tubing installed within six inches of the ground is prohibited.

- (7) In systems where the gas in liquid form enters the building without pressure reduction, only heavy walled seamless brass or copper tubing with an internal diameter a maximum of 3/32 inch, and a wall thickness of at least 3/64 inch must be used.

Exception: This requirement does not apply to research and experimental laboratories, buildings or separate fire divisions of buildings used exclusively for housing internal combustion engines, and to commercial gas plants or bulk stations where containers are charged, nor to industrial vaporizer buildings, nor to buildings, structures, or equipment under construction or undergoing major renovation.

- (8) Pipe joints must be screwed, flanged, welded, soldered, or brazed with a material having a melting point over 1,000°F. Joints on seamless copper, brass, steel, or aluminum alloy gas tubing must be made by approved gas tubing fittings, or soldered or brazed with a material having a melting point over 1,000°F.
- (9) For operating pressures of 125 psig or less, fittings must be designed for a pressure of at least 125 psig. For operating pressures above 125 psig, fittings must be designed for a minimum of 250 psig.
- (10) Threaded cast iron pipe fittings are prohibited. Aluminum alloy fittings must be used with aluminum alloy pipe and tubing. Insulated fittings must be used where aluminum alloy pipe or tubing connects with a dissimilar metal. The employer may use malleable, nodular, or higher strength gray iron for fittings.

Note: Strainers, regulators, meters, compressors, pumps, etc., are not to be considered as pipe fittings.

- (11) All materials such as valve seats, packing, gaskets, diaphragms, etc., must be resistant to the action of LP-gas under the service conditions to which they are subjected.
- (12) All piping, tubing, or hose must be tested after assembly and proved free from leaks at least normal operating pressures. After installation, piping and tubing of all domestic and commercial systems must be tested and proved free of leaks using a manometer or equivalent device that will indicate a drop in pressure. Test made by flame is prohibited.
- (13) The employer must ensure that piping allows for expansion, contraction, jarring, and vibration, and settling. The employer may use flexible connections.
- (14) Piping outside buildings may be buried, aboveground, or both, but must be well supported and protected against physical damage. Where soil conditions warrant, all piping must be protected against corrosion. Where condensation may occur, the piping must be pitched back to the container, or the employer must provide a means for revaporization of the condensate.

WAC 296-307-41023 Specifications for hoses.

- (1) Hose must be fabricated of materials that are resistant to the action of LP-gas in the liquid and vapor phases. If wire braid is used for reinforcing the hose, it must be of corrosion-resistant material such as stainless steel.

- (2) Hose subject to container pressure must be marked "LP-gas" or "LPG" at not greater than ten-foot intervals.
- (3) Hose subject to container pressure must be designed for a bursting pressure of not less than 1,250 psig.
- (4) Hose subject to container pressure must be listed by a nationally recognized testing laboratory.
- (5) Hose connections subject to container pressure must be able to withstand, without leaking, a test pressure of not less than 500 psig.
- (6) Hose and hose connections on the low-pressure side of the regulator or reducing valve must be designed for a bursting pressure of not less than 125 psig or five times the set pressure of the relief devices protecting that portion of the system, whichever is higher.
- (7) Hose may be used on the low-pressure side of regulators to connect to other than domestic and commercial gas appliances under the following conditions:
 - (a) The appliances connected with hose are portable and need a flexible connection.
 - (b) For use inside buildings, the hose is of minimum practical length, but is a maximum of six feet. Hose must not extend from one room to another, nor pass through any walls, partitions, ceilings, or floors. Such hose must not be concealed from view or used in a concealed location.

Exception: For use outside of buildings, the hose may exceed this length but must be kept as short as practical.
 - (c) The hose must be approved and must not be used where it may be exposed to temperatures above 125°F. The hose must be securely connected to the appliance. Rubber slip ends are prohibited.
 - (d) The shut-off valve for an appliance connected by hose must be in the metal pipe or tubing and not at the appliance end of the hose. When shut-off valves are installed close to each other, precautions must be taken to prevent operation of the wrong valve.
 - (e) Hose used for connecting to wall outlets must be protected from physical damage.

WAC 296-307-41025 Safety devices.

- (1) Every container except those constructed according to DOT specifications and every vaporizer (except motor fuel vaporizers and vaporizers described in WAC 296-307-41029(3) and 296-307-42007 (6)(a) whether heated by artificial means or not, must have one or more safety-relief valves of spring-loaded or equivalent type.

These valves must be arranged to afford free vent to the outer air with discharge not less than five feet horizontally away from any opening into the building that is below such discharge. The rate of discharge must be according to the requirements of subsection (2) or (4) of this section.

- (2) Minimum required rate of discharge in cubic feet per minute of air at one hundred twenty percent of the maximum permitted start to discharge pressure for safety-relief valves to be used on containers other than those constructed according to DOT specification must be as follows:

Surface area sq ft	Flow rate CFM air	Surface area sq ft	Flow rate CFM air	Surface area sq ft	Flow rate CFM air
20 or less	626	170	3,620	550	9,470
25	751	175	3,700	600	10,170
30	872	180	3,790	650	10,860
35	990	185	3,880	700	11,550
40	1,100	190	3,960	750	12,220
45	1,220	195	4,050	850	13,540
50	1,330	200	4,130	900	14,190
55	1,430	210	4,300	950	14,830
60	1,540	220	4,470	1,000	15,470
65	1,640	230	4,630	1,050	16,100
70	1,750	240	4,800	1,100	16,720
75	1,850	250	4,960	1,150	17,350
80	1,950	260	5,130	1,200	17,960
85	2,050	270	5,290	1,250	18,570
90	2,150	280	5,450	1,300	19,180
95	2,240	290	5,610	1,350	19,780
100	2,340	300	5,760	1,400	20,380
105	2,440	310	5,920	1,450	20,980
110	2,530	320	6,080	1,500	21,570
115	2,630	330	6,230	1,550	22,160
120	2,720	340	6,390	1,600	22,740
125	2,810	350	6,540	1,650	23,320
130	2,900	360	6,690	1,700	23,900
135	2,990	370	6,840	1,750	24,470
140	3,080	380	7,000	1,800	25,050
145	3,170	390	7,150	1,850	25,620
150	3,260	400	7,300	1,900	26,180
155	3,350	450	8,040	1,950	26,750
160	3,440	500	8,760	2,000	27,310
165	3,530				

Surface area = total outside surface area of container in square feet.

- (3) When the surface area is not stamped on the name plate or when the marking is not legible, calculate the area with one of the following formulas:
- Hemispherical heads: Area = (overall length) X (outside diameter) X 3.1416.
 - Other than hemispherical heads: Area = (overall length) + 0.3 (outside diameter) X (outside diameter) X 3.1416.

Note: This formula is not exact, but will give results within the limits of practical accuracy for the sole purpose of sizing relief valves.

- Spherical container: Area equals (outside diameter)² X 3.1416.
- Flow rate: CFM air equals required flow capacity in cubic feet per minute of air at standard conditions, 60°F and atmospheric pressure (14.7 psia).

For containers with total outside surface area greater than 2,000 sq. ft., the formula is: Flow rate CFM air equals 53.632 A^{0.82} where A equals outside surface area of the container in square feet.

Valves not marked "air" have flow rate marking in cubic feet per minute of LP-gas. These can be converted to ratings in cubic feet per minute of air by multiplying the LP-gas ratings by factors listed below. Air flow ratings can be converted to ratings in cubic feet per minute of LP-gas by dividing the air ratings by the factors listed below.

Air Conversion Factors					
Container Type	100	125	150	175	200
Air Conversion Factor	1.162	1.142	1.113	1.078	1.010

- (4) The minimum required rate of discharge for safety-relief valves for LP-gas vaporizers (steam heated, water heated, and direct fired) must be determined as follows:
- Obtain the total surface area by adding the surface area of vaporizer shell in square feet directly in contact with LP-gas and the heat exchanged surface area in square feet directly in contact with LP-gas.
 - Obtain the minimum required rate of discharge in cubic feet of air per minute, at 60 °F and 14.7 psia from subsection (2) of this section, for this total surface area.
- (5) Container and vaporizer safety-relief valves must be set to start to discharge, with relation to the design pressure of the container, according to the following:

Containers	Minimum (Percent)	Maximum (Percent)
ASME Code; Par. U-68, U-69-1949 and earlier editions.	110	*125
ASME Code; Par. U-200, U-201-1949 edition	88	*100
ASME Code-1950, 1952, 1956, 1959, 1962, 1965 and 1968 (Division 1) editions	88	*100
API-ASME Code-all editions	88	*100
DOT	As prescribed in 49 CFR Chapter I	

Containers	Minimum (Percent)	Maximum (Percent)
*Manufacturers of safety-relief valves are allowed a plus tolerance not exceeding 10% of the set pressure marked on the valve.		

- (6) Safety-relief devices used with systems employing non-DOT containers must be constructed to discharge at not less than the rates shown in subsection (2) of this section, before the pressure is in excess of 120% of the maximum (not including the 10% referred to in subsection (5) of this section) permitted start-to-discharge pressure setting of the device.
- (7) In high temperature areas, the employer must use a lower vapor pressure product or a higher designed pressure vessel to prevent the safety valves from opening. The tanks may be protected by cooling devices such as spraying, shading, or other means.
- (8) Safety-relief valves must be arranged to minimize tampering. For external pressure setting or adjustment, the relief valves must have an approved sealable adjustment.
- (9) Shut-off valves are prohibited between safety-relief devices and the container, equipment, or piping.

Exception: A shut-off valve may be used where the arrangement of the valve allows the required capacity flow through the safety-relief device.

- (10) Safety-relief valves must have direct communication with the vapor space of the container.
- (11) Each safety-relief valve must be plainly and permanently marked with the following:
 - (a) Container type of the pressure vessel on which the valve is designed to be installed;
 - (b) The pressure in psig at which the valve is set to discharge;
 - (c) The actual rate of discharge of the valve in cubic feet per minute of air at 60°F and 14.7 psia; and
 - (d) The manufacturer have no name and catalog number.

For example: T200-250-4050 AIR: Indicates that the valve is suitable for use on a Type 200 container, that it is set to start to discharge at 250 psig; and that its rate of discharge is 4,050 cubic feet per minute of air.

- (12) Safety-relief valve assemblies and their connections must be large enough to provide the required rate of flow for the container on which they are installed.
- (13) A hydrostatic relief valve must be installed between each pair of shut-off valves on LP-gas liquid piping. The start-to-discharge pressure setting of such relief valves must be a maximum of 500 psig. The minimum setting on relief valves installed in piping connected to non-DOT containers must be 140% of the container relief valve setting. For piping connected to DOT containers, the minimum must be 400 psig. The relief valve should not be installed in the pump discharge piping if the same protection can be provided by installing the relief valve in the suction piping. The start-to-discharge pressure setting of

such a relief valve, if installed on the discharge side of a pump, must exceed the maximum pressure permitted by the recirculation device in the system.

- (14) The discharge from any safety-relief device must not terminate in or beneath any building.

Exception: This requirement does not apply to relief devices covered by WAC 296-307-41017(1), 296-307-41507(1) or 296-307-41509.

- (15) Container safety-relief devices and regulator relief vents must be located at least five feet in any direction from air openings into sealed combustion system appliances or mechanical ventilation air intakes.

WAC 296-307-41027 Construction and installation of indirect fired vaporizers.

Indirect fired vaporizers utilizing steam, water, or other heating medium must be constructed and installed according to the following:

- (1) Vaporizers must be constructed according to the requirements of WAC 296-307-41011 and must be permanently marked as follows:
- (a) With the code marking signifying the specifications to which the vaporizer is constructed;
 - (b) With the allowable working pressure and temperature for which the vaporizer is designed;
 - (c) With the sum of the outside surface area and the inside heat exchange surface area expressed in square feet; and
 - (d) With the name or symbol of the manufacturer.
- (2) Vaporizers with an inside diameter of six inches or less exempted by the ASME Unfired Pressure Vessel Code, Section VIII of the ASME Boiler and Pressure Vessel Code, 1968, must have a design pressure of at least 250 psig and need not be permanently marked.
- (3) Heating or cooling coils installed inside a storage container are prohibited.
- (4) Vaporizers may be installed in buildings, rooms, sheds, or lean-tos used exclusively for gas manufacturing or distribution, or in other light, noncombustible structures that are well ventilated near the floor line and roof.

Exception: When vaporizing and/or mixing equipment is in a structure not used exclusively for gas manufacturing or distribution, the structure or room must be separated from the remainder of the building. The separation must be a wall designed to withstand a static pressure of at least 100 pounds per square foot. This wall must have no openings or pipe or conduit passing through it. Such structure or room must have adequate ventilation and must have a roof or at least one exterior wall of lightweight construction.

- (5) All DOT vaporizers must have, at or near the discharge, a safety-relief valve providing an effective rate of discharge according to WAC 296-307-41025.
- (6) The heating medium lines into and out of the vaporizer must have a mechanism to prevent the flow of gas into the heat systems in the event of tube rupture in the vaporizer. Vaporizers must have an automatic means to prevent liquid from passing through the vaporizers to the gas discharge piping.
- (7) The device that supplies heat to produce steam, hot water, or other heat may be installed in a building, compartment, room, or lean-to ventilated near the floorline and roof to the outside. The device must be separated from all compartments or rooms containing LP-gas vaporizers, pumps, and central gas mixing devices by a wall designed to withstand a static pressure of at least 100 pounds per square foot. This wall must have no openings or pipes or conduit passing through it.

Exception: This requirement does not apply to the domestic water heaters that may supply heat for a vaporizer in a domestic system.
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- (8) Gas-fired heating systems supplying heat exclusively for vaporization must have automatic safety devices to shut off the flow of gas to main burners, if the pilot light should fail.
- (9) Vaporizers may be an integral part of a fuel storage container directly connected to the liquid section or gas section or both.
- (10) Fusible plugs are prohibited on vaporizers.
- (11) Vaporizer houses must not have unprotected drains to sewers or sump pits.

WAC 296-307-41029 Construction and installation of atmospheric vaporizers.

Atmospheric vaporizers using heat from the ground or surrounding air must be installed as follows:

- (1) Buried underground; or
- (2) Located inside the building near where the pipe enters the building, if the capacity of the unit does not exceed one quart;
- (3) Vaporizers of less than one quart capacity heated by the ground or surrounding air, may be installed without safety-relief valves if tests show that the assembly is safe.

WAC 296-307-41031 Construction and installation of direct gas-fired vaporizers.

Direct gas-fired vaporizers must be constructed, marked, and installed as follows:

- (1) According to the requirements of the *American Society of Mechanical Engineers Boiler and Pressure Vessel Code*, 1968, that apply to the maximum working conditions for which the vaporizer is designed.
- (2) With the name of the manufacturer; rated Btu input to the burner; the area of the heat exchange surface in square feet; the outside surface of the vaporizer in square feet; and the maximum vaporizing capacity in gallons per hour.

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- (3) Vaporizers may be connected to the liquid section or the gas section of the storage container, or both. The container must have a manually operated valve in each connection that completely shuts off when desired, all flow of gas or liquid from container to vaporizer.
 - (4) Vaporizers with a maximum capacity of 35 gallons per hour must be located at least 5 feet from container shut-off valves. Vaporizers more than 35 gallon capacity but a maximum of 100 gallons per hour must be located at least 10 feet from the container shut-off valves. Vaporizers having a capacity greater than 100 gallons per hour must be located at least 15 feet from container shut-off valves.
 - (5) Vaporizers may be installed in buildings, rooms, housings, sheds, or lean-tos used exclusively for vaporizing or mixing of LP-gas. Vaporizing housing structures must be noncombustible, and well ventilated near the floorline and the highest point of the roof. When vaporizer and/or mixing equipment is located in a structure or room attached to or within a building, such structure or room must be separated from the remainder of the building by a wall designed to withstand a static pressure of at least 100 pounds per square foot. This wall must have no openings or pipes or conduit passing through it. The structure or room must have adequate ventilation, and a roof or at least one exterior wall of lightweight construction.
 - (6) Vaporizers must have at or near the discharge, a safety-relief valve providing an effective rate of discharge according to WAC 296-307-41025. The relief valve must be located where it is not subjected to temperatures over 140°F.
 - (7) Vaporizers must have suitable automatic means to prevent liquid passing from the vaporizer to the gas discharge piping of the vaporizer.
 - (8) Vaporizers must have means for manually turning off the gas to the main burner and pilot.
 - (9) Vaporizers must have automatic safety devices to shut off the flow of gas to main burners if the pilot light should fail. When the flow through the pilot exceeds 2,000 Btu per hour, the pilot also must have an automatic safety device to shut off the flow of gas to the pilot should the pilot flame be extinguished.
 - (10) Pressure regulating and pressure reducing equipment located within 10 feet of a direct fired vaporizer must be separated from the open flame by an airtight noncombustible partition.
 - (11) Except as provided in subsection (5) of this section, the following minimum distances must be maintained between direct fired vaporizers and the nearest important building, group of buildings, or line of adjoining property that may be built on:
 - (a) Ten feet for vaporizers with a vaporizing capacity of 15 gallons per hour or less;
 - (b) Twenty-five feet for vaporizers with a vaporizing capacity of 16-100 gallons per hour;
 - (c) Fifty feet for vaporizers with a vaporizing capacity over 100 gallons per hour.
 - (12) Direct fired vaporizers must not raise the product pressure above the design pressure of the vaporizer equipment or above the pressure shown in the second column of Table U-8.

(13) Fusible plugs are prohibited on vaporizers.

(14) Vaporizers must not have unprotected drains to sewers or sump pits.

WAC 296-307-41033 Construction and installation of direct gas-fired tank heaters.

Direct gas-fired tank heaters must be constructed and installed as follows:

- (1) Direct gas-fired tank heaters, and tanks to which they are applied, must only be installed aboveground.
- (2) Tank heaters must be permanently marked with the name of the manufacturer, the rated Btu input to the burner, and the maximum vaporizing capacity in gallons per hour.

Note: Tank heaters may be an integral part of a fuel storage container directly connected to the container liquid section, or vapor section, or both.

- (3) Tank heaters must have a means for manually turning off the gas to the main burner and pilot.
- (4) Tank heaters must have an automatic safety device to shut off the flow of gas to main burners, if the pilot light should fail. When flow through pilot exceeds 2,000 Btu per hour, the pilot also must have an automatic safety device to shut off the flow of gas to the pilot should the pilot flame be extinguished.
- (5) Pressure regulating and pressure reducing equipment if located within ten feet of a direct fired tank heater must be separated from the open flame by a substantially airtight noncombustible partition.
- (6) The following minimum distances must be maintained between a storage tank heated by a direct fired tank heater and the nearest important building, group of buildings, or line of adjoining property that may be built on:
 - (a) Ten feet for storage containers of less than 500 gallons water capacity;
 - (b) Twenty-five feet for storage containers of 500-1,200 gallons water capacity;
 - (c) Fifty feet for storage containers of over 1,200 gallons water capacity.
- (7) No direct fired tank heater may raise the product pressure within the storage container over 75% of the pressure in the second column of Table U-8.

WAC 296-307-41035 Construction and installation of dehydrators.

The vaporizer section of vaporizer-burners used for dehydrators or dryers must be located outdoors; they must be constructed and installed as follows:

- (1) Vaporizer-burners must have a minimum design pressure of 250 psig with a factor safety of five.
- (2) Manually operated positive shut-off valves must be located at the containers to shut off all flow to the vaporizer-burners.
- (3) Minimum distances between storage containers and vaporizer-burners must be as follows:

Water Capacity per Container (Gallons)	Minimum Distances (feet)
Less than 501	10
501 to 2,000	25
Over 2,000	50

- (4) The vaporizer section of vaporizer-burners must be protected by a hydrostatic relief valve. The relief valve must be located where it is not subjected to temperatures over 140°F. The start-to-discharge pressure setting must protect the components involved, and be at least 250 psig. The discharge must be directed upward and away from component parts of the equipment and away from operating personnel.
- (5) Vaporizer-burners must have means for manually turning off the gas to the main burner and pilot.
- (6) Vaporizer-burners must have automatic safety devices to shut off the flow of gas to the main burner and pilot in the event the pilot is extinguished.
- (7) Pressure regulating and control equipment must be located or protected so that the temperatures surrounding this equipment shall not exceed 140°F.

<p>Exception: Equipment components may be used at higher temperatures if designed to withstand such temperatures.</p>
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- (8) Pressure regulating and control equipment when located downstream of the vaporizer must be designed to withstand the maximum discharge temperature of the vapor.
- (9) Fusible plugs are prohibited on the vaporizer section of vaporizer-burners.
- (10) Vaporizer coils or jackets must be made of ferrous metal or high temperature alloys.
- (11) Equipment utilizing vaporizer-burners must have automatic shut-off devices upstream and downstream of the vaporizer section connected so as to operate in the event of excessive temperature, flame failure, and, if applicable, insufficient airflow.

WAC 296-307-41037 Maximum filling densities.

- (1) **Filling density.** The percent ratio of the weight of the gas in a container to the weight of water the container will hold at 60°F. All containers must be filled according to the filling densities shown in Table U-4.

TABLE U-4 Maximum Permitted Filling Density

Aboveground Containers			
Specific gravity at 60°F (15.6°C)	0 to 1,200 U.S. gals. (1,000 imp. gal. 4,500 liters) total water cap.	0 to 1,200 U.S. gals. (1,000 imp. gal. 4,500 liters) total water cap.	Underground containers, all capacities
	Percent	Percent	Percent
.496-.503	41	44	45
.504-.510	42	45	46
.511-.519	43	46	47
.520-.527	44	47	48
.528-.536	45	48	49
.537-.544	46	49	50
.545-.552	47	50	51
.553-.560	48	51	52
.561-.568	49	52	53
.569-.576	50	53	54
.577-.584	51	54	55
.585-.592	52	55	56
.593-.600	53	56	57

- (2) Any container including mobile cargo tanks and portable tank containers regardless of size or construction, shipped under DOT jurisdiction or constructed according to DOT specifications must be charged according to DOT requirements.
- (3) Exception: Portable containers not subject to DOT jurisdiction must be filled either by weight, or by volume using a fixed length dip tube gauging device.

WAC 296-307-41039 LP-gas in buildings.

- (1) Vapor may be piped into buildings at pressures over 20 psig only if the buildings or separate areas thereof:
- Are constructed according to this section;
 - Are used exclusively to house equipment for vaporization, pressure reduction, gas mixing, gas manufacturing, or distribution, or to house internal combustion engines, industrial processes, research and experimental laboratories, or equipment and processes using such gas and having similar hazard;

-
- (c) Are buildings, structures, or equipment under construction or undergoing major renovation.
- (2) Liquid may be permitted in buildings as follows:
- (a) In buildings, or separate areas of buildings, used exclusively to house equipment for vaporization, pressure reduction, gas mixing, gas manufacturing, or distribution, or to house internal combustion engines, industrial processes, research and experimental laboratories, or equipment and processes using such gas and having similar hazard; and when such buildings, or separate areas are constructed according to this section.
- (b) In buildings, structures, or equipment under construction or undergoing major renovation if the temporary piping meets the following conditions:
- (i) Liquid piping inside the building meets the requirements of WAC 296-307-41021 and is a maximum of three-fourths iron pipe size. Copper tubing with an outside diameter of 3/4 inch or less may be used if it meets the requirements of Type K of Specifications for Seamless Water Tube, ANSI H23.1-1970 (ASTM B88-1969). (See Table U-2.)
- All such piping must be protected against construction hazards. Liquid piping inside buildings must be kept to a minimum. Such piping must be securely fastened to walls or other surfaces to provide adequate protection from breakage and located to subject the liquid line to the lowest ambient temperatures.
- (ii) A shut-off valve must be installed in each intermediate branch line where it takes off the main line and must be readily accessible. A shut-off valve must also be placed at the appliance end of the intermediate branch line. Such shut-off valve must be upstream of any flexible connector used with the appliance.
- (iii) Suitable excess flow valves must be installed in the container outlet line supplying liquid LP-gas to the building. A suitable excess flow valve must be installed immediately downstream of each shut-off valve. Excess flow valves must be installed where piping size is reduced and must be sized appropriately.
- (iv) Hydrostatic relief valves must be installed according to WAC 296-307-41025(13).
- (v) Using hose to carry liquid between the container and the building or at any point in the liquid line, except at the appliance connector, is prohibited.
- (vi) Where flexible connectors are necessary for appliance installation, such connectors must be as short as practical and must meet the requirements of WAC 296-307-41021(4) or 296-307-41023.
- (vii) Release of fuel when any section of piping or appliances is disconnected must be minimized by either of the following methods:
- (C) (A) Using an approved automatic quick-closing coupling (closing in both directions when coupled in the fuel line); or

- (D) (B) Closing the valve nearest to the appliance and allowing the appliance to operate until the fuel in the line is consumed.
- (viii) See WAC 296-307-41509 for the conditions under which portable containers may

WAC 296-307-41041 Transferring of liquids.

When transferring liquids, the employer must ensure that:

- (1) At least one attendant remains close to the transfer connection from the time the connections are first made until they are finally disconnected, during the transfer of the product.
- (2) Containers must be filled or used only upon authorization of the owner.
- (3) Containers manufactured according to DOT specifications authorized by DOT as a "single trip" or "nonrefillable container" must not be refilled or reused in LP-gas service.
- (4) Gas or liquid must not be vented to the atmosphere to assist in transferring contents of one container to another, except as provided in WAC 296-307-42509(4). A listed pump may use LP-gas in the vapor phase as a source of energy. The gas may be vented to the atmosphere at a rate not to exceed that from a No. 31 drill size opening, if venting and liquid transfer are located at least 50 feet from the nearest important building.
- (5) Filling fuel containers for industrial trucks or motor vehicles from industrial bulk storage containers must be performed at least ten feet from the nearest important masonry-walled building or at least twenty-five feet from the nearest important building or other construction and always at least 25 feet from any building opening.
- (6) Filling portable containers, containers mounted on skids, fuel containers on farm tractors, or similar applications, from storage containers used in domestic or commercial service, must be performed at least 50 feet from the nearest important building.
- (7) The filling connection and the vent from the liquid level gauges in containers, filled at point of installation, must be at least ten feet in any direction from air openings into sealed combustion system appliances or mechanical ventilation air intakes.
- (8) Fuel supply containers must be gauged and charged only in the open air or in buildings especially provided for that purpose.
- (9) Marketers and users must exercise precaution to ensure that only those gases for which the system is designed, examined, and listed, are employed in its operation, particularly with regard to pressures.
- (10) Pumps or compressors must be designed for use with LP-gas. When compressors are used they must normally take suction from the vapor space of the container being filled and discharge to the vapor space of the container being emptied.
- (11) Pumping systems, when equipped with a positive displacement pump, must include a recirculating device that limits the differential pressure on the pump under normal operating conditions to the maximum differential pressure rating of the pump. The discharge of the pumping system must be protected so that pressure is a maximum of 350

psig. If a recirculation system discharges into the supply tank and contains a manual shut-off valve, an adequate secondary safety recirculation system must be incorporated that has no means of rendering it inoperative. Manual shut-off valves in recirculation systems must be kept open except during an emergency or when repairs are being made to the system.

- (12) When necessary, unloading piping or hoses must have suitable bleeder valves for relieving pressure before disconnection.
- (13) Agricultural air moving equipment, including crop dryers, shall be shut down when supply containers are filling unless the air intakes and sources of ignition on the equipment are located 50 feet or more from the container.
- (14) Agricultural equipment employing open flames or equipment with integral containers, such as flame cultivators, weed burners, and tractors, must be shut down during refueling.

WAC 296-307-41043 Training for workers.

Workers performing installation, removal, operation, and maintenance work must be properly trained in that function.

WAC 296-307-41045 Fire protection.

- (1) Open flames or other sources of ignition are prohibited in vaporizer rooms (except those housing direct-fired vaporizers), pumphouses, container charging rooms or other similar locations. Direct-fired vaporizers are prohibited in pumphouses or container charging rooms.

<p>Note: LP-gas storage containers do not require lightning protection. Since LP-gas is contained in a closed system of piping and equipment, the system need not be electrically conductive or electrically bonded for protection against static electricity. (See NFPA No. 77-1972-1973, Recommended Practice for Static Electricity.)</p>

- (2) Open flames (except as provided in subsection (1) of this section), cutting or welding, portable electric tools, and extension lights capable of igniting LP-gas, are prohibited within classified areas specified in Table U-5 unless the LP-gas facilities have been freed of all liquid and vapor, or special precautions observed under carefully controlled conditions.

WAC 296-307-41047 Electrical requirements that apply to LP-gas installations.

- (1) Electrical equipment and wiring must be specified by and installed according to chapter 296-307 WAC Part T, for ordinary locations.
- (2) Fixed electrical equipment and wiring installed within classified areas must comply with Table U-5 and must be installed according to chapter 296-307 WAC Part T.

Exception: This provision does not apply to fixed electrical equipment at residential or commercial installations of LP-gas systems, LP-gas used as a motor fuel, or to LP-gas system installations on commercial vehicles.

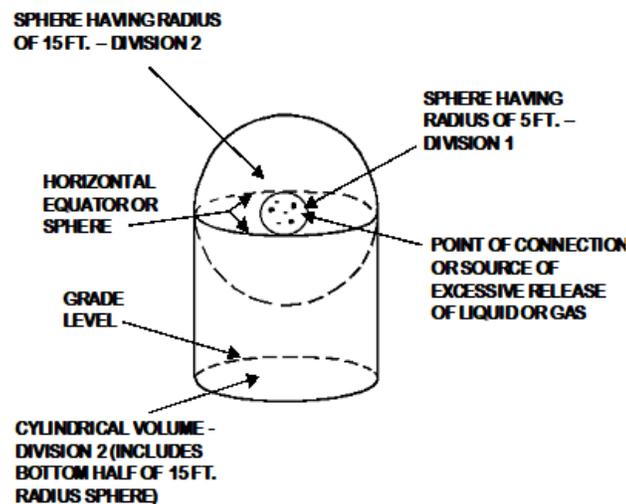
TABLE U-5

Part	Location	Extent of classified area¹	Equipment must be suitable for Class I, Group D2
A	Storage containers other than DOT cylinders	Within 15 feet in all directions from connections, except connections otherwise covered in this table	Division 2
B	Tank vehicle and tank car loading and unloading ³	Within 5 feet in all directions from connections regularly made or disconnected for product transfer	Division 1
		Beyond 5 feet but within 15 feet in all directions from a point where connections are regularly made or disconnected and within the cylindrical volume between the horizontal equator of the sphere and grade (See Figure H-1)	Division 2
C	Gauge vent openings other than those on DOT cylinders	Within 5 feet in all directions from point of discharge	Division 1
		Beyond 5 feet but within 15 feet in all directions from point of discharge	Division 2
D	Relief valve discharge other than those on DOT cylinders	Within direct path of discharge	Division 1 <i>Note: Fixed electrical equipment should not be installed</i>
		Within 5 feet in all directions from point of discharge	Division 1
		Beyond 5 feet but within 15 feet in all directions from point of discharge except within the direct path of discharge	Division 2

Part	Location	Extent of classified area ¹	Equipment must be suitable for Class I, Group D2
E	Pumps, compressors, gas-air mixers and vaporizers other than direct fired		
	Indoors without ventilation	Entire room and any adjacent room not separated by a gastight partition	Division 1
		Within 15 feet of the exterior side of any exterior wall or roof that is not vaportight or within 15 feet of any exterior opening	Division 2
	Indoors with adequate ventilation ⁴	Entire room and any adjacent room not separated by a gastight partition	Division 2
	Outdoors in open air at or above grade	Within 15 feet in all directions from this equipment and within the cylindrical volume between the horizontal equator of the sphere and grade (See Figure H-1)	Division 2
F	Service station dispensing units	Entire space within dispenser enclosure, and 18 inches horizontally from enclosure exterior up to an elevation 4 ft. above dispenser base. Entire pit or open space beneath dispenser	Division 1
		Up to 18 inches above grade within 20 ft. horizontally from any edge of enclosure	Division 2
		<i>Note:</i> For pits within this area, see Part F of this table	
G	Pits or trenches containing or located beneath LP-gas valves, pumps, compressors, regulators, and similar equipment		
	Without mechanical ventilation	Entire pit or trench	Division 1

Part	Location	Extent of classified area ¹	Equipment must be suitable for Class I, Group D2
		Entire room and any adjacent room not separated by a gastight partition	Division 2
		Within 15 feet in all directions from pit or trench when located outdoors	Division 2
	With adequate mechanical ventilation	Entire pit or trench	Division 2
		Entire room and any adjacent room not separated by a gastight partition	Division 2
		Within 15 feet in all directions from pit or trench when located outdoors	Division 2
H	Special buildings or rooms for storage of portable containers	Entire room	Division 2
I	Pipelines and connections containing operational bleeds, drips, vents or drains	Within 5 ft. in all directions from point of discharge	Division 1
		Beyond 5 ft. from point of discharge, same as Part E of this table	
J	Container filling		
	Indoors without ventilation	Entire room	Division 1
	Indoors with adequate ventilation ⁴	Within 5 feet in all directions from connections regularly made or disconnected for product transfer	Division 1
		Beyond 5 feet and entire room	Division 2
	Outdoors in open air	Within 5 feet in all directions from connections regularly made or disconnected for product transfer	Division 1
		Beyond 5 feet but within 15 feet in all directions from a point where connections are regularly made or disconnected and within the cylindrical volume between the horizontal equator of the sphere and grade (See Fig. H-1.)	Division 2

Part	Location	Extent of classified area ¹	Equipment must be suitable for Class I, Group D2
1		The classified area must not extend beyond an unpierced wall, roof, or solid vaportight partition.	
2		See chapter 296-46 WAC, and chapter 296-306A WAC Part T.	
3		When classifying the extent of a hazardous area, consider the possible variations in the spotting of tank cars and tank vehicles at the unloading points and the effect these variations of actual spotting point may have on the point of connection.	
4		Ventilation, either natural or mechanical, is considered adequate when the concentration of the gas in a gas-air mixture does not exceed twenty-five percent of the lower flammable limit under normal operating conditions.	



WAC 296-307-41049 Liquid-level gauging devices.

- (1) Each container manufactured after December 31, 1965, and filled on a volumetric basis must have a fixed liquid-level gauge to indicate the maximum permitted filling level according to subsection (5) of this section. Each container manufactured after December 31, 1969, must have permanently attached to the container adjacent to the fixed level gauge a marking showing the percentage full that will be shown by that gauge. When used with a variable liquid-level gauge, the fixed liquid-level gauge will act as a check on the variable gauge. Gauges must be used in charging containers as required in WAC 296-307-41034.
- (2) All variable gauging devices must be arranged so that the maximum liquid level for butane, for a 50/50 mixture of butane and propane, and for propane, to which the container may be charged, is easily determined. Liquid levels from empty to full must be marked on the system nameplate or gauging device. Dials of magnetic or rotary gauges

must show whether they are for cylindrical or spherical containers and whether for aboveground or underground service. The dials of gauges for aboveground containers of over 1,200 gallons water capacity must be so marked.

- (3) Gauging devices that require bleeding of the product to the atmosphere, such as the rotary tube, fixed tube, and slip tube, must be designed so that the bleed valve maximum opening is not larger than a No. 54 drill size, unless provided with excess flow valve.
- (4) Gauging devices must have a design working pressure of at least 250 psig.
- (5) Length of tube or position of fixed liquid-level gauge must be designed to indicate the maximum level to which the container may be filled for the product contained. This level must be based on the volume of the product at 40°F at its maximum permitted filling density for aboveground containers and at 50°F for underground containers. The employer must calculate the filling point for which the fixed liquid level gauge must be designed according to this section.

Note: It is impossible to set out in a table the length of a fixed dip tube for various tank capacities because of the various tank diameters and lengths, and because the tank may be installed either vertically or horizontally. If the maximum permitted filling volume in gallons is known, however, the employer can determine the length of the fixed tube by using a strapping table from the container manufacturer.

The fixed tube should be long enough so that when its lower end touches the surface of the liquid in the container, the contents of the container will be the maximum permitted volume as determined by the following formula:

$$\frac{\text{Water capacity of container}^1 \text{ (gals.)} \times \text{filling density}^2 \text{ Maximum}}{\text{Specific gravity of LP-gas}^1 \times \text{volume correction factor}^3 \times 100} = \text{volume of LP-gas}$$

¹Measure at 60°F

²From WAC 296-307-41037(1)

³For aboveground containers the liquid temperature is assumed to be 40°F and for underground containers the liquid temperature is assumed to be 50°F. To correct the liquid volumes at these temperatures to 60°F, use the following factors:

- (a) To determine maximum volume of LP-gas for which a fixed length of dip tube must be set:

Specific Gravity	Aboveground	Underground
0.500	1.033	1.017
.510	1.031	1.016
.520	1.029	1.015
.530	1.028	1.014
.540	1.026	1.013
.550	1.025	1.013
.560	1.024	1.012
.570	1.023	1.011
.580	1.021	1.011
.590	1.020	1.010

- (b) To calculate the maximum volume of LP-gas that can be placed in a container when determining the length of the dip tube expressed as a percentage of total water content of the container, use the formula in (c) of this subsection.
- (c) Determine the maximum weight of LP-gas that may be placed in a container for determining the length of a fixed dip tube by multiplying the maximum volume of LP-gas from Table U-6 by the pounds of LP-gas in a gallon at 40°F for aboveground and at 50°F for underground containers. Typical pounds per gallon are specified below:

Example: Assume a one hundred gallon total water capacity tank for aboveground storage of propane having a specific gravity of 0.510 of 60°F.

$$\begin{array}{r}
 100 \text{ (gals.)} \times 42 \text{ (filling density)} = 4200 \\
 \hline
 0.510 \times 1.031 \text{ (correction factor from Table U-6)} \times 100 = 52.6 \\
 \hline
 4200 \div 52.6 = 79.8 \text{ gallons propane, the maximum amount permitted to be placed in a 100-gallon total water capacity aboveground container equipped with a fixed dip tube.}
 \end{array}$$

$$\begin{array}{r}
 \text{Maximum volume of LP-gas (from formula in (a) of this subsection)} \\
 \times 100 = \text{percent of LP-gas} \\
 \hline
 \text{Total water content of container in gallons}
 \end{array}$$

	Aboveground, pounds per gallon	Underground, pounds per gallon
Propane	4.37	4.31
N Butane	4.97	4.92

- (6) Fixed liquid-level gauges used on non-DOT containers must be stamped on the exterior of the gauge with the letters DT followed by the vertical distance (expressed in inches and carried out to one decimal place) from the top of container to the end of the dip tube or to the centerline of the gauge when located at the maximum permitted filling level. For portable containers that may be filled in the horizontal and/or vertical position the letters DT must be followed by V with the vertical distance from the top of the container to the end of the dip tube for vertical filling, and with H followed by the proper distance for horizontal filling. For DOT containers the stamping must be placed both on the exterior of the gauge and on the container. On aboveground or cargo containers where the gauges are positioned at specific levels, the marking may be specified in percent of total tank contents and the marking must be stamped on the container.
- (7) Columnar gauge glasses must be restricted to charging plants where the fuel is withdrawn in the liquid phase only. They must have valves with metallic handwheels, excess flow valves, and extra-heavy glass adequately protected with a metal housing applied by the gauge manufacturer. They must be shielded against the direct rays of the sun. Columnar gauge glasses are prohibited on tank trucks, motor fuel tanks, and containers used in domestic, commercial, and industrial installations.
- (8) Float gauging devices or equivalent that do not require flow for their operation and that have connections extending outside the container do not have to have excess flow valves if the piping and fittings are adequately designed to withstand the container pressure and are properly protected against physical damage and breakage.

WAC 296-307-41051 Requirements that apply to appliances.

- (1) New commercial and industrial gas consuming appliances must be approved.

<p>Exception: Any appliance that was originally manufactured for operation with a gaseous fuel other than LP-gas and is in good condition may be used with LP-gas only after it is properly converted, adapted, and tested for performance with LP-gas before the appliance is placed in use.</p>
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- (2) Unattended heaters used inside buildings for the purpose of animal or poultry production or care must have an approved automatic device designed to shut off the flow of gas to the main burners, and pilot if used, in case the flame goes out.
- (3) All commercial, industrial, and agricultural appliances or equipment must be installed according to the requirements of these standards and according to the following:
 - (a) Domestic and commercial appliances, NFPA 54-1969, Standard for the Installation of Gas Appliances and Gas Piping.
 - (b) Industrial appliances, NFPA 54A-1969, Standard for the Installation of Gas Piping and Gas Equipment on Industrial Premises and Certain Other Premises.
 - (c) Standard for the Installation and Use of Stationary Combustion Engines and Gas

Turbines, NFPA 37-1970.

- (d) Standard for the Installation of Equipment for the Removal of Smoke and Grease-Laden Vapors from Commercial Cooking Equipment, NFPA 96-1970.

WAC 296-307-415 *Cylinder systems.*

WAC 296-307-41501 Scope.

WAC 296-307-415 applies to systems using DOT containers. Cylinder systems must meet all requirements of WAC 296-307-410 (unless otherwise indicated) and the additional requirements of this section.

WAC 296-307-41503 Cylinder system.

Cylinder system. Includes the container base or bracket, containers, container valves, connectors, manifold valve assembly, regulators, and relief valves.

WAC 296-307-41505 Marking containers used in cylinder systems.

- (1) Containers must be marked according to DOT regulations. Additional markings that do not conflict with DOT regulations may be used.
- (2) Each container must be marked with its water capacity in pounds or other identified unit of weight.
- (3) Exception: If the employer is the only one who fills and maintains the container and if the water capacity of the container is identified by a code, subsection (2) of this section does not apply.

WAC 296-307-41507 Additional requirements that apply to cylinder systems installed outdoors.

- (1) Containers must not be buried below ground. However, systems may be installed in a compartment or recess below grade level, such as a niche in a slope or terrace wall that is used for no other purpose, if the container and regulating equipment are not in contact with the ground, and the compartment or recess is drained and ventilated horizontally to the outside air from its lowest level, with the outlet at least 3 feet away from any building opening below the level of the outlet.
- (2) Except as provided in WAC 296-307-41025(14), the discharge from safety-relief devices must be located at least three feet away from any building opening that is below the level of discharge and must not terminate beneath any building unless the space is well ventilated to the outside and is not enclosed on more than two sides.
- (3) Containers must be set on firm foundation or otherwise firmly secured; the possible effect of settling on the outlet piping must be guarded against by a flexible connection or special fitting.

WAC 296-307-41509 Additional requirements that apply to cylinder system installed indoors.

- (1) When portable containers are necessary and it is not practical to use them outdoors, containers and equipment may be used indoors only if they meet the requirements of this section.
- (a) **Containers in use.** Connected for use.
 - (b) Systems using containers with a water capacity greater than 2-1/2 pounds (nominal one pound LP-gas capacity) must have excess flow valves. Such excess flow valves must be either integral with the container valves or in the connections to the container valve outlets. In either case, an excess flow valve must be installed so that any strain beyond the excess flow valve will not cause breakage between the container and the excess flow valve. The installation of excess flow valves must take into account the type of valve protection provided.
 - (c) Regulators must be either directly connected to the container valves or to manifolds connected to the container valves. The regulator must be suitable for use with LP-gas. Manifolds and fittings connecting containers to pressure regulator inlets must be designed for at least 250 psig service pressure.
 - (d) Valves on containers having a water capacity greater than fifty pounds (nominal twenty pounds LP-gas capacity) must be protected while in use.
 - (e) Aluminum pipe or tubing is prohibited.
 - (f) Hose must be designed for a working pressure of at least 250 psig. Hose and hose connections must be listed by a nationally recognized testing laboratory.
 - (i) Hose must be as short as practical.
 - (ii) Hose must be long enough to allow required spacing without kinking, straining, or allowing hose to be close enough to a burner to be damaged by heat.
 - (g) Portable heaters, including salamanders, must have an approved automatic device to shut off the flow of gas to the main burner, and pilot if used, in case the flame goes out. Heaters with inputs above 50,000 Btu manufactured on or after May 17, 1967, and heaters with inputs above 100,000 Btu manufactured before May 17, 1967, must have either:
 - (i) A pilot that must be lighted and proved before the main burner can be turned on; or
 - (ii) An electric ignition system;
 - (iii) Container valves, connectors, regulators, manifolds, piping, and tubing must not be used as structural supports for heaters.

Exception: These requirements do not apply to tar kettle burners, torches, melting pots, nor do they apply to portable heaters under 7,500 Btuh input when used with containers with a maximum water capacity of 2-1/2 pounds.

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- (h) Containers, regulating equipment, manifolds, piping, tubing, and hose must be located to minimize exposure to abnormally high temperatures (such as may result from exposure to convection or radiation from heating equipment or installation in confined spaces), physical damage, or tampering.
 - (i) Heat producing equipment must be located and used to minimize the possibility of igniting combustibles.
 - (j) Containers with water capacity greater than 2-1/2 pounds (nominal one pound LP-gas capacity) connected for use, must stand on a firm and substantially level surface and, when necessary, must be secured in an upright position.
 - (k) Containers, including the valve protective devices, must be installed to minimize the probability of impingement of discharge of safety-relief devices upon containers.
- (2) Containers with a maximum water capacity of 2-1/2 pounds (nominal one pound LP-gas capacity) may be used indoors as part of approved self-contained hand torch assemblies or similar appliances.
- (3) When buildings frequented by the public are open to the public, containers may be used for repair or minor renovation as follows:
- (a) The maximum water capacity of individual containers must be 50 pounds (nominal twenty pounds LP-gas capacity).
 - (b) The number of LP-gas containers must not exceed the number of employees assigned to use LP-gas.
 - (c) Containers with a water capacity greater than 2-1/2 pounds (nominal one pound LP-gas capacity) must be attended at all times.
- (4) When buildings frequented by the public are closed to the public, containers may be used in buildings or structures for repairs or minor renovation as follows:
- (a) The maximum water capacity of individual containers must be 245 pounds (nominal one hundred pounds LP-gas capacity).
 - (b) For temporary heating such as curing concrete, drying plaster and similar applications, heaters (other than integral heater-container units) must be located at least six feet from any LP-gas container. The employer may use heaters specifically designed for attachment to the container or to a supporting standard, if they are designed and installed to prevent direct or radiant heat application from the heater onto the container. Blower and radiant type heater must not be directed toward any LP-gas container within 20 feet.
 - (c) If two or more heater-container units are located in an unpartitioned area on the same floor, the container or containers of each unit must be separated from the container or containers of any other unit by at least 20 feet.
 - (d) When heaters are connected to containers for use in an unpartitioned area on the same floor, the total water capacity of containers manifolded together for

- connection to a heater or heaters must not be greater than 735 pounds (nominal three hundred pounds LP-gas capacity). Such manifolds must be separated by at least 20 feet.
- (e) On floors on which heaters are not connected for use, containers may be manifolded together for connection to a heater or heaters on another floor, if:
 - (i) The total water capacity of containers connected to any one manifold is a maximum of 2,450 pounds (nominal one thousand pounds LP-gas capacity) and;
 - (ii) Where more than one manifold having a total water capacity greater than 735 pounds (nominal three hundred pounds LP-gas capacity) are located in the same unpartitioned area, they must be separated by at least 50 feet.
 - (f) Containers with a water capacity greater than 2-1/2 pounds (nominal one pound LP-gas capacity) must be attended at all times.
- (5) Containers may be used in industrial occupancies for processing, research, or experimental purposes as follows:
- (a) The maximum water capacity of individual containers must be 245 pounds (nominal one hundred pounds LP-gas capacity).
 - (b) Containers connected to a manifold must have a total water capacity of a maximum of 735 pounds (nominal three hundred pounds LP-gas capacity) and only one manifold may be located in the same room unless separated at least 20 feet from a similar unit.
 - (c) LP-gas in containers for research and experimental use must use the smallest practical quantity.
- (6) Containers used in industrial occupancies with essentially noncombustible contents where portable equipment for space heating is essential and where a permanent heating installation is not practical, must meet the requirements of subsection (5) of this section.
- (7) Containers may be used in buildings for temporary emergency heating purposes, if necessary to prevent damage to the buildings or contents, when the permanent heating system is temporarily out of service, as follows:
- (a) Containers and heaters must meet the requirements of subsection (5) of this section.
 - (b) The temporary heating equipment must be attended at all times.
- (8) Containers may be used temporarily in buildings for training purposes related in installation and use of LP-gas systems, as follows:
- (a) The maximum water capacity of individual containers must be 245 pounds (nominal one hundred pounds LP-gas capacity), but the maximum quantity of LP-gas that may be placed in each container is 20 pounds.
 - (b) If more than one container is located in the same room, the containers must be

separated by at least 20 feet.

- (c) Containers must be removed from the building when the training class has terminated.

WAC 296-307-41511 Valves and accessories.

- (1) Valves in the assembly of multiple container systems must be arranged so that containers can be replaced without shutting off the flow of gas in the system.

Note: An automatic changeover device is not required.

- (2) Regulators and low-pressure relief devices must be rigidly attached to the cylinder valves, cylinders, supporting standards, the building walls or otherwise rigidly secured and must be installed or protected so that weather will not affect their operation.
- (3) Valves and connections to the containers must be protected while in transit, in storage, and while being moved into final use, as follows:
- (a) By setting into the recess of the container to prevent the possibility of being struck if the container is dropped on a flat surface; or
- (b) By ventilated cap or collar, fastened to the container capable of withstanding a blow from any direction equivalent to that of a 30-pound weight dropped four feet. Construction must ensure that a blow will not be transmitted to the valve or other connection.
- (4) When containers are not connected to the system, the outlet valves must be kept tightly closed or plugged, even on empty containers.
- (5) Containers having a water capacity in excess of 50 pounds (approximately 21 pounds LP-gas capacity), recharged at the installation, must have excess flow or backflow check valves to prevent the discharge of container contents in case of failure of the filling or equalizing connection.

WAC 296-307-41513 Safety devices for cylinder systems.

- (1) Containers must have safety devices as required by DOT regulations.
- (2) A final stage regulator of an LP-gas system (excluding any appliance regulator) must have, on the low-pressure side, a relief valve that is set to start to discharge within the limits specified in Table U-7.

TABLE U-7 Relief valve start-to-discharge pressure setting (percent of regulator delivery pressure)

Regulator delivery pressure	Minimum	Maximum
1 psig or less	200	300
Above 1 psig but not over 3 psig	140	200

Regulator delivery pressure	Minimum	Maximum
Above 3 psig	125	200

- (3) When a regulator or pressure relief valve is used indoors for other than purposes specified in WAC 296-307-41017(1), the relief valve and the space above the regulator and relief valve diaphragms must be vented to the outside air with the discharge outlet located at least three feet horizontally away from any building opening that is below such discharge.

Exception: This requirement does not apply to individual appliance regulators when protection is otherwise provided, nor to WAC 296-307-41509 and 296-307-41025(14). In buildings devoted exclusively to gas distribution, the space above the diaphragm need not be vented to the outside.

WAC 296-307-41515 Other requirements that apply to cylinder systems.

- (1) Containers must not be reinstalled unless they are requalified according to DOT regulations.
- (2) A product must not be placed in a container marked with a service pressure less than four-fifths of the maximum vapor pressure of product at 130°F.

WAC 296-307-420 Systems using non-DOT containers.

WAC 296-307-42001 Scope.

WAC 296-307-420 applies to systems using storage containers not constructed according to DOT specifications. Non-DOT containers must meet all requirements of WAC 296-307-410 (unless otherwise indicated) and the additional requirements of this section.

WAC 296-307-42003 Design and classification of non-DOT containers.

Storage containers must be designed and classified according to Table U-8.

TABLE U-8

Minimum design pressures of container lb. per sp. in. gauge			
Container Type	For gases with vapor pressure not to exceed 1b. per sp. in. gauge 100°F (37.8°C.)	1949 and earlier editions of ASME Code (Par. U-68, U-69)	1949 edition of Code (Par. U-200, U-201); 1950, 1952, 1956, 1959, 1962, 1965, and 1968 (Division 1) editions of ASME Code; All editions of API-ASME Code³
80 ¹	80 ¹	80 ¹	100 ¹
100	100	100	125
125	125	125	156
150	150	150	187
175	175	175	219
200 ²	215	200	250

¹New type 80 storage containers have not been authorized since Dec. 31, 1947.

²Container type may be increased by increments of 25. The minimum design pressure of containers must be 100% of the container type designations when constructed under 1949 or earlier editions of the ASME Code (Par. U-68 and U-69). The minimum design pressure of containers must be 125% of the container type designation when constructed under:

1. The 1949 ASME Code (Par. U-200 and U-201);
2. 1950, 1952, 1956, 1959, 1962, 1965, and 1968 (Division 1) editions of ASME Code; and
3. All editions of the API-ASME Code.

³Construction of containers under the API-ASME Code is prohibited after July 1, 1961.

WAC 296-307-42005 Valves and accessories, filler pipes, and discharge pipes for non-DOT containers.

- (1) The filling pipe inlet terminal must not be located inside a building. For containers with a water capacity of 125 gallons or more, such terminals must be located at least 10 feet from any building, and preferably at least 5 feet from any driveway, and must have a protective housing.
- (2) The filling connection must be fitted with one of the following:
 - (a) Combination back-pressure check valve and excess flow valve.
 - (b) One double or two single back-pressure check valves.
 - (c) A positive shut-off valve in conjunction with either:
 - (i) An internal back pressure valve; or
 - (ii) An internal excess flow valve.

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- (3) All openings in a container must have approved automatic excess flow valves unless otherwise exempt.
 - (4) An excess flow valve is not required in the withdrawal service line if the following requirements are met:
 - (a) The total water capacity is a maximum of 2,000 U.S. gallons.
 - (b) The discharge from the service outlet is controlled by a manually operated shut-off valve that is:
 - (i) Threaded directly into the service outlet of the container; or
 - (ii) Is an integral part of a substantial fitting threaded into or on the service outlet of the container; or
 - (iii) Threaded directly into a substantial fitting threaded into or on the service outlet of the container.
 - (c) The shut-off valve is equipped with an attached handwheel or the equivalent.
 - (d) The controlling orifice between the contents of the container and the outlet of the shut-off valve is a maximum of 5/16 inch in diameter for vapor withdrawal systems and 1/8 inch in diameter for liquid withdrawal systems.
 - (e) An approved pressure-reducing regulator is directly attached to the outlet of the shut-off valve and is rigidly supported, or an approved pressure-reducing regulator is attached to the outlet of the shut-off valve by means of a suitable flexible connection, if the regulator is adequately supported and properly protected on or at the tank.
 - (5) All inlet and outlet connections except safety-relief valves, liquid-level gauging devices and pressure gauges on containers of 2,000 gallons water capacity, or more, and on any container used to supply fuel directly to an internal combustion engine, must be labeled to designate whether they communicate with vapor or liquid space. Labels may be on valves.
 - (6) Instead of an excess flow valve, openings may be fitted with a quick-closing internal valve that must remain closed when not in operation. The internal mechanism for such valves may have a secondary control that must have a fusible plug (not over 220°F melting point) that will cause the internal valve to close automatically in case of fire.
 - (7) A maximum of two plugged openings may be used on a container of 2,000 gallons or less water capacity.
 - (8) Containers of 125 gallons water capacity or more manufactured after July 1, 1961, must have an approved device for liquid evacuation, the size of which must be 3/4 inch national pipe thread minimum. A plugged opening does not satisfy this requirement.

WAC 296-307-42007 Additional requirements that apply to safety devices for non-DOT containers.

- (1) All safety devices must comply with the following:

- (a) All container safety-related devices must be located on the containers.
- (b) In industrial and gas manufacturing plants, discharge pipe from safety-relief valves on pipe lines within a building must discharge upward and be piped to a point outside a building.
- (c) Safety-relief device discharge terminals must be located to provide against physical damage and must be fitted with loose raincaps. Return bends and restrictive pipefittings are prohibited.
- (d) If desired, discharge lines from two or more safety-relief devices located on the same unit, or similar lines from two or more different units, may be run into a common discharge header, if the cross-sectional area of the header is at least equal to the sum of the cross-sectional area of the individual discharge lines, and the setting of safety-relief valves are the same.
- (e) Each storage container of over 2,000 gallons water capacity must have a suitable pressure gauge.
- (f) A final stage regulator of an LP-gas system (excluding any appliance regulator) must have, on the low-pressure side, a relief valve that is set to start to discharge within the limits specified in Table U-7.
- (g) When a regulator or pressure relief valve is installed indoors, the relief valve and the space above the regulator and relief valve diaphragms must be vented to the outside air with the discharge outlet located not less than 3 feet horizontally away from any opening into the building that is below such discharge.

<p>Exception: This requirement does not apply to individual appliance regulators already protected. In buildings devoted exclusively to gas distribution, the space above the diaphragm need not be vented to the outside.</p>

- (2) Safety devices for aboveground containers must be provided as follows:
 - (a) Containers of 1,200 gallons water capacity or less that may contain liquid fuel when installed aboveground must have the rate of discharge required by WAC 296-307-41025(2) provided by a spring-loaded relief valve or valves. In addition to the required spring-loaded relief valve, a suitable fuse plug may be used if the total discharge area of the fuse plug for each container does not exceed 0.25 square inch.
 - (b) The fusible metal of the fuse plugs must have a yield temperature of 208°F minimum and 220°F maximum. Relief valves and fuse plugs must have direct communication with the vapor space of the container.
 - (c) On a container having a water capacity between 125 and 2,000 gallons, the discharge from the safety-relief valves must be vented away from the container upwards and unobstructed to the open air so that it prevents any impingement of escaping gas upon the container; loose-fitting rain caps must be used. Suitable provision must be made for draining condensate that may accumulate in the relief

- valve or its discharge pipe.
- (d) On containers of 125 gallons water capacity or less, the discharge from safety-relief devices must be located at least 5 feet horizontally away from any opening into the building below the level of such discharge.
 - (e) On a container having a water capacity greater than 2,000 gallons, the discharge from the safety-relief valves must be vented away from the container upwards to a point at least 7 feet above the container, and unobstructed to the open air so that it prevents any impingement of escaping gas upon the container; loose-fitting rain caps must be used. Suitable provision must be made so that any liquid or condensate that may accumulate inside of the safety-relief valve or its discharge pipe will not render the valve inoperative. If a drain is used, the container, adjacent containers, piping, or equipment must be protected against impingement of flame resulting from ignition of product escaping from the drain.
- (3) On all containers that are installed underground and that contain no liquid fuel until buried and covered, the rate of discharge of the spring-loaded relief valve installed thereon may be reduced to a minimum of 30% of the rate of discharge specified in WAC 296-307-41025(2). Containers so protected must remain covered after installation until the liquid fuel has been removed. Containers that may contain liquid fuel before being installed underground and before being completely covered with earth are aboveground containers when determining the rate of discharge requirement of the relief valves.
 - (4) On underground containers of over 2,000 gallons water capacity, the discharge from safety-relief devices must be piped directly upward to a point at least 7 feet above the ground.
 - (5) Where the manhole or housing may become flooded, the discharge from regulator vent lines must be above the highest probable water level. All manholes or housings must have ventilated louvers or equivalent, and the area of openings must be equal to or exceed the combined discharge areas of the safety-relief valves and other vent lines that discharge their content into the manhole housing.
 - (6) Safety devices for vaporizers must be provided as follows:
 - (a) Vaporizers of less than 1 quart total capacity, heated by the ground or the surrounding air, need not have safety-relief valves if adequate tests demonstrate that the assembly is safe without safety-relief valves.
 - (b) Fusible plugs are prohibited on vaporizers.
 - (c) In industrial and gas manufacturing plants, safety-relief valves on vaporizers within a building must be piped to a point outside the building and be discharged upward.

WAC 296-307-42009 Reinstallation of non-DOT containers.

Containers may be reinstalled if they are free from harmful external corrosion or other damage. Where containers are reinstalled underground, the corrosion resistant coating must be put in good condition. Where containers are reinstalled aboveground, the safety devices and gauging devices must meet all requirements for aboveground containers.

WAC 296-307-42011 Maximum capacity for non-DOT containers.

A non-DOT storage container must have a maximum 90,000 gallons water capacity.

WAC 296-307-42013 Installing non-DOT containers.

- (1) Containers installed aboveground must have substantial masonry or noncombustible structural supports on firm masonry foundation, unless otherwise indicated.
- (2) Aboveground containers must be supported as follows:
 - (a) Horizontal containers must be mounted on saddles that permit expansion and contraction. Structural metal supports may be used when they are protected against fire. Suitable means of preventing corrosion must be provided on that portion of the container in contact with the foundations or saddles.
 - (b) Containers of 2,000 gallons water capacity or less may be installed with nonfireproofed ferrous metal supports if mounted on concrete pads or footings, and if the distance from the outside bottom of the container shell to the concrete pad, footing, or the ground is a maximum of 24 inches.
- (3) Any container may be installed with nonfireproofed ferrous metal supports if mounted on concrete pads or footings, and if the distance from the outside bottom of the container to the ground is a maximum of 5 feet, if the container is in an isolated location.
- (4) Partially buried containers must meet the following requirements:
 - (a) The portion of the container below the surface and for a vertical distance not less than 3 inches above the surface of the ground is protected to resist corrosion, and the container is protected against settling and corrosion as required for fully buried containers.
 - (b) Partially buried containers must meet the same spacing requirements as underground tanks.
 - (c) Relief valve capacity must be the same as for aboveground containers.
 - (d) Container is protected against vehicular damage by location or other means.
 - (e) Partially buried containers must meet the same requirements for filling densities as for aboveground containers.
- (5) Containers buried underground must be placed so that the top of the container is at least 6 inches below grade. Underground containers subject to abrasive action or physical damage must be:
 - (a) Placed not less than 2 feet below grade; or
 - (b) Otherwise protected against such physical damage.

It is not necessary to cover the portion of the container to which manhole and other connections are affixed. When necessary to prevent floating, containers must be securely anchored or weighted.

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- (6) Containers must be given a protective coating before being placed underground. This coating must be equivalent to hot-dip galvanizing or to two coatings of red lead followed by a heavy coating of coal tar or asphalt. In lowering the container into place, take care to prevent damage to the coating. Any damage to the coating must be repaired before backfilling.

Containers must be set on a firm foundation (firm earth may be used) and surrounded with earth or sand firmly tamped in place. Backfill should be free of rocks or other abrasive materials.

- (7) Containers with foundations attached (portable or semiportable containers with suitable steel runners or skids popularly known as "skid tanks") must meet the requirements of WAC 296-307-410 and the following:
- (a) If they are to be used at a given general location for a temporary period of 6 months at most, they may be without fire-resisting foundations or saddles but must have adequate ferrous metal supports.
 - (b) They must not be located with the outside bottom of the container shell more than 5 feet above the surface of the ground unless fire-resisting supports are provided.
 - (c) The bottom of the skids must be between 2 and 12 inches below the outside bottom of the container shell.
 - (d) Flanges, nozzles, valves, fittings, and the like, having communication with the interior of the container, must be protected against physical damage.
 - (e) When not permanently located on fire-resisting foundations, piping connections must be flexible enough to minimize breakage or leakage of connections if the container settles, moves, or is otherwise displaced.
 - (f) Skids, or lugs for attachment of skids, must be secured to the container according to the rules under which the container is designed and built (with a minimum factor of safety of four) to withstand loading in any direction equal to four times the weight of the container and attachments when filled to the maximum permissible loaded weight.
- (8) Field welding where necessary must be made only on saddle plates or brackets that were applied by the manufacturer of the tank.
- (9) For aboveground containers, secure anchorage or adequate pier height must be provided against possible container flotation wherever high floodwater might occur.
- (10) When permanently installed containers are interconnected, the employer must allow for expansion, contraction, vibration, and settling of containers, and interconnecting piping. Where flexible connections are used, they must be approved and designed for a bursting pressure of at least five times the vapor pressure of the product at 100°F. Nonmetallic hose is prohibited for permanently interconnecting containers.
- (11) Container assemblies listed for interchangeable installation aboveground or underground must meet the requirements for aboveground installations for safety-relief capacity and

filling density. For installation aboveground all other requirements for aboveground installations apply. For installation underground all other requirements for underground installations apply.

WAC 296-307-42015 Protecting non-DOT containers.

- (1) Valves, regulating, gauging, and other container accessory equipment must be protected against tampering and physical damage. Such accessories must also be protected during the transit of containers intended for installation underground.
- (2) On underground or combination aboveground-underground containers, the service valve handwheel, the terminal for connecting the hose, and the opening through which there can be a flow from safety-relief valves must be at least 4 inches above the container and this opening must be located in the dome or housing. Underground systems must be installed so that all openings, including the regulator vent, are located above the normal maximum water table.
- (3) All connections to the underground containers must be located within a substantial dome, housing, or manhole, with access protected by a substantial cover.

WAC 296-307-42017 Non-DOT containers in industrial plants.

General provisions applicable to systems in industrial plants (of 2,000 gallons water capacity and more) and to bulk filling plants.

- (1) When standard watch service is provided, it must be extended to the LP-gas installation and personnel must be properly trained.
- (2) If loading and unloading are normally done during the night, adequate lights must be provided to illuminate storage containers, control valves, and other equipment.
- (3) Suitable roadways or means of access for extinguishing equipment such as wheeled extinguishers or fire department apparatus must be provided.
- (4) To minimize trespassing or tampering, the area that includes container accessories, pumping equipment, loading and unloading facilities, and cylinder-filling facilities must be enclosed with at least a 6-foot-high industrial fence unless otherwise adequately protected. There must be at least two means of emergency access.

WAC 296-307-42019 Container-charging plants.

- (1) The container-charging room must be located at least:
 - (a) Ten feet from bulk storage containers.
 - (b) Twenty-five feet from line of adjoining property that may be built on.
- (2) Tank truck filling station outlets must be located at least:
 - (a) Twenty-five feet from line of adjoining property that may be built on.
 - (b) Ten feet from pumps and compressors if housed in one or more separate buildings.

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- (3) The pumps or compressors may be located in the container-charging room or building, in a separate building, or outside of buildings. When housed in separate building, such building (a small noncombustible weather cover is not to be construed as a building) must be located at least:
 - (a) Ten feet from bulk storage tanks.
 - (b) Twenty-five feet from line of adjoining property that may be built on.
 - (c) Twenty-five feet from sources of ignition.
 - (4) When a part of the container-charging building is to be used for a boiler room or where open flames or similar sources of ignition exist or are employed, the space to be occupied must be separated from container charging room by a partition wall or walls of fire-resistant construction continuous from floor to roof or ceiling. Such separation walls must be without openings and must be joined to the floor, other walls, and ceiling or roof to provide a permanent gas-tight joint.

WAC 296-307-42021 Fire protection for non-DOT containers.

- (1) Each bulk plant must have at least one approved portable fire extinguisher with a minimum rating of 12-B, C.
- (2) In industrial installations involving containers of 150,000 gallons aggregate water capacity or more, the employer must provide an adequate supply of water at the container site for fire protection in the container area, unless other adequate means for fire control are provided. Water hydrants must be readily accessible and spaced to provide water protection for all containers. Enough firehose must be provided to facilitate easy movement of the hose in the container area. The employer should equip the outlet of each hose line with a combination fog nozzle. A shelter must be provided to protect the hose and its conveyor from the weather.

WAC 296-307-42023 Other requirements that apply to non-DOT containers.

- (1) Aboveground containers must be kept properly painted.
- (2) Vaporizers for internal combustion engines must meet the requirements of WAC 296-307-42515.
- (3) Gas regulating and mixing equipment for internal combustion engines must meet the requirements of WAC 296-307-42517.
- (4) Where vaporized gas on the low-pressure side of the system may condense to a liquid at normal operating temperatures and pressures, means must be provided to revaporize condensate.
- (5) The employer must protect LP-gas systems against damage from vehicular traffic.
- (6) Avoid the use of pits when possible, except pits fitted with automatic flammable vapor detecting devices. No drains or blowoff lines must be directed into or in proximity to sewer systems used for other purposes.

WAC 296-307-425 LP-gas as a motor fuel.**WAC 296-307-42501 Scope.**

- (1) WAC 296-307-425 applies to internal combustion engines, fuel containers, and pertinent equipment for the use of LP-gases as a motor fuel on easily movable, readily portable units including self-propelled vehicles. This section does not apply to containers for transportation of LP-gases nor to marine fuel use.
- (2) All uses of LP-gas as a motor fuel must meet all requirements of WAC 296-307-410 (unless otherwise indicated) and the additional requirements of this section.

WAC 296-307-42503 Using LP-gas used as a motor fuel.

- (1) Fuel may be used from the cargo tank of a truck while in transit, but not from cargo tanks on trailers or semitrailers. Fuel may be used from the cargo tanks to operate stationary engines if the wheels are securely blocked.
- (2) Passenger-carrying vehicles must not be fueled while passengers are on board.
- (3) Industrial trucks (including lift trucks) equipped with permanently mounted fuel containers must be charged outdoors. Charging equipment must meet the requirements of WAC 296-307-440.
- (4) LP-gas fueled industrial trucks must comply with the Standard for Type Designations, Areas of Use, Maintenance and Operation of Powered Industrial Trucks, NFPA 505-1969.
- (5) Engines on vehicles must be shut down while fueling if the fueling operation involves venting to the atmosphere.

WAC 296-307-42505 Design and classification of fuel containers.

- (1) Containers must meet the following requirements:

<i>Minimum design pressures of container lb. per sp. in. gauge</i>			
Container Type	For gases with vapor pressure not to exceed 1b. per sp. in. gauge at 100°F (37.8°C.)	1949 and earlier editions of ASME Code (Par. U-68, U-69)	1949 edition of ASME Code (Par. U-200,U-201); 1950, 1952, 1956, 1959, 1962, 1965, and 1968 (Division 1) editions of ASME Code; All editions of API-ASME Code²
200 ¹	215	200	250
<p>¹Container type may be increased by increments of 25. The minimum design pressure of containers must be 100% of the container type designations when constructed under 1949 or earlier editions of the ASME Code (Par. U-68 and U-69). The minimum design pressure of containers must be 125% of the container type designation when constructed under:</p> <ol style="list-style-type: none"> 1. The 1949 ASME Code (Par. U-200 and U-201); 2. 1950, 1952, 1956, 1959, 1962, 1965, and 1968 (Division 1) editions of ASME Code; and 3. All editions of the API-ASME Code. <p>²Construction of containers under the API-ASME Code is prohibited after July 1, 1961.</p>			

Exception: Fuel containers for use in industrial trucks (including lift trucks) must be either DOT containers authorized for LP-gas service having a minimum service pressure of 240 psig or minimum Container Type 250. Under 1950 and later ASME Codes, this means a 312.5-psig design pressure container.

- (2) DOT containers used as fuel containers must meet all requirements of this section.
- (3) All container inlets and outlets except safety-relief valves and gauging devices must be labeled to designate whether they communicate with vapor or liquid space. (Labels may be on valves.)

WAC 296-307-42507 Installing fuel containers.

- (1) Containers must be located to minimize the possibility of damage to the container. Containers located in the rear of trucks and buses, when protected by substantial bumpers meet this requirement. Fuel containers on passenger-carrying vehicles must be installed as far from the engine as is practical, and the passenger space and any space containing radio equipment must be sealed from the container space to prevent direct

seepage of gas to these spaces. The container compartment must be vented to the outside. In case the fuel container is mounted near the engine or the exhaust system, the container must be shielded against direct heat radiation.

- (2) Containers must be installed with as much clearance as practical and at least the minimum road clearance of the vehicle under maximum spring deflection. This minimum clearance must be to the bottom of the container or to the lowest fitting on the container or housing, whichever is lower.
- (3) Permanent and removable fuel containers must be securely mounted to prevent jarring loose, slipping, or rotating, and the fastenings must be designed and constructed to withstand static loading in any direction equal to twice the weight of the tank and attachments when filled with fuel using a safety factor of at least four based on the ultimate strength of the material to be used. Field welding, when necessary, must be made only on saddle plates, lugs or brackets, attached to the container by the manufacturer.
- (4) Fuel containers on buses must be permanently installed.
- (5) Containers from which only vapor is to be withdrawn must be installed and equipped with suitable connections to minimize the accidental withdrawal of liquid.

WAC 296-307-42509 Valves and accessories.

- (1) Container valves and accessories must have a rated working pressure of at least 250 psig, and must be suitable for LP-gas service.
- (2) The filling connection must be fitted with an approved double back-pressure check valve, or a positive shut off in conjunction with an internal back-pressure check valve. On a removable container the filler valve may be a hand operated shut-off valve with an internal excess flow valve. Main shut-off valves on the container on liquid and vapor must be readily accessible.
- (3) Filling connections equipped with approved automatic back-pressure check valves, and safety-relief valves, all connections to the containers having openings for the flow of gas in excess of a No. 54 drill size must have approved automatic excess flow valves to prevent discharge of content in case connections are broken.
- (4) Liquid-level gauging devices must meet the following requirements:
 - (a) Variable liquid-level gauges that require the venting of fuel to the atmosphere are prohibited on fuel containers of industrial trucks (including lift trucks).
 - (b) On portable containers that may be filled in the vertical and/or horizontal position, the fixed liquid-level gauge must indicate maximum permitted filling level for both vertical and horizontal filling with the container oriented to place the safety-relief valve in communication with the vapor space.
 - (c) For containers used solely in farm tractor service and charged at a point at least 50 feet from any important building, the fixed liquid-level gauging device may be constructed so that the outward flow of container content exceeds that passed by a No. 54 drill size opening, but must never exceed that passed by a No. 31 drill-size

opening. An excess flow valve is not required. Fittings equipped with restricted drill size opening and the container on which they are used must be marked to indicate the size of the opening.

- (d) All valves and connections on containers must be adequately protected to prevent damage due to accidental contact with stationary objects or from loose objects thrown up from the road. All valves must be safeguarded against damage due to collision, overturning or other accident. Farm tractors where parts of the vehicle provide protection to valves and fittings meet this requirement. However, on removable type containers the protection for the fittings must be permanently attached to the container.
- (e) The employer should normally exchange removable fuel outdoors. When removable fuel containers are used, means must be provided in the fuel system to minimize the escape of fuel when the containers are exchanged. The employer must use one of the following methods:
 - (i) Using an approved automatic quick-closing coupling (a type closing in both directions when uncoupled) in the fuel line; or
 - (ii) Closing the valve at the fuel container and allowing the engine to run until the fuel in the line is consumed.

WAC 296-307-42511 Piping, tubing, and fittings.

- (1) Pipe from fuel container to first-stage regulator must be at least schedule 80 wrought iron or steel (black or galvanized), brass or copper; or seamless copper, brass, or steel tubing. Steel tubing must have a minimum wall thickness of 0.049 inch. Steel pipe or tubing must be adequately protected against exterior corrosion. Copper tubing must be types K or L or equivalent with a minimum wall thickness of 0.032 inch. Approved flexible connections may be used between container and regulator or between regulator and gas-air mixer. Using aluminum pipe or tubing is prohibited. For removable containers, an approved flexible connection must be used between the container and the fuel line.
- (2) All piping must be installed, braced, and supported to minimize vibration strains or wear.

WAC 296-307-42513 Safety devices.

- (1) Spring-loaded internal safety-relief valves must be used on all motor fuel containers.
- (2) The discharge outlet from safety-relief valves must be located on the outside of enclosed spaces and as far as practical from possible sources of ignition, and vented upward within 45 degrees of the vertical to prevent impingement of escaping gas upon containers, or parts of vehicles, or on vehicles in adjacent lines of traffic. A rain cap or other protector must be used to keep water and dirt from collecting in the valve.
- (3) When a discharge line from the container safety-relief valve is used, the line must be metallic, other than aluminum, and must be sized, located, and maintained so as not to restrict the required flow of gas from the safety-relief valve. The discharge line must be able to withstand the pressure resulting from the discharge of vapor when the safety-

relief valve is in the full open position. Flexible metal hose or tubing must be used when necessary.

- (4) Portable containers equipped for volumetric filling may be filled in either the vertical or horizontal position only when oriented to place the safety-relief valve in communication with the vapor space.

WAC 296-307-42515 Vaporizers.

- (1) Vaporizers, their parts, and other devices that may be subjected to container pressure must have a design pressure of at least 250 psig.
- (2) Each vaporizer must have a valve or suitable plug that will permit substantially complete draining of the vaporizer. It must be located at or near the lowest portion of the section occupied by the water or other heating medium.
- (3) Vaporizers must be securely fastened to minimize the possibility of loosening.
- (4) Each vaporizer must be permanently marked at a visible point as follows:
 - (a) With the design pressure of the fuel-containing portion in psig.
 - (b) With the water capacity of the fuel-containing portion of the vaporizer in pounds.
- (5) Devices to supply heat directly to a fuel container must have an automatic device to cut off the supply of heat before the pressure inside the fuel container reaches 80% of the start-to-discharge pressure setting of the safety-relief device on the fuel container.
- (6) Engine exhaust gases may be used as a direct source of heat supply for the vaporization of fuel if the materials of construction of those parts of the vaporizer in contact with exhaust gases are resistant to the corrosive action of exhaust gases and the vaporizer system is designed to prevent excessive pressures.
- (7) Fusible plugs are prohibited on vaporizers.

WAC 296-307-42517 Gas regulating and mixing equipment.

- (1) Approved automatic pressure reducing equipment must be installed securely between the fuel supply container and gas-air mixer to reduce the pressure of the fuel delivered to the gas-air mixer.
- (2) An approved automatic shut-off valve must be provided in the fuel system at some point ahead of the inlet of the gas-air mixer, designed to prevent flow of fuel to the mixer when the ignition is off and the engine is not running. For industrial trucks and engines operating in buildings other than those used exclusively to house engines, the automatic shut-off valve must be designed to operate if the engine stops.

Atmospheric regulators (zero governors) are adequate as an automatic shut-off valve only in cases of outdoor operation such as farm tractors, construction equipment, irrigation pump engines, and other outdoor stationary engine installations.

- (3) The source of air for combustion must be completely isolated from the passenger compartment, ventilating system, or air-conditioning system.

WAC 296-307-42519 Maximum container capacity.

A single fuel container used on passenger carrying vehicles must have a maximum of 200 gallons water capacity. A single fuel container on other vehicles normally operating on the highway must have a maximum of 300 gallons water capacity except as provided in WAC 296-307-42503(1).

WAC 296-307-42521 Stationary engines used indoors.

Stationary engines and gas turbines installed in buildings, including portable engines used instead of or to supplement stationary engines, must comply with the Standard for the Institution and Use of Stationary Combustion Engines and Gas Turbines, NFPA 37-1970, and the appropriate requirements of WAC 296-307-410 through 296-307-420.

WAC 296-307-42523 Portable engines used indoors.

- (1) Portable engines may be used in buildings only for emergency use, and according to WAC 296-307-42521.
- (2) Exhaust gases must be discharged outside the building or to an area where they will not constitute a hazard.
- (3) Provision must be made to supply sufficient air for combustion and cooling.
- (4) An approved automatic shut-off valve must be provided in the fuel system ahead of the engine, designed to prevent flow of fuel to the engine when the ignition is off or if the engine should stop.

WAC 296-307-42525 Industrial trucks used indoors.

- (1) LP-gas-fueled industrial trucks may be used in buildings and structures.
- (2) No more than two LP-gas containers must be used on an industrial truck for motor fuel purposes.
- (3) LP-gas-fueled industrial trucks may be used in buildings frequented by the public, when occupied by the public. The total water capacity of containers on each industrial truck must be a maximum of 105 pounds (nominal 45 pounds LP-gas).
- (4) Trucks must be attended at all times in areas occupied by the public.
- (5) Industrial trucks must not be parked and left unattended in areas of possible excessive heat or sources of ignition.

WAC 296-307-42527 LP-gas-fueled vehicles to be garaged.

- (1) LP-gas-fueled vehicles may be stored or serviced inside garages if there are no leaks in the fuel system and the fuel tanks are not filled beyond the maximum filling capacity allowed.
- (2) LP-gas-fueled vehicles being repaired in garages must have the container shut-off valve closed except when fuel is required for engine operation.
- (3) Such vehicles must not be parked near sources of heat, open flames, or similar sources of ignition or near open pits unless such pits are adequately ventilated.

WAC 296-307-430 *Storage of containers awaiting use or resale.***WAC 296-307-43001 Scope.**

WAC 296-307-430 applies to the storage of portable containers a maximum of 1,000 pounds water capacity, filled or partially filled, at user location but not connected for use, or in storage for resale by dealers or resellers. This section does not apply to containers stored at charging plants or at plants devoted primarily to the storage and distribution of LP-gas or other petroleum products.

WAC 296-307-43003 Storage of containers.

- (1) Containers in storage must be located to minimize exposure to excessive temperature rise, physical damage, or tampering.
- (2) Containers stored inside must be located away from exits, stairways, or in areas normally used or intended for the safe exit of people.
- (3) Container valves must be protected while in storage as follows:
 - (a) By setting into recess of container to prevent the possibility of their being struck if the container is dropped upon a flat surface; or
 - (b) By ventilated cap or collar, fastened to container capable of withstanding blow from any direction equivalent to that of a thirty-pound weight dropped four feet. Construction must be such that a blow will not be transmitted to a valve or other connection.
- (4) The outlet valves of containers in storage must be closed.
- (5) Empty containers that have been in LP-gas service should preferably be stored in the open. When stored inside, they must be considered full containers for the purpose of determining the maximum quantity of LP-gas permitted by this section.

WAC 296-307-43005 Containers stored within buildings frequented by the public.

DOT containers with a maximum individual water capacity of 2-1/2 pounds, used with completely self-contained hand torches and similar applications, may be stored or displayed in a building frequented by the public. The display of such containers must be limited to a total of 24 units of each brand and size. The total quantity on display and in storage must not exceed 200 pounds LP-gas.

WAC 296-307-43007 Containers stored in buildings not frequented by the public.

- (1) The quantity of LP-gas stored must be a maximum of 300 pounds (approximately 2,550 cubic feet in vapor form), except when stored within special buildings or rooms.
- (2) Containers carried as a part of service equipment on highway mobile vehicles are not considered in the total storage capacity if the vehicles are stored in private garages, and are limited to one container per vehicle with a maximum LP-gas capacity of 100 pounds. All container valves must be closed.

WAC 296-307-43009 Containers stored within special buildings or rooms.

- (1) The quantity of LP-gas stored in special buildings or rooms must be a maximum of 10,000 pounds.
- (2) The walls, floors, and ceilings of container storage rooms that are within or adjacent to other parts of the building must be constructed of material having at least a two-hour fire resistance rating.
- (3) At least 10% of the exterior walls or roof must be of explosion relieving construction.
- (4) Each opening from storage rooms to other parts of the building must be protected by a listed one and one-half hour "(B)" fire door.
- (5) Such rooms must have no open flames for heating or lighting.
- (6) Such rooms must be adequately ventilated both top and bottom to the outside only. The openings from such vents must be at least five feet away from any other opening into any building.
- (7) The floors of such rooms must not be below ground level. Any space below the floor must be of solid fill or properly ventilated to the open air.
- (8) Such storage rooms must not be located adjoining the line of property occupied by schools, churches, hospitals, athletic fields or other points of public gathering.

WAC 296-307-43011 Containers stored outdoors.

- (1) Storage outside of buildings, for containers awaiting use or resale, must be located according to the table below with respect to:
 - (a) The nearest important building or group of buildings;
 - (b) The line of adjoining property that may be built on;
 - (c) Busy thoroughfares;
 - (d) The line of adjoining property occupied by schools, churches, hospitals, athletic fields, or other points of public gathering.

Quantity of LP-Gas Stored	Distance
500 pounds or less	0
501 to 2,500 pounds	0*
2,501 to 6,000 pounds	10 feet
6,001 to 10,000 pounds	20 feet
Over 10,000 pounds	25 feet
*Containers must be at least ten feet away from any building on adjoining property, any sidewalk, or any of the exposures described in (c) or (d) of this subsection.	

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- (2) Containers must be in a suitable enclosure or otherwise protected against tampering.

WAC 296-307-43013 Fire protection provided for stored containers.

Storage locations other than supply depots separated and located apart from dealer, reseller, or user establishments must have at least one approved portable fire extinguisher having a minimum rating of 8-B, C.

WAC 296-307-435 LP-gas system installations on commercial vehicles.

WAC 296-307-43501 Scope.

- (1) WAC 296-307-435 applies to:
- (a) LP-gas system installations on vehicles (self-propelled, trailers, or semitrailers) used for commercial or construction purposes;
 - (b) All exchangeable container systems with container capacities greater than 105 pounds water capacity (approximately 45 pounds LP-gas capacity); and
 - (c) Systems using containers permanently mounted on vehicles.
- (2) All LP-gas installations on commercial vehicles must meet all requirements of WAC 296-307-410 (unless otherwise indicated) and the additional requirements of this section. When such a vehicle is permanently parked, and LP-gas is supplied from a system not mounted on and secured to the unit, WAC 296-307-415 and 296-307-420 also apply.
- (3) This section does not apply to LP-gas motor fuel systems covered by WAC 296-307-425.

WAC 296-307-43503 Container construction.

Containers must be constructed according to WAC 296-307-41011, and marked according to the applicable requirements of WAC 296-307-41015, and must also meet the following:

- (1) Containers designed for use as portable cylinders must be constructed according to DOT specifications.
- (2) All other containers whether designed for permanent mounting, or for portable or semiportable use (such as skid tanks), must be constructed as provided for by WAC 296-307-41009(4) and 296-307-41011(1).
- (3) Nonrecessed container fittings and accessories must be protected against damage by either:
- (a) Their location;
 - (b) The vehicle frame or bumper; or
 - (c) Protective housing. The housing must meet the requirements under which the tanks are fabricated with respect to design and construction and must be designed to withstand static loading in any direction equal to twice the weight of the tank and attachments when filled with the lading at a safety factor of at least four, based on the ultimate strength of the material used. The housing must have a weather cover

if necessary to ensure proper operation of valves and safety devices.

- (4) Manually operated shut-off valves or self-closing internal valves must be closed except during transfer operations.
- (5) Permanently installed containers must meet the following requirements:
 - (a) Tank motor vehicles with frames not made integral with the tank, as by welding, must have turnbuckles or similar positive devices for drawing the tank down tight on the frame. In addition, suitable stops or anchors must be attached to the frame and/or the tank to prevent relative motion between them from starting, stopping, and turning. The stops and anchors must be installed to be accessible for inspection and maintenance.
 - (b) Any tank motor vehicle designed and constructed so that the cargo tank constitutes the stress member used instead of a frame must be supported by external cradles enclosing at least 120 degrees of the shell circumference. The design calculations must include beam stress, shear stress, torsion stress, bending moment, and acceleration stress for the cargo tank as a whole using a factor of safety of four, based on the ultimate tensile strength of the material. Maximum concentrated stresses that might be created at pads and cradles due to shear, bending, and torsion must also be calculated according to Appendix G of the American Society of Mechanical Engineers, Unfired Pressure Vessel Code, 1968. Fully loaded vehicles must be assumed to be operating under highway conditions equal to two "g" loading. The effects of fatigue must be taken into consideration. Cargo tanks mounted on frames may be supported by upright supports attached to pads if these factors are taken into account.
 - (c) Where any tank support is attached to any part of a tank head, the stresses imposed upon the head must be provided for as required above.
 - (d) Tank supports, stops, anchors, and bumpers must not be welded directly to the tank but must be attached by means of pads of the same material as the tank. The pad thickness must be at least 1/4 inch, or the thickness of the shell material if less, and no greater than the shell material. Each pad must extend at least four times its thickness, in each direction, beyond the weld attaching the support, bumper, stop, or anchor. Each pad must be preformed to an inside radius no greater than the outside radius of the tank at the place of attachment. Each pad corner must be rounded to a radius at least one-fourth the width of the pad, and no greater than one-half the width of the pad. Weepholes and tell-tale holes, if used, must be drilled or punched before the pads are attached to the tank. Each pad must be attached to the tank by continuous fillet welding using filler material having properties that meet the recommendations of the maker of the shell and head material.

- (6) Portable or semiportable containers must meet the applicable requirements of WAC 296-307-42507(3). Containers designed for permanent installation as part of systems under WAC 296-307-420 are prohibited.
- (a) Filling connections must have an approved automatic back pressure check valve, excess flow check valve, or quick closing internal valve to prevent excessive escape of gas in case the filling connection is broken.

<p>Exception: Where the filling and discharge connect on a common opening in the container shell, and the opening is fitted with a quick-closing internal valve, the automatic valve is not required.</p>
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Every inlet and outlet connection must have a manually or automatically operated shut-off valve. Liquid discharge openings, except those for engine fuel lines, on tanks built after September 1, 1965, must be fitted with a remotely controlled internal shut-off valve. Valves must meet the following requirements:

- (i) The seat of the valve must be inside the tank, or in the opening nozzle or flange, or in a companion flange bolted to the nozzle or flange.
 - (ii) All parts of the valve inside the tank, nozzle, or companion flange must be made of material that protects against corrosion or other deterioration in the presence of the lading.
 - (iii) The parts must be arranged so that damage to parts exterior to the tank will not prevent effective seating of the valve.
 - (iv) The valve may be operated mechanically, by hydraulically, or by air, or gas pressure.
 - (v) The valve must have remote means of automatic closure, both mechanical and thermal, in at least two places for tanks over 3,500 gallons water capacity. These remote control stations must be located at each end of the tank and diagonally opposite. The thermal control mechanism must have a fusible element with a melting point between 220°F and 208°F. At least one remote control station must be provided for tanks of 3,500 gallons water capacity or less, and such actuating means may be mechanical.
- (b) All other connections to containers, except those used for gauging devices, thermometer wells, safety-relief devices, and plugged openings, must have suitable automatic excess flow valves, or may instead be fitted with quick-closing internal valves.
- The control mechanism for the internal valve must have a secondary control, remote from the fill or discharge connections (for use in the event of accidents or fire during delivery operations), and such control mechanism must have a fusible element with a melting point not over 220°F or less than 208°F.
- (c) Excess flow valves must close automatically at the rated flow of vapor or liquid as

specified by the valve manufacturers. The flow rating of the piping beyond the excess flow valve must be greater than that of the excess flow valve and such rating must include valves, fittings, and hose.

Exception: When branching or necessary restrictions are incorporated in a piping system so that flow ratings are less than that of the excess flow valve and the tank, then additional excess flow valves must be installed in the piping where such flow rate is reduced.

- (d) Container inlets and outlets, except those used for safety-relief valves, liquid-level gauging devices, and pressure gauges, must be labeled to designate whether they communicate with vapor or liquid space when the container is filled to maximum permitted filling density. Labels may be on the valves.

WAC 296-307-43505 Maximum capacity allowed for LP-gas installations on commercial vehicles.

A single fuel container used on passenger carrying vehicles must not exceed 200 gallons water capacity.

WAC 296-307-43507 Location of systems.

- (1) Containers must not be installed, transported, or stored (even temporarily) inside any vehicle covered by these standards except as provided by the DOT regulations.
- (2) Containers, control valves, and regulating equipment comprising a complete system must be suitably protected against damage and weather. Systems may be installed in a recess vaportight to the inside of the vehicle and accessible from and vented to the outside.
- (3) Systems installed outside of mobile units must be located so that discharge from safety-relief devices must be at least 3 feet horizontally away from any opening into the unit below the level of such discharge. When the system is located in a recess vaportight to the inside, vent openings in the recess must be at least 3 feet horizontally away from any opening into the mobile unit below the level of these vents.
- (4) There must be no fuel connection between tractor and trailer or other vehicle units.
- (5) The container or container carrier must be secured in place by fastenings designed and constructed with a minimum safety factor of four to withstand loading in any direction equal to twice the weight of the container when filled to normal capacity with LP-gas.

WAC 296-307-43509 Valves and accessories.

Container valves and accessories must be provided, protected and mounted as follows:

- (1) Systems using DOT cylinders according to WAC 296-307-41511.
- (2) All other systems according to WAC 296-307-42005 (2) through (8).
- (3) Portable, semiportable and permanently mounted containers must be mounted and protected as provided under WAC 296-307-43503 (2), (5), and (6).

WAC 296-307-43511 Safety devices.

- (1) DOT containers must have safety-relief devices as required by DOT regulations.
- (2) A final stage regulator of an LP-gas system (excluding any appliance regulator) must have, on the low-pressure side, a relief valve that is set to start to discharge within the limits specified in Table U-7.
- (3) The relief valve and space above the regulator and relief valve diaphragms must be vented to the outside air and terminate at a position to minimize the possibility of vapors accumulating at sources of ignition.
- (4) Whenever equipment such as a cargo heater or cooler on commercial vehicles is designed to be in operation while in transit, suitable means to stop the flow such as an excess flow valve or other device, must be installed. This device will be actuated to stop the flow in the event of the break in the fuel supply line. All excess flow valves must comply with WAC 296-307-41019(3).

WAC 296-307-43513 Systems used on commercial vehicles.

Commercial vehicles must use either vapor withdrawal or liquid withdrawal systems.

WAC 296-307-43515 Enclosures and mounting.

- (1) Housing or enclosures must be designed to provide proper ventilation.
- (2) Hoods, dome, or removable portions of cabinets must have means to keep them firmly in place during transit.
- (3) The assembly must hold the containers firmly in position and prevent their movement during transit according to WAC 296-307-42507(3).
- (4) Containers must be mounted on a substantial support or base secured firmly to the vehicle chassis. Neither the container nor its support must extend below the frame.

WAC 296-307-43517 Piping, tubing, and fittings.

- (1) Regulators must be connected directly to the container valve outlet or mounted securely by means of support bracket and connected to the container valve or valves with a listed high pressure flexible connector.
- (2) Provision must be made between the regulator outlet and the gas service lines by either a flexible connector or a tubing loop to provide for expansion, contraction, jarring, and vibration.
- (3) Aluminum alloy piping is prohibited. Steel tubing must have a minimum wall thickness of 0.049 inch. Steel piping or tubing must be adequately protected against exterior corrosion.
- (4) Approved gas tubing fittings must be used for tubing connections.
- (5) The fuel line must be firmly fastened in a protected location and where under the vehicle and outside and below any insulation or false bottom, fastenings must prevent abrasion

or damage to the gas line due to vibration. Where the fuel line passes through structural members or floors, a rubber grommet or equivalent must be installed to prevent chafing.

- (6) The fuel line must be installed to enter the vehicle through the floor directly beneath or adjacent to the appliance that it serves. When a branch line is required, the tee connection must be in the main fuel line and located under the floor and outside the vehicle.
- (7) All parts of the system assembly must be designed and secured to preclude such parts working loose during transit.

WAC 296-307-43519 Appliances.

- (1) LP-gas appliances must be approved for use on commercial vehicles.
- (2) In vehicles not intended for human occupancy, where the gas-fired heating appliance is used to protect the cargo, such heater may be unvented, but provision must be made to dispose of the products of combustion to the outside.
- (3) In vehicles intended for human occupancy, all gas-fired heating appliances, including water heaters, must be designed or installed to provide for complete separation of the combustion system from the atmosphere of the living space. Such appliances must be installed with the combustion air inlet assembly furnished as a component of the appliance, and with either:
 - (a) The flue gas outlet assembly furnished as a component of the appliance; or
 - (b) A listed roof jack if the appliance is listed for such use. The combustion air inlet assembly, flue gas outlet assembly, and roof jack must extend to the outside atmosphere.
- (4) Provision must be made to ensure an adequate supply of outside air for combustion.
- (5) All gas-fired heating appliances and water heaters must have an approved automatic device designed to shut off the flow of gas to the main burner and to the pilot in the event the pilot flame is extinguished.
- (6) Gas-fired appliances installed in the cargo space must be readily accessible.
- (7) Appliances must be constructed or protected to minimize the possible damage or impaired operation resulting from cargo shifting or handling.
- (8) Appliances inside the vehicle must be located so that a fire at an appliance will not block the exit route.

WAC 296-307-43521 General precautions the employer must follow for LP-gas system installations on commercial vehicles.

- (1) DOT containers must be marked, maintained, and requalified for use according to DOT regulations.
- (2) Containers that have not been requalified according to DOT regulations must be removed from service. Requalified containers must be stamped with the date of requalification.

When DOT cylinders are requalified by retesting, the retest must be made according to DOT regulations.

- (3) Containers must not be charged with fuel unless they bear the proper markings of the code under which they were constructed, and with their water capacity. In the case of cylinders or portable containers filled by weight, the container must be marked with its tareweight.
- (4) DOT containers that have been involved in a fire must not be recharged until they have been requalified for service according to DOT regulations.
- (5) API-ASME containers or ASME containers that have been involved in a fire must not be recharged until they have been retested according to the requirements for their original hydrostatic test and found to be suitable for continued service.

API-ASME (ASME) container. A container constructed according to the Rules for Construction of Unfired Pressure Vessels, section VIII, Division 1, American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, 1968 edition.

- (6) Containers must not be charged without the consent of the owner.
- (7) A permanent caution plate must be provided on the appliance or adjacent to the container outside of any enclosure. It must include the word "caution" and the following or similar instructions.
 - (a) Be sure all appliance valves are closed before opening container valve.
 - (b) Connections at appliances, regulators, and containers must be checked periodically for leaks with soapy water or its equivalent.
 - (c) A match or flame must not be used to check for leaks.
 - (d) Container valves must be closed except when the equipment is in use.

WAC 296-307-43523 Containers to be charged.

Containers must be charged according to DOT specifications.

WAC 296-307-43525 Fire protection for mobile cook units.

Mobile cook units must have at least one approved portable fire extinguisher having a minimum rating of 8-B, C.

WAC 296-307-440 LP-gas service stations.

WAC 296-307-44001 Scope.

WAC 296-307-440 applies to storage containers, dispensing devices, and pertinent equipment in service stations where LP-gas is stored and dispensed into fuel tanks of motor vehicles. LP-gas service stations must meet all requirements of WAC 296-307-410 and the requirements of this section.

WAC 296-307-44003 Design and classification of storage containers.

Storage containers must be designed and classified according to the following table:

Minimum design pressures of container lb. per sp. in. gauge			
Container Type	For gases with vapor pressure not to exceed 1b. per sp. in. gauge 100°F (37.8°C.)	1949 and earlier editions of ASME Code (Par. U-68, U-69)	1949 edition of ASME Code (Par. U-200,U-201); 1950, 1952, 1956, 1959, 1962, 1965, and 1968 (Division 1) editions of ASME Code; All editions of API-ASME Code²
200 ¹	215	200	250
<p>¹Container type may be increased by increments of 25. The minimum design pressure of containers must be 100% of the container type designations when constructed under 1949 or earlier editions of the ASME Code (Par. U-68 and U-69). The minimum design pressure of containers must be 125% of the container type designation when constructed under:</p> <ol style="list-style-type: none"> 1. The 1949 ASME Code (Par. U-200 and U-201); 2. 1950, 1952, 1956, 1959, 1962, 1965, and 1968 (Division 1) editions of ASME Code; and 3. All editions of the API-ASME Code. <p>²Construction of containers under the API-ASME Code is prohibited after July 1, 1961.</p>			

WAC 296-307-44005 Valves and accessories.

(1) A filling connection on the container must be fitted with one of the following:

- A combination back-pressure check and excess flow valve.
- One double or two single back-pressure valves.
- A positive shut-off valve, in conjunction with either:
 - An internal back-pressure valve; or
 - An internal excess flow valve.

Instead of an excess flow valve, filling connections may be fitted with a quick-closing internal valve that only opens during operating periods. The mechanism for such valves may have a secondary control that will close automatically in case of fire. The melting point for a fusible plug must be a maximum of 220°F.

(2) A filling pipe inlet terminal off the container must have a positive shut-off valve and either:

- (a) A back pressure check valve; or
 - (b) An excess flow check valve.
- (3) All openings in the container must have approved excess flow check valves.

Exceptions:

- (a) Filling connections;
- (b) Safety-relief connections;
- (c) Liquid-level gauging devices; and
- (d) Pressure gauge connections.

- (4) All container inlets and outlets must be labeled to designate whether they connect with vapor or liquid (labels may be on valves).

Exceptions:

- (a) Safety-relief valves;
- (b) Liquid-level gauging devices; and
- (c) Pressure gauges.

- (5) Each storage container must have a suitable pressure gauge.

WAC 296-307-44007 Safety devices.

- (1) All safety-relief devices must be installed as follows:
- (a) On the container and directly connected with the vapor space.
 - (b) Safety-relief valves and discharge piping must be protected against physical damage. The outlet must have loose-fitting rain caps. There must be no return bends or restrictions in the discharge piping.
 - (c) The discharge from two or more safety-relief valves with the same pressure settings may be run into a common discharge header. The cross-sectional area of such header must be at least equal to the sum of the individual discharges.
 - (d) Discharge from a safety-relief device that terminates in or beneath any building is prohibited.
- (2) Aboveground containers must have safety-relief valves as follows:
- (a) The rate of discharge, which may be provided by one or more valves, must be at least that specified in WAC 296-307-41025(2).
 - (b) The discharge from safety-relief valves must be vented upward to the open air to prevent impingement of escaping gas upon the container. The employer must use loose-fitting rain caps. On a container having a water capacity greater than 2,000 gallons, the discharge from the safety-relief valves must be vented upward

away from the container to a point at least 7 feet above the container. Provisions must be made so that any liquid or condensate accumulation inside the relief valve or its discharge pipe will not render the valve inoperative. If a drain is used, the employer must protect the container, adjacent containers, piping, or equipment against impingement of flame resulting from ignition of the product escaping from the drain.

- (3) Underground containers must have safety-relief valves as follows:
- (a) The discharge from safety-relief valves must be piped upward to a point at least 10 feet above the ground. The discharge lines or pipes must be adequately supported and protected against physical damage.
 - (b) In areas where the manhole or housing may flood, the discharge from regulator vent lines should be above the highest probable water level.
 - (c) If no liquid is put into a container until after it is buried and covered, the rate of discharge of the relief valves may be reduced to at least 30 percent of the rate shown in WAC 296-307-41025(2). If liquid fuel is present during installation of containers, the rate of discharge must be the same as for aboveground containers. Only empty containers may be uncovered.

WAC 296-307-44009 Maximum capacity allowed for containers.

Individual storage containers must be a maximum of 30,000 gallons water capacity.

WAC 296-307-44011 Installation of storage containers.

- (1) Each storage container used exclusively in service station operation must comply with the following table. This table outlines the minimum distances from a container to a building, group of buildings, or adjoining property lines that may be built on.

<i>Minimum Distances</i>		
Water capacity per container (gallons)	Aboveground and Underground (feet)	Between aboveground containers (feet)
Up to 2,000	25	3
Over 2,000	50	5
Note: The above distances may be reduced to at least 10 feet for service station buildings of other than wood frame construction.		

- (a) Readily ignitable material including weeds and long dry grass, must be removed within 10 feet of containers.
- (b) The minimum separation between LP-gas containers and flammable liquid tanks

must be 20 feet and the minimum separation between a container and the centerline of the dike must be 10 feet.

- (c) LP-gas containers located near flammable liquid containers must be protected against the flow or accumulation of flammable liquids by diking, diversion curbs, or grading.
 - (d) LP-gas containers located within diked areas for flammable liquid containers are prohibited.
 - (e) Field welding is permitted only on saddle plates or brackets that were applied by the container manufacturer.
 - (f) When permanently installed containers are interconnected, the employer must allow for expansion, contraction, vibration, and settling of containers and interconnecting piping. Where flexible connections are used, they must be approved and designed for a bursting pressure of at least five times the vapor pressure of the product at 100°F. Using nonmetallic hose is prohibited for interconnecting containers.
 - (g) Where high water table or flood conditions may be encountered, the employer must protect against container flotation.
- (2) Aboveground containers must be installed according to this section.
- (a) Containers may be installed horizontally or vertically.
 - (b) Containers must be protected by crash rails or guards to prevent physical damage unless they are protected by location. Servicing vehicles within 10 feet of containers is prohibited.
 - (c) Container foundations must be of substantial masonry or other noncombustible material. Containers must be mounted on saddles that permit expansion and contraction, and must provide against excess stresses. Corrosion protection must be provided for tank-mounting areas. Structural metal container supports must be protected against fire.

<p>Exception: This protection is not required on prefabricated storage and pump assemblies, mounted on a common base, with container bottom a maximum of 24 inches above ground with water capacity of 2,000 gallons or less, if the piping connected to the storage and pump assembly is flexible enough to minimize breakage or leakage in case container supports fail.</p>

- (3) Underground containers must be installed according to this section.
- (a) Containers must be given a protective coating before being placed underground. This coating must be equivalent to hot-dip galvanizing or to two coatings of red lead followed by a heavy coating of coal tar or asphalt. During installation, take care to minimize abrasion or other damage to the coating. Repair coating damage before back-filling.

- (b) Containers must be set on a firm foundation (firm earth may be used) and surrounded with earth or sand firmly tamped in place. Backfill should be free of rocks or other abrasive materials.
- (c) A minimum of 2 feet of earth cover must be provided. Where ground conditions make impractical, equivalent protection against physical damage must be provided. The portion of the container to which manhole and other connections are attached may be left uncovered. If there is vehicle traffic at the site, containers must be protected by a concrete slab or other cover to prevent the weight of a loaded vehicle imposing a load on the container shell.

WAC 296-307-44013 Protecting equipment against tampering.

Valves, regulators, gauges, and other container fittings must be protected against tampering and physical damage.

WAC 296-307-44015 Transport truck unloading point.

- (1) During unloading, the transport truck must not be parked on public thoroughfares and must be at least 5 feet from storage containers. The truck must be positioned so that shut-off valves are accessible.
- (2) The filling pipe inlet terminal must not be located within a building nor within 10 feet of any building or driveway. It must be protected against physical damage.

WAC 296-307-44017 Piping, valves, and fittings.

- (1) Piping may be underground, aboveground, or a combination of both. It must be well supported and protected against physical damage and corrosion.
- (2) Piping laid beneath driveways must be installed to prevent physical damage by vehicles.
- (3) Piping must be wrought iron or steel (black or galvanized), brass or copper pipe; or seamless copper, brass, or steel tubing and must be suitable for a minimum pressure of 250 psig. Pipe joints may be screwed, flanged, brazed, or welded. The use of aluminum alloy piping or tubing is prohibited.
- (4) All shut-off valves (liquid or gas) must be suitable for LP-gas service and designed for at least the maximum pressure to which they may be subjected. Valves that may be subjected to container pressure must have a rated working pressure of at least 250 psig.
- (5) All materials used for valve seats, packing, gaskets, diaphragms, etc., must be resistant to the action of LP-gas.
- (6) Fittings must be steel, malleable iron, or brass having a minimum working pressure of 250 psig. Cast iron pipe fittings, such as ells, tees and unions must not be used.
- (7) All piping must be tested after assembly and proved free from leaks at least at the normal operating pressures.
- (8) The employer must allow for expansion, contraction, jarring, and vibration, and for settling. The employer may use flexible connections.

WAC 296-307-44019 Pumps and accessory equipment.

All pumps and accessory equipment must be suitable for LP-gas service, and designed for at least the maximum pressure to which they may be subjected. Accessories must have a minimum rated working pressure of 250 psig. Positive displacement pumps must have suitable pressure actuated bypass valves permitting flow from pump discharge to storage container or pump suction.

WAC 296-307-44021 LP-gas dispensing devices.

- (1) Meters, vapor separators, valves, and fittings in the dispenser must be suitable for LP-gas service and must be designed for a minimum working pressure of 250 psig.
- (2) Provisions must be made for venting LP-gas from a dispensing device to a safe location.
- (3) Pumps used to transfer LP-gas must allow control of the flow and to prevent leakage or accidental discharge. Means must be provided outside the dispensing device to readily shut off the power in the event of fire or accident.
- (4) A manual shut-off valve and an excess flow check valve must be installed downstream of the pump and ahead of the dispenser inlet.
 - (a) Dispensing hose must be resistant to the action of LP-gas in the liquid phase and designed for a minimum bursting pressure of 1,250 psig.
 - (b) An excess flow check valve or automatic shut-off valve must be installed at the terminus of the liquid line at the point of attachment of the dispensing hose.
- (5) LP-gas dispensing devices must be located at least 10 feet from aboveground storage containers greater than 2,000 gallons water capacity. The dispensing devices must be at least 20 feet from any building (not including canopies), basement, cellar, pit, or line of adjoining property that may be built on and at least 10 feet from sidewalks, streets, or thoroughfares. No drains or blowoff lines must be directed into or in proximity to the sewer systems used for other purposes.
 - (a) LP-gas dispensing devices must be installed on a concrete foundation or as part of a complete storage and dispensing assembly mounted on a common base, and must be adequately protected from physical damage.
 - (b) LP-gas dispensing devices must not be installed within a building.

Exception: Dispensing devices may be located under a weather shelter or canopy if the area is not enclosed on more than two sides. If the enclosing sides are adjacent, the area must be properly ventilated.
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- (6) Dispensing LP-gas into the fuel container of a vehicle must be performed by a competent attendant who must remain at the LP-gas dispenser during the entire transfer operation.

WAC 296-307-44023 Smoking is prohibited at LP-gas service stations.

Smoking is prohibited on the driveway of service stations in the dispensing areas or transport truck unloading areas. Conspicuous signs prohibiting smoking must be posted within sight of the customer being served. Letters on such signs must be at least 4 inches high. The motors of all vehicles being fueled must be shut off during the fueling operations.

WAC 296-307-44025 Fire protection at LP-gas service stations.

Each service station must have at least one approved portable fire extinguisher with at least an 8-B, C, rating.

PART U-3
OTHER HAZARDOUS MATERIALS
DIPPING AND COATING OPERATIONS (DIP TANKS)

WAC		Page
296-307-445	Scope.....	1
296-307-450	General requirements.....	2
296-307-45005	Construct safe dip tanks	2
296-307-45010	Provide proper ventilation for the vapor area.	3
296-307-45015	Additional precautions if recirculating ventilation system exhaust air into the workplace.	4
296-307-45020	Take additional precautions when using an exhaust hood.	4
296-307-45025	Periodically inspect dip tanks and associated equipment and correct any deficiencies.	4
296-307-45030	Make sure employees working near dip tanks know appropriate first-aid procedures.	5
296-307-45035	Prepare dip tanks before cleaning.....	5
296-307-45045	Protect employees during welding, burning, or other work using open flames.....	5
296-307-45050	Protect employees that use liquids that may burn, irritate, or otherwise harm the skin.	6
296-307-455	Additional requirements for dip tanks using flammable or combustible liquids.....	6
296-307-45505	Additional safeguards when constructing dip tanks.	8
296-307-45510	Provide overflow pipes.	8
296-307-45515	Provide bottom drains.	8
296-307-45520	Fire protection in the vapor area.....	9
296-307-45525	Additional fire protection for large dip tanks.	9
296-307-45535	Prevention of static electricity sparks or arcs when adding liquids to a dip tank.	10
296-307-45540	Control ignition sources.....	10
296-307-45545	Provide safe electrical wiring and equipment where the liquid can drip or splash.	11
296-307-45550	Keep the area around dip tanks clear of combustible material and properly dispose of waste.....	11
296-307-45555	Make sure heating the liquid in dip tanks does not cause a fire.....	11
296-307-45560	Make sure a heating system used for drying objects does not cause a fire.	11
296-307-45565	Make sure conveyor systems are safe.....	12
296-307-460	Additional requirements for dip tanks used for specific purposes.	12
296-307-46005	Meet specific requirements if a hardening or tempering tank.	13
296-307-46025	Additional safeguards for vapor degreasing tanks.	13

WAC			Page
296-307-46030	Control liquid spray over an open surface cleaning or degreasing tank. .	14	
296-307-465	Definitions.....	14	

WAC 296-307-445 Scope.

IMPORTANT:

Dip tank. A container holding a liquid other than plain water that is used for dipping or coating. An object may be completely or partially immersed (in a dip tank) or it may be suspended in a vapor coming from the tank.

Exemption: Dip tanks that use a molten material (molten metal, alloy, salt, etc.) are not covered by this chapter.

This chapter **applies** to:

- (1) A dip tank that uses a liquid other than plain water, or the vapor of the liquid, to:
 - (a) Clean an object;
 - (b) Coat an object;
 - (c) Alter the surface of an object; or
 - (d) Change the character of an object.
- (2) Draining or drying an object that has been dipped or coated.

Examples of covered dipping and coating operations include, but are not limited to:

- (a) Paint dipping;
- (b) Anodizing;
- (c) Pickling;
- (d) Quenching;
- (e) Tanning;
- (f) Degreasing;
- (g) Stripping;
- (h) Cleaning;
- (i) Dyeing.

Reference: The employer has to do a hazard assessment to identify hazards or potential hazards in the workplace and determine if PPE is necessary to protect employees. See Personal Protective Equipment (PPE), WAC 296-307-100 through 296-307-10025.

WAC 296-307-450 General requirements.**Employer responsibility:**

Safeguard employees working with dip tanks.

<i>The employer must meet the requirements...</i>	<i>in this section:</i>
CONSTRUCTION	
Construct safe dip tanks.	WAC 296-307-45005
VENTILATION	
Provide proper ventilation for the vapor area.	WAC 296-307-45010
The employer must take additional precautions if the ventilation system recirculates exhaust air into the workplace.	WAC 296-307-45015
The employer must take additional precautions when using an exhaust hood.	WAC 296-307-45020
INSPECTION	
Periodically inspect dip tanks and associated equipment and correct any deficiencies.	WAC 296-307-45025
FIRST-AID	
Make sure employees working near dip tanks know appropriate first-aid procedures.	WAC 296-307-45030
CLEANING	
Prepare dip tanks before cleaning.	WAC 296-307-45035
WELDING	
Protect employees during welding, burning or other work using open flames.	WAC 296-307-45045
LIQUIDS HARMFUL TO SKIN	
Provide additional protection for employees working near dip tanks that use liquid that may burn, irritate, or otherwise harm the skin.	WAC 296-307-45050

WAC 296-307-45005 Construct safe dip tanks.

The employer must make sure dip tanks, including any drain boards, are strong enough to support the expected load.

VENTILATION**WAC 296-307-45010 Provide proper ventilation for the vapor area.**

- (1) The employer must make sure mechanical ventilation meets the requirements of one or more of the following standards:
 - (a) NFPA 34-1995, Standard for Dipping and Coating Processes Using Flammable or - Combustible Liquids;
 - (b) ACGIH's "Industrial Ventilation: A Manual of Recommended Practice" (22nd ed., 1995);
 - (c) ANSI Z9.1-1971, Practices for Ventilation and Operation of Open-Surface Tanks and ANSI Z9.2-1979, Fundamentals Governing the Design and Operation of Local Exhaust Systems.

Note: Some, or all, of the consensus standards (such as ANSI and NFPA) may have been revised. If the employer complies with a later version of a consensus standard, the employer will be considered to have complied with any previous version of the same consensus standard.

- (2) The employer must limit the vapor area to the smallest practical space by using mechanical ventilation;
- (3) The employer must keep airborne concentration of any substance below 25 percent of its lower flammable limit (LFL);
- (4) The employer must make sure mechanical ventilation draws the flow of air into a hood or exhaust duct;
- (5) The employer must have a separate exhaust system for each dip tank if the combination of substances being removed could cause a:
 - (a) Fire;
 - (b) Explosion; or
 - (c) Potentially hazardous chemical reaction.

Reference: The employer needs to keep employee exposure within safe levels when the liquid in a dip tank creates an exposure hazard. See Respiratory hazards, chapter 296-307 WAC, Part Y-6

Note: The employer may use a tank cover or material that floats on the surface of the liquid to replace or assist ventilation. The method or combination of methods selected by the employer has to maintain the airborne concentration of the hazardous material and the employee's exposure within safe limits.

WAC 296-307-45015 Additional precautions if recirculating ventilation system exhaust air into the workplace.

- (1) The employer must only recirculate air that contains no substance at a concentration that could pose a health or safety hazard to employees
- (2) The employer must make sure any exhaust system that recirculates air into the workplace:
 - (a) Passes the air through a device that removes contaminants;
 - (b) Sounds an alarm and automatically shuts down the dip tank operation, if the vapor concentration of any substance in the exhaust air exceeds 25 percent of its LFL;
 - (c) Monitors the concentration of vapor from flammable or combustible liquids with approved equipment.

Note:

1. The LFL concentration in the air must be determined after the air passes through the air-cleaning device and before the air reenters the workplace
2. Most substances will pose a health hazard at a concentration far below 25 percent of its LFL.

WAC 296-307-45020 Take additional precautions when using an exhaust hood.

The employer must make sure each room with an exhaust hood has a source of outside air that:

- (1) Enters the room in a way that will not interfere with the function of the hood;
- (2) Replaces at least ninety percent of the air taken in through the hood.

WAC 296-307-45025 Periodically inspect dip tanks and associated equipment and correct any deficiencies.

- (1) The employer must inspect or test the dip tanks and associated equipment periodically, including:
 - (a) Covers;
 - (b) Overflow pipes;
 - (c) Bottom drains and valves;
 - (d) Electrical wiring, equipment, and grounding connections

- (e) Ventilating systems;
 - (f) Fire extinguisher equipment.
- (2) The employer must inspect the hoods and ductwork of the ventilation system for corrosion and damage to make sure the air flow is adequate:
- (a) At least quarterly during operation;
 - (b) Prior to operation after a prolonged shutdown.
- (3) The employer must promptly fix any deficiencies found.

Notes:

1. To assist the employer in tracking inspections and actions taken from those inspections, the employer may want to keep a written record.
2. It is recommended that inspections be at least quarterly even if the system is not operating. Depending on the chemicals in use more frequent inspection may be required.

FIRST AID**WAC 296-307-45030 Make sure employees working near dip tanks know appropriate first-aid procedures.**

The employer must make sure employees know the appropriate first-aid procedures for the hazards of dipping and coating operations.

Note:

1. First-aid procedures are contained in the material safety data sheet (MSDS) for the chemicals used in the dip tank.
2. First-aid supplies appropriate for the hazards of the dipping or coating operation need to be located near the dip tank to be considered "readily available" as required by WAC 296-307-03920.

Reference:

There are additional requirements that may include providing emergency washing facilities and employee training. See First Aid, WAC 296-307-039, and Employer Chemical Hazard Communication, WAC 296-307-550.

WAC 296-307-45035 Prepare dip tanks before cleaning.

- (1) The employer must drain the contents of the tank and open any cleanout doors.
- (2) The employer must ventilate the tank to clear any accumulated hazardous vapors.

Reference: There may be requirements that apply before an employee enters a dip tank. See Confined spaces, WAC 296-307-642 and safety procedures, WAC 296-307-320.

WELDING

WAC 296-307-45045 Protect employees during welding, burning, or other work using open flames.

The employer must make sure the dip tank and the area around it are thoroughly cleaned of solvents and vapors before performing work involving:

- (1) Welding;
- (2) Burning; or
- (3) Open flames.

Reference: There are additional requirements for this type of work. See Welding, cutting and brazing, WAC 296-307-475, and Respirators, chapter 296-307 WAC, Part Y-5.

LIQUIDS HARMFUL TO SKIN

WAC 296-307-45050 Protect employees that use liquids that may burn, irritate, or otherwise harm the skin.

- (1) The employer must make sure washing facilities, including hot water, are available for every 10 employees that work with dip tank liquids.
- (2) The employer must satisfy medical requirements:
 - (a) Make sure an employee with any small skin abrasion, cut, rash, or open sore receives treatment by a properly designated person;
 - (b) Make sure an employee with a sore, burn, or other skin lesion that needs medical treatment, has a physician's approval before they perform their regular work;
 - (c) Make sure employees who work with chromic acid receive periodic examinations of their exposed body parts, especially their nostrils.

Notes:

1. Periodic means on a yearly basis unless otherwise indicated.
2. Any time chromic acid spills onto an employee's skin or their clothing is saturated, a physician should be responsible for evaluating and monitoring the area where chromic acid made contact with the skin.

- (3) The employer must provide lockers or other storage space to prevent contamination of street clothes.

Reference: The employer has to do a hazard assessment to identify hazards or potential hazards in the workplace and determine if PPE is necessary to protect employees. See Personal Protective Equipment (PPE), WAC 296-307-100.

WAC 296-307-455 Additional requirements for dip tanks using flammable or combustible liquids.

Summary.

IMPORTANT:

This section applies to:

1. Flammable and combustible liquids (flashpoint below 200°F)
2. Liquids that have a flashpoint of 200°F (93.3°C) or higher if:
 - a. Heat the liquid;
 - b. Dip a heated object in the tank.

Employer responsibility:

Safeguard employees working with dip tanks containing flammable or combustible liquids.

<i>The employer must meet the requirements...</i>	<i>in this section:</i>
CONSTRUCTION	
Additional safeguards when constructing dip tanks.	WAC 296-307-45505
Provide overflow pipes.	WAC 296-307-45510
Provide bottom drains.	WAC 296-307-45515
FIRE PROTECTION	
Fire protection in the vapor area.	WAC 296-307-45520
Additional fire protection for large dip tanks.	WAC 296-307-45525
ELECTRICAL WIRING AND EQUIPMENT AND SOURCES OF IGNITION	
Prevention of static electricity sparks or arcs when adding liquids to a dip tank.	WAC 296-307-45535

<i>The employer must meet the requirements...</i>	<i>in this section:</i>
Control ignition sources.	WAC 296-307-45540
Provide safe wiring and electrical equipment where the liquid can drip or splash.	WAC 296-307-45545
HOUSEKEEPING	
Keep the area around dip tanks clear of combustible material and properly dispose of waste.	WAC 296-307-45550
HEATING LIQUIDS	
Make sure heating the liquid in dip tanks does not cause fire.	WAC 296-307-45555
HEAT DRYING	
Make sure a heating system used for drying objects does not cause a fire.	WAC 296-307-45560
CONVEYORS	
Make sure the conveyor system for dip tanks is safe.	WAC 296-307-45565

CONSTRUCTION

WAC 296-307-45505 Additional safeguards when constructing dip tanks.

- (1) The employer must make sure the dip tank, drain boards (if provided), and supports are made of noncombustible material.
- (2) The employer must make sure piping connections on drains and overflow pipes allow easy access to the inside of the pipe for inspection and cleaning.

WAC 296-307-45510 Provide overflow pipes.

- (1) The employer must provide an overflow pipe on dip tanks that:
 - (a) Hold more than 150 gallons of liquid; or
 - (b) Have more than 10 square feet of liquid surface area.
- (2) The employer must make sure the overflow pipe is:
 - (a) Properly trapped;

- (b) Able to prevent the dip tank from overflowing;
- (c) 3 inches or more (7.6 cm) in diameter;
- (d) Discharged to a safe location.

Note: Discharged to a safe location could be a:

1. Safe location outside the building; or
2. Closed, properly vented salvage tank or tanks that can hold more than the dip tank.

- (3) The employer must make sure the bottom of the overflow pipe is at least 6 inches (15.2 cm) below the top of the tank.

Note: The overflow pipe should be large enough to remove water applied to the liquid surface of the dip tank from automatic sprinklers or other sources in the event of fire. Smaller dip tanks should be equipped with overflow pipes, if practical.

WAC 296-307-45515 Provide bottom drains.

Exemption: A bottom drain is not required if:

1. The viscosity of the liquid makes it impractical to empty the tank by gravity or pumping; or
2. The dip tank has an automatic closing cover that meets the requirements of WAC 296-307-45530.

- (1) The employer must provide a bottom drain on all dip tanks that hold more than 500 gallons of liquid.
- (2) The employer must make sure the bottom drain:
- (a) Is properly trapped;
 - (b) Will empty the dip tank during a fire;
 - (c) Has pipes large enough to empty the tank within 5 minutes;
 - (d) Uses automatic pumps if gravity draining is not practical;
 - (e) Is capable of both manual and automatic operation;
 - (f) Discharges to a safe location.

Note: Discharges to a safe location could be a:

1. Safe location outside the building; or
2. Closed, properly vented salvage tank or tanks that can hold more than the dip tank.

- (3) The employer must make sure manual operation of the bottom drain is performed from a safe and easily accessible location.

FIRE PROTECTION

WAC 296-307-45520 Fire protection in the vapor area.

The employer must provide a manual fire extinguisher near the tank that is suitable for putting out flammable and combustible liquid fires.

WAC 296-307-45525 Additional fire protection for large dip tanks.

- (1) The employer must provide at least one automatic fire extinguishing system or an automatic dip tank cover if the tank:
 - (a) Holds 150 gallons or more of liquid; or
 - (b) Has 4 square feet or more of liquid surface area.
- (2) The employer must make sure automatic fire extinguishing systems or automatic dip tank covers meet the requirements of Table 1.

<p>Exemption: An automatic fire extinguishing system or an automatic dip tank cover is not required for a hardening or tempering tank that:</p> <ol style="list-style-type: none"> 1. Holds less than 500 gallons; or 2. Has less than 25 square feet of liquid surface area.

Table 1 Automatic Fire Protection System Requirements

If the employer provides:	The employer must:
An automatic fire extinguishing system	<ul style="list-style-type: none"> • Use extinguishing materials suitable for a fire fueled by the liquid in the tank • Make sure the system protects the: <ul style="list-style-type: none"> – Tanks – Drain boards – Stock over drain boards
A dip tank cover	<ul style="list-style-type: none"> • Make sure the cover is: <ul style="list-style-type: none"> – 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-clad material with locked metal joints.

ELECTRICAL WIRING AND EQUIPMENT AND SOURCES OF IGNITION

WAC 296-307-45535 Prevention of static electricity sparks or arcs when adding liquids to a dip tank.

The employer must make sure any portable container used to add liquid to the tank is:

- (1) Electrically bonded to the dip tank;
- (2) Positively grounded.

WAC 296-307-45540 Control ignition sources.

- (1) The employer must make sure the vapor areas and adjacent areas do not have any:
 - (a) Open flames;
 - (b) Spark producing devices;
 - (c) Heated surfaces hot enough to ignite vapors.
- (2) The employer must use explosion-proof wiring and equipment in the vapor area.

<p>Reference: Electrical wiring and equipment has to meet the requirements of the applicable hazardous (classified) location. See Hazardous (Classified) Locations, WAC 296-307-37209.</p>

- (3) The employer must prohibit smoking in any vapor area:
Post an easily seen "NO SMOKING" sign near each dip tank.

WAC 296-307-45545 Provide safe electrical wiring and equipment where the liquid can drip or splash.

The employer must make sure all electrical wiring and equipment in the vapor area is approved for areas that have:

- (1) Deposits of easily ignited residue;
- (2) Explosive vapor.

<p>Exemption: This does not apply to wiring that is:</p> <ol style="list-style-type: none">1. In rigid conduit, threaded boxes or fittings;2. Has no taps, splices, or terminal connections.
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HOUSEKEEPING

WAC 296-307-45550 Keep the area around dip tanks clear of combustible material and properly dispose of waste.

- (1) The employer must make sure the area surrounding dip tanks is:
 - (a) Completely free of combustible debris;
 - (b) As free of combustible stock as possible.
- (2) The employer must provide approved metal waste cans that are:
 - (a) Used for immediate disposal of rags and other material contaminated with liquids from dipping or coating operations
 - (b) Emptied and the contents properly disposed of at the end of each shift.

HEATING LIQUID

WAC 296-307-45555 Make sure heating the liquid in dip tanks does not cause a fire.

The employer must keep the temperature of the liquid in the dip tank:

- (1) Below the liquid's boiling point;
- (2) At least 100°F below the liquid's autoignition temperature.

HEAT DRYING

WAC 296-307-45560 Make sure a heating system used for drying objects does not cause a fire.

The employer must make sure the heating system used in a drying operation that could cause ignition:

- (1) Has adequate mechanical ventilation that operates before and during the drying operation;
- (2) Shuts down automatically if a ventilating fan fails to maintain adequate ventilation;
- (3) Is installed as required by NFPA 86-1999, Standard for Ovens and Furnaces.

Note: Some, or all, of the consensus standards (such as ANSI and NFPA) may have been revised. If the employer complies with a later version of a consensus standard, the employer will be considered to have complied with any previous version of the same consensus standard.

CONVEYORS

WAC 296-307-45565 Make sure conveyor systems are safe.

The employer must make sure the conveyor system shuts down automatically if:

- (1) The ventilation system fails to maintain adequate ventilation; or
- (2) There is a fire.

WAC 296-307-460 Additional requirements for dip tanks used for specific processes.

Employer responsibility:

Safeguard employees working with dip tanks used for specific processes.

<i>The employer must meet the requirements...</i>	<i>in this section:</i>
HARDENING OR TEMPERING	
Meet specific requirements is using a hardening or tempering tank.	WAC 296-307-46005
VAPOR DEGREASING	
Additional safeguards for vapor degreasing tanks.	WAC 296-307-46025
SPRAY CLEANING OR DEGREASING	
Control liquid spray over an open surface cleaning or degreasing tank.	WAC 296-307-46030

HARDENING OR TEMPERING

WAC 296-307-46005 Meet specific requirements if using a hardening or tempering tank.

- (1) The employer must provide an automatic fire extinguishing system or an automatic dip tank cover for any hardening and tempering tank that uses flammable or combustible liquids and:
 - (a) Holds 500 gallons (1893 L) or more of liquid; or
 - (b) Has 25 square feet (2.37 m²) or more of liquid surface area.
- (2) The employer must prevent fires.
 - (a) Make sure hardening and tempering tanks are:
 - (i) **Not** located on or near combustible flooring;
 - (ii) Located as far away as practical from furnaces;

- (iii) Equipped with noncombustible hoods and vents (or equally effective devices) for venting to the outside.
 - (b) Treat vent ducts as flues and keep them away from combustible material, particularly roofs.
- (3) The employer must make sure air under pressure is not used to:
 - (a) Fill the tank; or
 - (b) Agitate the liquid in the tank.
- (4) The employer must equip each tank with an alarm that will sound when the temperature is within 50°F (10°C) of the liquid's flashpoint (alarm set point).
- (5) The employer must make sure a limit switch shuts down conveyors supplying work to the tank when the temperature reaches the alarm setpoint, if operationally practical.
- (6) Have a circulating cooling system if the temperature of the liquid can exceed the alarm set point.

Note: The bottom drain of the tank may be combined with the oil circulating system if the requirements for bottom drains in WAC 296-307-45515 are satisfied.

VAPOR DEGREASING

WAC 296-307-46025 Additional safeguards for vapor degreasing tanks.

- (1) The employer must make sure, if the tank has a condenser or a vapor-level thermostat, that it keeps the vapor level at least:
 - (a) Thirty-six inches (91 cm) below the top of the tank if the width of the tank is seventy-two inches or more; or
 - (b) One-half the tank width below the top of the tank if the tank is less than seventy-two inches wide.
- (2) The employer must make sure, if gas is used as a fuel to heat the tank liquid, that the combustion chamber is airtight (except for the flue opening) to prevent solvent vapors from entering the air-fuel mixture.
- (3) The employer must make sure the exhaust flue:
 - (a) Is made of corrosion-resistant material;
 - (b) Extends to the outside;
 - (c) Has a draft diverter if mechanical exhaust is used.
- (4) The employer must take special precautions to keep solvent vapors from mixing with the combustion air of the heater if chlorinated or fluorinated hydrocarbon solvents (for example, trichloroethylene or freon) are used in the dip tank.

- (5) The employer must keep the temperature of the heating element low enough to keep a solvent or mixture from:
- (a) Decomposing; or
 - (b) Generating excessive vapor.

SPRAY CLEANING OR DEGREASING

WAC 296-307-46030 Control liquid spray over an open surface cleaning or degreasing tank.

The employer must control the spray to the greatest extent feasible by:

- (1) Enclosing the spraying operation as completely as possible
- (2) Using mechanical ventilation to provide enough inward air velocity to prevent the spray from leaving the vapor area.

Note: Mechanical baffles may be used to help prevent the discharge of spray.

Reference: Spray painting operations are covered in Spray-Finishing Operations, WAC [296-62-11019](#).

WAC 296-307-465 Definitions.

ACGIH. American Conference of Governmental Industrial Hygienists.

Adjacent area. Any area within 20 feet (6.1 m) of a vapor area that is not separated from the vapor area by tight partitions.

ANSI. American National Standards Institute.

Approved. Approved or listed by a nationally recognized testing laboratory. Refer to federal regulation 29 CFR 1910.7, for definition of nationally recognized testing laboratory.

Autoignition temperature. The minimum temperature required to cause self-sustained combustion without any other source of heat.

Combustible liquid. A liquid having a flashpoint of at least 100°F (37.8°C) and below 200°F (93.3°C). Mixtures with at least 99 percent of their components having flashpoints of 200°F (93.3°C) or higher are not considered combustible liquids.

Detearing. A process for removing excess wet coating material from the bottom edge of a dipped or coated object or material by passing it through an electrostatic field.

Dip tank. A container holding a liquid other than plain water that is used for dipping or coating. An object may be immersed (or partially immersed) in a dip tank or it may be suspended in a vapor coming from the tank.

Flammable liquid. Any liquid having a flashpoint below 100°F (37.8°C), except any mixture having components with flashpoints of 100°F (37.8°C) or higher, the total of which make up 99 percent or more of the total volume of the mixture.

Flashpoint. The minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite when tested by any of the measurement methods described in the definition of flashpoint in WAC 296-307-55060.

Lower flammable limit. The lowest concentration of a material that will propagate a flame. The LFL is usually expressed as a percent by volume of the material in air (or other oxidant).

NFPA. National Fire Protection Association.

Vapor area. Any area in the vicinity of dip tanks, their drain boards or associated drying, conveying, or other equipment where the vapor concentration could exceed twenty-five percent of the lower flammable limit (LFL) for the liquid in the tank.

You. The employer.

Resource Section

Other Hazardous Materials-Dipping and Coating Operations (Dip Tanks)

Page

Dip Tank PPE Selection Tool..... R-1

Dip Tank PPE Selection Tool

This tool can be used with the Hazard Assessment required by Chapter 296-307 WAC, Part H, which requires you to select appropriate personal protective equipment (PPE). The table lists examples of PPE that can be used to protect employees from the hazards of dipping and coating operations.

Hazard	PPE to Consider
Employees' feet may become wet with dip tank liquid	<ul style="list-style-type: none"> • Shoes or boots of rubber or other material that cannot be penetrated by dip tank liquid • Rubber overshoes • Wooden soled shoes
Employees handle work wet with dip tank liquid	<ul style="list-style-type: none"> • Gloves long enough to keep liquid from entering through the top of the gloves
<p>Employees' clothing may get wet with dip tank liquid</p> <p>Employees' clothing may get wet with dip tank liquid where small parts are cleaned, plated, or acid dipped in open tanks and rapid production work is required</p>	<ul style="list-style-type: none"> • Aprons • Coats • Jackets • Sleeves <p>Any of the previous methods or:</p> <ul style="list-style-type: none"> • Cotton clothing, shoes or short boots, and an apron
<p>Dip tank liquid may splash and cause damage to the eyes or face</p> <p><i>Note:</i> <i>This includes manually adding or removing chemicals from the tank.</i></p>	<ul style="list-style-type: none"> • Tight-fitting chemical goggles • Effective face shield

**PART V
WELDING**

WAC		Page
296-307-475	Welding, cutting, and brazing.....	1
296-307-47501	Definitions that apply to this part.....	1
296-307-480	Installation and operation of oxygen fuel gas systems for welding and cutting.	1
296-307-48001	Oxygen fuel gas systems.....	1
296-307-48003	Portable cylinders.....	2
296-307-48005	Storing compressed gas cylinders.....	2
296-307-48007	Storing fuel-gas cylinders.....	2
296-307-48009	Storing oxygen cylinders.....	2
296-307-48011	Working with cylinders and containers.....	3
296-307-48013	Safety devices on cylinders.....	3
296-307-48015	Transporting cylinders.....	4
296-307-48017	Handling cylinders.....	4
296-307-48019	Cylinder valves.....	4
296-307-48021	Cylinder regulators.....	5
296-307-48023	Fuel-gas manifolds.....	5
296-307-48025	High pressure oxygen manifolds.....	5
296-307-48027	Low pressure oxygen manifolds.....	6
296-307-48029	Manifolding portable outlet headers.....	6
296-307-48031	Operating procedures for cylinder manifolds.....	7
296-307-48033	Design of service piping systems.....	7
296-307-48035	Piping joints.....	8
296-307-48037	Installation of service piping systems.....	8
296-307-48039	Painting and marking service piping systems.....	9
296-307-48041	Testing service piping systems.....	9
296-307-48043	Equipment installation.....	10
296-307-48045	Protecting piping systems be protected.....	10
296-307-48047	Piping protective equipment.....	10
296-307-48049	Station outlet protective equipment.....	11
296-307-48051	Hose and hose connections.....	12
296-307-48053	Pressure-reducing regulators.....	12
296-307-485	Installation and operation of resistance welding equipment.....	12
296-307-48501	Resistance welding equipment.....	12
296-307-48503	Portable welding machines.....	13
296-307-48505	Flash welding equipment.....	13
296-307-48507	Job hazard analysis.....	13
296-307-48509	Maintenance of resistance welding equipment.....	14

WAC		Page
296-307-490	Application, installation, and operation of arc welding and cutting equipment.	14
296-307-49001	Environmental conditions required to be taken into account when selecting arc welding equipment.	14
296-307-49003	Voltages when using arc welding equipment.	14
296-307-49005	Designing arc welding equipment.	15
296-307-49007	Installing arc welding equipment.	16
296-307-49009	Grounding arc welding equipment.	16
296-307-49011	Supply connections and conductors.	16
296-307-49013	Operating arc welding equipment.	17
296-307-49015	Maintaining arc welding equipment.	17
296-307-495	Fire prevention and protection.	18
296-307-49501	Basic fire prevention precautions.	18
296-307-49503	Special fire prevention precautions.	18
296-307-49505	Precautions to be taken when welding or cutting containers.	20
296-307-49507	Precautions to be taken when welding in confined spaces.	21
296-307-500	Protection of employees.	21
296-307-50001	Eye protection.	21
296-307-50003	Specifications for eye protection.	21
296-307-50005	Protective clothing for welders.	23
296-307-50007	Other requirements that apply to employee protection.	23
296-307-50009	Employee protection for work in confined spaces.	23
296-307-50011	General requirements that apply to welding ventilation.	24
296-307-50013	Ventilation must be provided for general welding and cutting.	25
296-307-50015	Local exhaust hoods and booths.	26
296-307-50017	Ventilation must be provided in confined spaces.	26
296-307-50019	Welding fluorine compounds.	27
296-307-50021	Welding zinc.	27
296-307-50023	Welding lead.	27
296-307-50025	Welding beryllium.	27
296-307-50027	Welding cadmium.	28
296-307-50029	Welding mercury.	28

WAC 296-307-475 *Welding, cutting, and brazing.*

WAC 296-307-47501 Definitions that apply to this part.

Welder and **welding operator**. Any operator of electric or gas welding and cutting equipment.

All other welding terms are defined according to American Welding Society, Terms and Definitions, A3.0-1969.

WAC 296-307-480 *Installation and operation of oxygen fuel gas systems for welding and cutting.*

WAC 296-307-48001 Oxygen fuel gas systems.

- (1) Explosive mixtures of fuel gases and air or oxygen must be guarded against. No accessory that allows air or oxygen to mix with flammable gases prior to use must be allowed unless approved for that purpose.

Exception: Air or oxygen may mix with flammable gases at the burner or in a standard torch.
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- (2) Acetylene must never be generated, piped (except in approved cylinder manifolds) or used at a pressure in excess of 15 psi gauge pressure or 30 psi absolute pressure. (The 30 psi absolute pressure limit is intended to prevent unsafe use of acetylene in pressurized chambers such as caissons, underground excavations or tunnel construction.) Using liquid acetylene is prohibited.

Exception: This requirement does not apply to storage of acetylene dissolved in a suitable solvent in cylinders manufactured and maintained according to DOT requirements, or to acetylene for chemical use.

- (3) Only approved apparatus such as torches, regulators or pressure-reducing valves, acetylene generators, and manifolds must be used. Replacement tips may be used on approved torches, if the replacement tips are made to the same specifications as the original, or when replacements are used with convertor/adaptors that meet the same specifications.
- (4) Before leaving any employee in charge of the oxygen or fuel-gas supply equipment, including generators, and oxygen or fuel-gas distribution piping systems, the employer must ensure that the employee has received proper instruction and is competent to do the work. Rules and instructions covering the operation and maintenance of oxygen or fuel-gas supply equipment including generators, and oxygen or fuel-gas distribution piping systems must be readily available.

WAC 296-307-48003 Portable cylinders.

All portable cylinders used for storing and shipping compressed gases must be constructed and maintained according to DOT regulations.

- (1) Compressed gas cylinders must be legibly marked with either the chemical or the trade name of the gas. The marking must be a permanent stencil, stamp, or label. Whenever practical, the marking must be located on the shoulder of the cylinder.
- (2) Compressed gas cylinders must have connections that meet the requirements of the American National Standard Compressed Gas Cylinder Valve Outlet and Inlet Connections, ANSI B 57.1-1965.
- (3) All cylinders with a water weight capacity greater than thirty pounds must have means of connecting a valve protection cap or with a collar or recess to protect the valve.

WAC 296-307-48005 Storing compressed gas cylinders.

- (1) Cylinders must be kept away from radiators and other sources of heat.
- (2) Indoors, cylinders must be stored in a well-protected, well-ventilated, dry area, at least twenty feet from highly combustible materials such as oil or excelsior. Cylinders should be stored in assigned places away from elevators, stairs, or gangways. Assigned storage spaces must be located where cylinders will not be knocked over or damaged by passing or falling objects, or subject to tampering. All cylinder enclosures must be ventilated.
- (3) Empty cylinders must have their valves closed.
- (4) Valve protection caps on cylinders designed to accept a cap, must always be in place and hand-tight, except when cylinders are in use or connected for use.

WAC 296-307-48007 Storing fuel-gas cylinders.

Cylinders stored indoors, except those in use or attached ready for use, must be limited to a total gas capacity of 2,000 cubic feet or 300 pounds of LP-gas.

- (1) Cylinders in excess of 2,000 cubic feet total gas capacity or 300 pounds of LP-gas, must be stored in a separate room or compartment that meets the requirements of 252 (a)(8) and (9) CFR, or cylinders must be kept outside or in a special building. Special buildings, rooms or compartments must be free from open flame for heating or lighting and must be well ventilated. They may also be used for storage of a maximum of 600 pounds of calcium carbide, when contained in metal containers complying with 252 (a)(7)(a) and (b) CFR. Signs should be conspicuously posted in such rooms reading, "Danger-No smoking, matches or open lights," or other equivalent wording.
- (2) Acetylene cylinders must be stored valve end up.

WAC 296-307-48009 Storing oxygen cylinders.

- (1) Oxygen cylinders must not be stored near highly combustible material, especially oil and grease; or near reserve stocks of carbide and acetylene or other fuel-gas cylinders, or near any other substance likely to cause or accelerate fire; or in an acetylene generator compartment.
- (2) Oxygen cylinders stored in outside generator houses must be separated from the generator or carbide storage rooms by a noncombustible partition having a fire-resistance rating of at least one hour. This partition must be without openings and must be gastight.

- (3) Oxygen cylinders in storage must be separated from fuel-gas cylinders or combustible materials (especially oil or grease), a minimum of 20 feet or by a noncombustible barrier at least five feet high having a fire-resistance rating of at least one-half hour. (Cylinders "in-use," secured to a hand truck or structural member, with regulators, hoses, and torch temporarily removed for security purposes overnight or weekends, are not considered "in-storage.")
- (4) Where a liquid oxygen system is to be used to supply gaseous oxygen for welding or cutting and the system has a storage capacity of more than 13,000 cubic feet of oxygen (measured at 14.7 psi(a) and 70°F), connected in service or ready for service, or more than 25,000 cubic feet of oxygen (measured at 14.7 psi(a) and 70°F), including unconnected reserves on hand at the site, it must meet the requirements of the Standard for Bulk Oxygen Systems at Consumer Sites, NFPA No. 566-1965.

WAC 296-307-48011 Working with cylinders and containers.

- (1) The numbers and markings stamped into cylinders must not be tampered with.
- (2) Cylinders, cylinder valves, couplings, regulators, hose, and apparatus must be kept free from oily or greasy substances. Oxygen cylinders or apparatus must not be handled with oily hands or gloves. A jet of oxygen must never be permitted to strike an oily surface, greasy clothes, or enter a fuel oil or other storage tank.
- (3) Cylinders must be kept far enough away from the actual welding or cutting operation so that sparks, hot slag, or flame will not reach them, or fire-resistant shields must be provided.
- (4) No person, other than the gas supplier, may attempt to mix gases in a cylinder. No one, except the owner of the cylinder or person authorized by the owner, may refill a cylinder.
- (5) Cylinders must not be placed where they might become part of an electric circuit. Contacts with third rails, trolley wires, etc., must be avoided.
- (6) Fuel-gas cylinders must be placed with valve end up whenever they are in use. Liquefied gases must be stored and shipped with the valve end up.
- (7) A suitable cylinder truck, chain, or other steadying device must be used to prevent cylinders from being knocked over while in use.

WAC 296-307-48013 Safety devices on cylinders.

- (1) Valve-protection caps must not be used for lifting cylinders from one vertical position to another. Bars must not be used under valves or valve-protection caps to pry cylinders loose when frozen to the ground or otherwise fixed; we recommend using warm (not boiling) water. Valve-protection caps are designed to protect cylinder valves from damage.
- (2) Cylinders without fixed hand wheels must have keys, handles, or nonadjustable wrenches on valve stems while these cylinders are in service. In multiple cylinder installations only one key or handle is required for each manifold.
- (3) No one may tamper with safety devices in cylinders or valves.

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- (4) Nothing may be placed on top of an acetylene cylinder when in use that may damage the safety device or interfere with the quick closing of the valve.
 - (5) Where a special wrench is required it must be left in position on the stem of the valve while the cylinder is in use so that the fuel-gas flow can be quickly turned off in case of emergency. In the case of manifolded or coupled cylinders at least one such wrench must always be available for immediate use.
 - (6) Cylinders with leaking fuse plugs or other leaking safety devices should be plainly marked with a warning not to approach them with a lighted cigarette or other source of ignition. The employer should notify the supplier promptly and follow the supplier's instructions as to their return.

WAC 296-307-48015 Transporting cylinders.

- (1) When transporting cylinders by a crane or derrick, a cradle, boat, or suitable platform must be used. Slings or electric magnets are prohibited for this purpose. Valve-protection caps, where cylinder is designed to accept a cap, must always be in place.
- (2) Unless cylinders are secured on a special truck, regulators must be removed and valve-protection caps, when provided for, must be put in place before cylinders are moved.
- (3) When cylinders are transported by powered vehicle they must be secured in a vertical position.

WAC 296-307-48017 Handling cylinders.

- (1) Cylinders must not be dropped or struck or permitted to strike each other violently.
- (2) Cylinders must be handled carefully. Cylinders must not be subjected to rough handling, knocks, or falls that are liable to damage the cylinder, valve or safety devices and cause leakage.
- (3) Cylinders must never be used as rollers or supports, whether full or empty.

WAC 296-307-48019 Cylinder valves.

- (1) Cylinder valves must be closed before moving cylinders
- (2) Cylinder valves must be closed when work is finished.
- (3) Valves of empty cylinders must be closed.
- (4) A hammer or wrench must not be used to open cylinder valves. If valves cannot be opened by hand, the supplier must be notified.
- (5) Cylinder valves must not be tampered with nor should any attempt be made to repair them. If the employer has trouble with a cylinder, the employer should send a report to the supplier indicating the character of the trouble and the cylinder's serial number. The employer must follow the supplier's instructions on what to do with the cylinder.
- (6) Complete removal of the stem from a diaphragm-type cylinder valve must be avoided.

- (7) If cylinders are found to have leaky valves or fittings that cannot be stopped by closing of the valve, the cylinders must be taken outdoors away from sources of ignition and slowly emptied.
- (8) The cylinder valve must always be opened slowly.
- (9) An acetylene cylinder valve must not be opened more than one and one-half turns of the spindle, and preferably no more than three-fourths of a turn.

WAC 296-307-48021 Cylinder regulators.

- (1) Unless connected to a manifold, oxygen from a cylinder must first have an oxygen regulator attached to the cylinder valve.
- (2) Before connecting a regulator to a cylinder valve, the valve must be opened slightly and closed immediately. The valve must be opened while standing to one side of the outlet; never in front of it. Fuel-gas cylinder valves must not be cracked near other welding work or near sparks, flame, or other possible sources of ignition.
- (3) Before a regulator is removed from a cylinder valve, the cylinder valve must be closed and the gas released from the regulator.
- (4) Fuel-gas must not be used from cylinders through torches or other devices equipped with shut-off valves without reducing the pressure through a suitable regulator attached to the cylinder valve or manifold.

WAC 296-307-48023 Fuel-gas manifolds.

- (1) Manifolds must be approved either separately for each component part or as an assembled unit.
- (2) Fuel-gas cylinders connected to one manifold inside a building must be limited to a maximum total capacity of 300 pounds of LP-gas or 3,000 cubic feet of other fuel-gas. More than one such manifold with connected cylinders may be located in the same room if the manifolds are at least 50 feet apart or separated by a noncombustible barrier at least 5 feet high having a fire-resistance rating of at least one-half hour.
- (3) Exception: Fuel-gas cylinders connected to one manifold having an aggregate capacity exceeding 300 pounds of LP-gas or 3,000 cubic feet of other fuel-gas must be located outdoors, or in a separate building or room constructed according to 252 (a)(8) and (9) CFR.
- (4) Separate manifold buildings or rooms may also be used for the storage of drums of calcium carbide and cylinders containing fuel gases as provided in WAC 296-307-48007. Such buildings or rooms must have no open flames for heating or lighting and must be well ventilated.
- (5) High-pressure fuel-gas manifolds must have approved pressure regulating devices.

WAC 296-307-48025 High-pressure oxygen manifolds.

This section applies to cylinders with a DOT service pressure above 200 psig.

- (1) Manifolds must be approved either separately for each component or as an assembled unit.
- (2) Oxygen manifolds must not be located in an acetylene generator room. Oxygen manifolds must be separated from fuel-gas cylinders or combustible materials (especially oil or grease), a minimum distance of 20 feet or by a noncombustible barrier at least 5 feet high having a fire-resistance rating of at least one-half hour.
- (3) Oxygen cylinders connected to one manifold must be limited to a total gas capacity of 6,000 cubic feet. More than one such manifold with connected cylinders may be located in the same room if the manifolds are at least 50 feet apart or separated by a noncombustible barrier at least 5 feet high having a fire-resistance rating of at least one-half hour.
- (4) Exception: An oxygen manifold, to which cylinders having an aggregate capacity of more than 6,000 cubic feet of oxygen are connected, should be located outdoors or in a separate noncombustible building. Such a manifold, if located inside a building having other occupancy, must be located in a separate room of noncombustible construction having a fire-resistance rating of at least one-half hour or in an area with no combustible material within 20 feet of the manifold.
- (5) An oxygen manifold or oxygen bulk supply system that has storage capacity of more than 13,000 cubic feet of oxygen (measured at 14.7 psia and 70°F), connected in service or ready for service, or more than 25,000 cubic feet of oxygen (measured at 14.7 psia and 70 °F), including unconnected reserves on hand at the site, must meet the requirements of the Standard for Bulk Oxygen Systems at Consumer Sites, NFPA No. 566-1965.
- (6) High-pressure oxygen manifolds must have approved pressure-regulating devices.

WAC 296-307-48027 Low-pressure oxygen manifolds.

This section applies to cylinders with a maximum DOT service pressure of 200 psig.

- (1) Manifolds must be of substantial construction suitable for use with oxygen at a pressure of 250 psig. They must have a minimum bursting pressure of 1,000 psig and must be protected by a safety-relief device that will relieve at a maximum pressure of 500 psig.

<p>Note: DOT-4L200 cylinders have safety devices that relieve at a maximum pressure of 250 psig (or 235 psig if vacuum insulation is used).</p>
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- (2) Hose and hose connections subject to cylinder pressure must meet the requirements of WAC 296-307-48049. Hose must have a minimum bursting pressure of 1,000 psig.
- (3) The assembled manifold including leads must be tested and proven gas-tight at a pressure of 300 psig. The fluid used for testing oxygen manifolds must be oil-free and not combustible.
- (4) The location of manifolds must meet the requirements of WAC 296-307-48025.
- (5) The following sign must be conspicuously posted at each manifold:

<p style="text-align: center;">Low-Pressure Manifold Do not Connect High-Pressure Cylinders Maximum Pressure-250 PSIG</p>

WAC 296-307-48029 Manifolding portable outlet headers.

- (1) Portable outlet headers must not be used indoors except for temporary service where the conditions preclude a direct supply from outlets located on the service piping system.
- (2) Each outlet on the service piping from which oxygen or fuel-gas is withdrawn to supply a portable outlet header must have a readily accessible shut-off valve.
- (3) Hose and hose connections used for connecting the portable outlet header to the service piping must meet the requirements of WAC 296-307-48051.
- (4) Master shut-off valves for both oxygen and fuel-gas must be provided at the entry end of the portable outlet header.
- (5) Portable outlet headers for fuel-gas service must have an approved hydraulic back-pressure valve installed at the inlet and preceding the service outlets, unless an approved pressure-reducing regulator, an approved backflow check valve, or an approved hydraulic back-pressure valve is installed at each outlet. Outlets provided on headers for oxygen service may be fitted for use with pressure-reducing regulators or for direct hose connection.
- (6) Each service outlet on portable outlet headers must have a valve assembly that includes a detachable outlet seal cap, chained or otherwise attached to the body of the valve.
- (7) Materials and fabrication procedures for portable outlet headers must comply with WAC 296-307-48033, 296-307-48035, and 296-307-4804.
- (8) Portable outlet headers must have frames that will support the equipment securely in the correct operating position and protect them from damage during handling and operation.

WAC 296-307-48031 Operating procedures for cylinder manifolds.

- (1) Cylinder manifolds must be installed under the supervision of someone familiar with the proper practices of construction and use.
- (2) All component parts used in the methods of manifolding described in WAC 296-307-48023 must have the materials, design and construction approved either separately or as an assembled unit.
- (3) All manifolds and parts used in methods of manifolding must be used only for the gas or gases for which they are approved.
- (4) When acetylene cylinders are coupled, approved flash arresters must be installed between each cylinder and the coupler block. For outdoor use only, and when the number of cylinders coupled does not exceed three, one flash arrester installed between the coupler block and regulator is acceptable.
- (5) Each fuel-gas cylinder lead should have a backflow check valve.
- (6) The maximum aggregate capacity of fuel-gas cylinders connected to a portable manifold inside a building must be 3,000 cubic feet of gas.
- (7) Acetylene and liquefied fuel-gas cylinders must be manifolded vertically.
- (8) The pressure in the gas cylinders connected to and discharged simultaneously through a common manifold must be approximately equal.

WAC 296-307-48033 Design of service piping systems.

- (1) Piping and fittings must comply with Section 2, Industrial Gas and Air Piping Systems, of the American National Standard Code for Pressure Piping, ANSI B 31.1-1967, if they do not conflict with subsections (2) and (3) of this section.
- (2) Pipe must be at least Schedule 40 and fittings must be at least standard weight in sizes up to and including 6-inch nominal.
- (3) Copper tubing must be Types K or L according to the Standard Specification for Seamless Copper Water Tube, ASTM B88-66a.
- (4) Piping must be steel, wrought iron, brass or copper pipe, or seamless copper, brass or stainless steel tubing, except as provided in subsections (5) through (9) of this section.
- (5) Oxygen piping and fittings at pressures in excess of 700 psig, must be stainless steel or copper alloys.
- (6) Hose connections and hose complying with WAC 296-307-48051 may be used to connect the outlet of a manifold pressure regulator to piping if the working pressure of the piping is 250 psig or less and the length of the hose is a maximum of 5 feet. Hose must have a minimum bursting pressure of 1,000 psig.
- (7) When oxygen is supplied to a service piping system from a low-pressure oxygen manifold without an intervening pressure regulating device, the piping system must have a minimum design pressure of 250 psig. A pressure regulating device must be used at each station outlet when the connected equipment is for use at pressures less than 250 psig.
- (8) Piping for acetylene or acetylenic compounds must be steel or wrought iron.
- (9) Unalloyed copper must only be used for acetylene or acetylenic compounds in listed equipment.

WAC 296-307-48035 Piping joints.

- (1) Joints in steel or wrought iron piping must be welded, threaded or flanged. Fittings, such as ells, tees, couplings, and unions, must be rolled, forged or cast steel, malleable iron or nodular iron. Gray or white cast iron fittings are prohibited.
- (2) Joints in brass or copper pipe must be welded, brazed, threaded, or flanged. Socket type joints must be brazed with silver-brazing alloy or similar high melting point (not less than 800°F) filler metal.
- (3) Joints in seamless copper, brass, or stainless steel tubing must be approved gas tubing fittings or the joints must be brazed. Socket type joints must be brazed with silver-brazing alloy or similar high melting point (not less than 800°F) filler metal.

WAC 296-307-48037 Installation of service piping systems.

- (1) Distribution lines must be installed and maintained in a safe operating condition.
- (2) Piping may be above or below ground. All piping must be run as directly as practical, protected against physical damage, with an allowance for expansion and contraction, jarring and vibration. Pipe laid underground in earth must be below the frost line and protected against corrosion. After assembly, piping must be thoroughly blown out with

air or nitrogen to remove foreign materials. For oxygen piping, only oil-free air, oil-free nitrogen, or oil-free carbon dioxide must be used.

- (3) Only piping that has been welded or brazed must be installed in tunnels, trenches or ducts. Shut-off valves must be located outside such conduits. Oxygen piping may be placed in the same tunnel, trench or duct with fuel-gas pipelines, if there is good natural or forced ventilation.
- (4) Low points in piping carrying moist gas must be drained into drip pots constructed to permit pumping or draining out the condensate at necessary intervals. Drain valves must be installed for this purpose having outlets normally closed with screw caps or plugs. Open end valves or petcocks are prohibited, except that in drips located outdoors, underground, and not readily accessible, valves may be used at such points if they have means to secure them in the closed position. Pipes leading to the surface of the ground must be cased or jacketed where necessary to prevent loosening or breaking.
- (5) Gas cocks or valves must be provided for all buildings at points where they will be readily accessible for shutting off the gas supply to these buildings in any emergency. Underground valve boxes or manholes should be avoided wherever possible. There must be a shut-off valve in the discharge line from the generator, gas holder, manifold or other source of supply.
- (6) Shut-off valves must not be installed in safety-relief lines in such a manner that the safety-relief device can be rendered ineffective.
- (7) Fittings and lengths of pipe must be examined internally before assembly and, if necessary, freed from scale or dirt. Oxygen piping and fittings must be washed out with a suitable solution that will effectively remove grease and dirt but will not react with oxygen.

<p>Note: Hot water solutions of caustic soda or trisodium phosphate are effective for this purpose.</p>
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- (8) Piping must be thoroughly blown out after assembly to remove foreign materials. For oxygen piping, oil-free air, oil-free nitrogen, or oil-free carbon dioxide must be used. For other piping, air or inert gas may be used.
- (9) When flammable gas lines or other parts of equipment are being purged of air or gas, open lights or other sources of ignition are prohibited near uncapped openings.
- (10) No welding or cutting must be performed on an acetylene or oxygen pipeline, including the attachment of hangers or supports, until the line has been purged. Only oil-free air, oil-free nitrogen, or oil-free carbon dioxide must be used to purge oxygen lines.

WAC 296-307-48039 Painting and marking service piping systems.

- (1) Underground pipe and tubing and outdoor ferrous pipe and tubing must be covered or painted with a suitable material for protection against corrosion.
- (2) Aboveground piping systems must be marked according to the American National Standard Scheme for the Identification of Piping Systems, ANSI A 13.1-1956.
- (3) Station outlets must be marked to indicate the name of the gas.

WAC 296-307-48041 Testing service piping systems.

- (1) Piping systems must be tested and proved gastight at 1-1/2 times the maximum operating pressure, and must be thoroughly purged of air before being placed in service. The material used for testing oxygen lines must be oil free and noncombustible. Flames must not be used to detect leaks.
- (2) When flammable gas lines or other parts of equipment are being purged of air or gas, sources of ignition are prohibited near uncapped openings.

WAC 296-307-48043 Equipment installation.

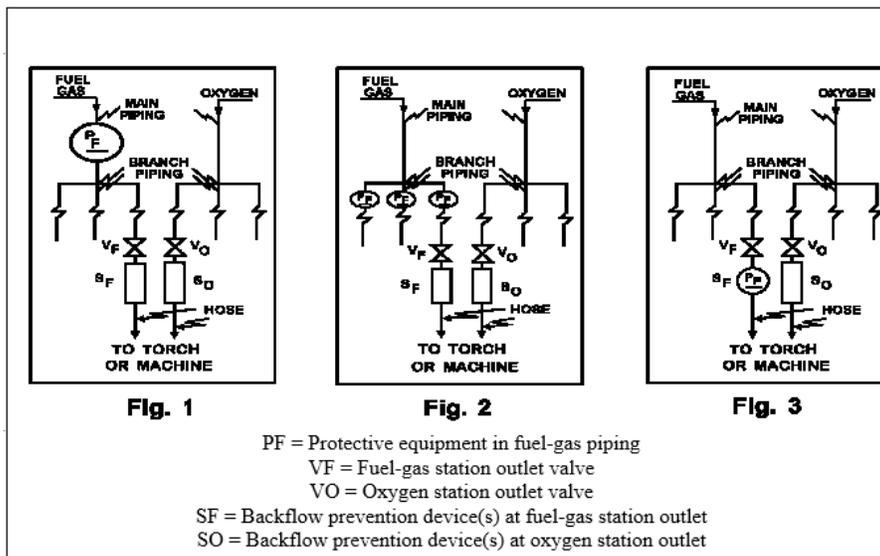
Equipment shall be installed and used only in the service for which it is approved and as recommended by the manufacturer.

WAC 296-307-48045 Protecting piping systems.

Service piping systems must be protected by pressure relief devices set to function at not more than the design pressure of the systems and discharging upwards to a safe location.

WAC 296-307-48047 Piping protective equipment.

- (1) The fuel-gas and oxygen piping systems, including portable outlet headers must incorporate the protective equipment shown in Figures V-1, V-2, and V-3. When only a portion of a fuel-gas system is to be used with oxygen, only that portion must meet this requirement.
- (2) Approved protective equipment (designated PF in Figs. V-1, V-2, and V-3) must be installed in fuel-gas piping to prevent:
 - (a) Backflow of oxygen into the fuel-gas supply system;
 - (b) Passage of a flash back into the fuel-gas supply system; and
 - (c) Excessive back pressure of oxygen in the fuel-gas system. The three functions of the protective equipment may be combined in one device or may be provided by separate devices.



- (3) The protective equipment must be located in the main supply line, as in Figure 1 or at the head of each branch line, as in Figure 2 or at each location where fuel-gas is withdrawn, as in Figure 3. Where branch lines are of 2-inch pipe size or larger or of substantial length, protective equipment (designated as PF) must be located as shown in either 2 or 3.
- (4) Backflow protection must be provided by an approved device that will prevent oxygen from flowing into the fuel-gas system or fuel from flowing into the oxygen system (see SF, Figs. 1 and 2).
- (5) Flash-back protection must be provided by an approved device that will prevent flame from passing into the fuel-gas system.
- (6) Back-pressure protection must be provided by an approved pressure-relief device set at a pressure not greater than the pressure rating of the backflow or the flashback protection device, whichever is lower. The pressure-relief device must be located on the downstream side of the backflow and flashback protection devices. The vent from the pressure-relief device must be at least as large as the relief device inlet and must be installed without low points that may collect moisture. If low points are unavoidable, drip pots with drains closed with screw plugs or caps must be installed at the low points. The vent terminus must not endanger personnel or property through gas discharge; must be located away from ignition sources; and must terminate in a hood or bend.
- (7) If pipeline protective equipment incorporates a liquid, the liquid level must be maintained, and a suitable antifreeze may be used to prevent freezing.
- (8) Fuel-gas for use with equipment not requiring oxygen must be withdrawn upstream of the piping protective devices.

WAC 296-307-48049 Station outlet protective equipment.

- (1) A check valve pressure regulator, hydraulic seal, or combination of these devices must be provided at each station outlet, including those on portable headers, to prevent backflow, as shown in Figures 1, 2, and 3 and designated as SF and SO.

- (2) When approved pipeline protective equipment (designated PF) is located at the station outlet as in Figure 3, no additional check valve, pressure regulator, or hydraulic seal is required.
- (3) Each station outlet must have a shut-off valve (designated VF and VO) installed on the upstream side of other station outlet equipment.
- (4) If the station outlet is equipped with a detachable regulator, the outlet must terminate in a union connection that meets the requirements of the Regulator Connection Standards, 1958, Compressed Gas Association.
- (5) If the station outlet is connected directly to a hose, the outlet must terminate in a union connection that meets the requirements of the Standard Hose Connection Specifications, 1957, Compressed Gas Association.
- (6) Station outlets may terminate in pipe threads to which permanent connections are to be made, such as to a machine.
- (7) Station outlets must have a detachable outlet seal cap secured in place. This cap must be used to seal the outlet except when a hose, a regulator, or piping is attached.
- (8) Where station outlets are equipped with approved backflow and flashback protective devices, as many as four torches may be supplied from one station outlet through rigid piping, if each outlet from such piping, is equipped with a shut-off valve and if the fuel-gas capacity of any one torch does not exceed 15 cubic feet per hour. This rule does not apply to machines.

WAC 296-307-48051 Hose and hose connections.

- (1) Hose for oxy-fuel gas service must meet the requirements of the Specification for Rubber Welding Hose, 1958, Compressed Gas Association and Rubber Manufacturers Association.
- (2) The generally recognized colors are red for acetylene and other fuel-gas hose, green for oxygen hose, and black for inert-gas and air hose.
- (3) When parallel lengths of oxygen and acetylene hose are taped together for convenience and to prevent tangling, a maximum of 4 inches out of 12 inches must be covered by tape.
- (4) Hose connections must meet the requirements of the Standard Hose Connection Specifications, 1957, Compressed Gas Association.
- (5) Hose connections must be clamped or otherwise securely fastened so they will withstand, without leakage, twice the pressure to which they are normally subjected in service, but never less than a pressure of 300 psi. Oil-free air or an oil-free inert gas must be used for the test.
- (6) Hose showing leaks, burns, worn places, or other defects rendering it unfit for service must be repaired or replaced.

WAC 296-307-48053 Pressure-reducing regulators.

- (1) Pressure-reducing regulators must be used only for the gas and pressures for which they are intended. The regulator inlet connections must meet the requirements of the Regulator Connection Standards, 1958, Compressed Gas Association.

- (2) When regulators or parts of regulators, including gauges, need repair, the work must be performed by skilled mechanics who have been properly instructed.
- (3) Gauges on oxygen regulators must be marked "use no oil."
- (4) Union nuts and connections on regulators must be inspected before use to detect faulty seats that may cause leakage of gas when the regulators are attached to the cylinder valves. Damaged nuts or connections must be destroyed.

WAC 296-307-485 Installation and operation of resistance welding equipment.

WAC 296-307-48501 Resistance welding equipment.

- (1) All equipment must be installed by a qualified electrician according to the requirements of chapter 296-307 WAC Part T. There must be a safety-type disconnecting switch or a circuit breaker or circuit interrupter to open each power circuit to the machine, conveniently located at or near the machine, so that the power can be shut off when the machine or its controls are to be serviced.
- (2) Ignitron tubes used in resistance welding equipment must have a thermal protection switch.
- (3) Employees designated to operate resistance welding equipment must have been properly instructed and judged competent to operate such equipment.
- (4) Controls of all automatic or air and hydraulic clamps must be arranged or guarded to prevent the operator from accidentally activating them.

WAC 296-307-48503 Portable welding machines.

- (1) All portable welding guns must have suitable counter-balanced devices for supporting the guns, including cables, unless the design of the gun or fixture makes counterbalancing impractical or unnecessary.
- (2) All portable welding guns, transformers, and related equipment that is suspended from overhead structures, eye beams, or trolleys must have safety chains or cables. Safety chains or cables must be able to support the total shock load in the event of failure of any component of the supporting system.
- (3) When trolleys are used to support portable welding equipment, they must have suitable forged steel clevis for the attachment of safety chains. Each clevis must be able to support the total shock load of the suspended equipment in the event of trolley failure.
- (4) All initiating switches, including retraction and dual schedule switches, located on the portable welding gun must have suitable guards able to prevent accidental initiation through contact with fixturing, operator's clothing, etc. Initiating switch voltage must be a maximum of 24 volts.
- (5) The movable holder, where it enters the gun frame, must have enough clearance to prevent the shearing an operator's fingers if placed on the operating movable holder.

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- (6) The secondary and case of all portable welding transformers must be grounded. Secondary grounding may be by center tapped secondary or by a center tapped grounding reactor connected across the secondary.

WAC 296-307-48505 Flash welding equipment.

- (1) Flash welding machines must have a hood to control flying flash. In cases of high production, where materials may contain a film of oil and where toxic elements and metal fumes are given off, ventilation must be provided according to WAC 296-307-50009 through 296-307-50029.
- (2) For the protection of the operators of nearby equipment, fire-resistant curtains or suitable shields must be set up around the machine and in such a manner that the operator's movements are not hampered.
- (3) If the welding process cannot be isolated, anyone who may be exposed to the hazard of arc flash must be properly protected.

WAC 296-307-48507 Job hazard analysis.

A qualified person must perform a job hazard analysis on the operations to be performed on each welding machine to determine the safeguards and personal protective equipment that must be used for each job.

WAC 296-307-48509 Maintenance of resistance welding equipment.

Qualified maintenance personnel must periodically inspect the equipment and maintain records of the inspections. The operator must be instructed to report any equipment defects to the supervisor and the use of the equipment must be discontinued until safety repairs have been completed.

WAC 296-307-490 Application, installation, and operation of arc welding and cutting equipment.

WAC 296-307-49001 Environmental conditions required to be taken into account when selecting arc welding equipment.

Note: The employer may ensure that equipment is designed for safety by choosing equipment that complies with the Requirements for Electric Arc-Welding Apparatus, NEMA EW-1-1962, National Electrical Manufacturers Association or the Safety Standard for Transformer-Type Arc-Welding Machines, ANSI C33.2-1956, Underwriters' Laboratories.

- (1) Standard machines for arc welding service must be designed and constructed to carry their rated load with rated temperature rises where the temperature of the cooling air is a maximum of 40°C (104°F) and where the altitude is a maximum of 3,300 feet, and must

be suitable for operation in atmospheres containing gases, dust, and light rays produced by the welding arc.

- (2) When exposed to the following or other conditions, machines must be designed to safely meet the requirements of the service:
 - (a) Unusually corrosive fumes;
 - (b) Steam or excessive humidity;
 - (c) Excessive oil vapor;
 - (d) Flammable gases;
 - (e) Abnormal vibration or shock;
 - (f) Excessive dust;
 - (g) Weather;
 - (h) Unusual seacoast or shipboard conditions.

WAC 296-307-49003 Voltages when using arc welding equipment.

Open circuit (no load) voltages of arc welding and cutting machines should be as low as possible consistent with satisfactory welding or cutting being done. Following are the maximum limits:

- (1) For alternating-current machines:
 - (a) Manual arc welding and cutting-80 volts.
 - (b) Automatic (machine or mechanized) arc welding and cutting-100 volts.
- (2) For direct-current machines:
 - (a) Manual arc welding and cutting-100 volts.
 - (b) Automatic (machine or mechanized) arc welding and cutting-100 volts.
- (3) When special welding and cutting processes require values of open circuit voltages higher than the above, means must be provided to prevent the operator from making accidental contact with the high voltage by adequate insulation or other means.

<p>Note: For a.c. welding under wet conditions or warm surroundings where perspiration is a factor, the use of reliable automatic controls for reducing no load voltage is recommended to reduce the shock hazard.</p>

WAC 296-307-49005 Designing arc welding equipment.

- (1) A controller integrally mounted in an electric motor driven welder must be able to carry the rated motor current, must be able to make and interrupt stalled rotor current of the motor, and may serve as the running overcurrent device if provided with the number of over-current units as specified by chapter 296-307 WAC Part T. Starters with magnetic undervoltage release should be used with machines installed more than one to a circuit to

prevent circuit overload caused by simultaneously starting several motors upon return of voltage.

- (2) On all types of arc welding machines, control apparatus must be enclosed except for the operating wheels, levers, or handles.

Note: Control handles and wheels should be large enough to be easily grasped by a gloved hand.

- (3) Input power terminals, tap change devices, and live metal parts connected to input circuits must be completely enclosed and accessible only by tools.
- (4) Terminals for welding leads should be protected from accidental electrical contact by employees or by metal objects i.e., vehicles, crane hooks, etc. The employer may provide protection with:
- (a) Dead-front receptacles for plug connections;
 - (b) Recessed openings with nonremovable hinged covers;
 - (c) Heavy insulating sleeving or taping; or
 - (d) Other equivalent electrical and mechanical protection.

If a welding lead terminal that is intended to be used exclusively for connection to the work is connected to the grounded enclosure, it must be done by a conductor at least two AWG sizes smaller than the grounding conductor and the terminal must be marked to indicate that it is grounded.

- (5) No connections for portable control devices (such as push buttons to be carried by the operator) must be connected to an a.c. circuit of higher than 120 volts. Exposed metal parts of portable control devices operating on circuits above 50 volts must be grounded by a grounding conductor in the control cable.
- (6) Auto transformers or a.c. reactors must not be used to draw welding current directly from any a.c. power source having a voltage exceeding 80 volts.

WAC 296-307-49007 Installing arc welding equipment.

Arc welding equipment, including the power supply, must be installed according to the requirements of chapter 296-307 WAC Part T.

WAC 296-307-49009 Grounding arc welding equipment.

- (1) The frame or case of the welding machine (except engine-driven machines) must be grounded according to the requirements of chapter 296-307 WAC Part T.
- (2) Conduits containing electrical conductors must not be used for completing a work-lead circuit. Pipelines must not be used as a permanent part of a work-lead circuit, but may be used during construction, extension or repair if current is not carried through threaded joints, flanged bolted joints, or caulked joints and special precautions are used to avoid sparking at connection of the work-lead cable.

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- (3) Using chains, wire ropes, cranes, hoists, and elevators to carry welding current is prohibited.
 - (4) Where a structure, conveyor, or fixture is regularly used as a welding current return circuit, joints must be bonded or provided with adequate current collecting devices and appropriate periodic inspection should be conducted to ensure that no electrocution, shock, or fire hazard exists.
 - (5) All ground connections must be checked to determine that they are mechanically strong and electrically adequate for the required current.

WAC 296-307-49011 Supply connections and conductors.

- (1) A disconnecting switch or controller must be provided at or near each welding machine without a switch or controller mounted as an integral part of the machine. The switch must meet the requirements of chapter 296-307 WAC Part T. Overcurrent protection must be provided as specified in chapter 296-307 WAC Part T. A disconnect switch with overload protection or equivalent disconnect and protection means, permitted by chapter 296-307 WAC Part T must be provided for each outlet intended for connection to a portable welding machine.
- (2) For individual welding machines, the rated current-carrying capacity of the supply conductors must be at least that of the rated primary current of the welding machines.
- (3) For groups of welding machines, the rated current-carrying capacity of conductors may be less than the sum of the rated primary currents of the welding machines supplied. The conductor rating must be determined according to the machine loading based on the use to be made of each welding machine and the allowance permissible in the event that all the welding machines supplied by the conductors will not be in use at the same time.
- (4) In operations involving several welders on one structure, d.c. welding process requirements may require the use of both polarities; or supply circuit limitations for a.c. welding may require distribution of machines among the phases of the supply circuit. In such cases, no load voltages between electrode holders will be two times normal in d.c. or 1, 1.4, 1.73, or 2 times normal on a.c. machines. Similar voltage differences will exist if both a.c. and d.c. welding are done on the same structure.
 - (a) All d.c. machines must be connected with the same polarity.
 - (b) All a.c. machines must be connected to the same phase of the supply circuit and with the same instantaneous polarity.

WAC 296-307-49013 Operating arc welding equipment.

- (1) Employees assigned to operate or maintain arc welding equipment must be acquainted with the requirements of WAC 296-307-490, 296-307-495, and 296-307-500; if doing gas-shielded arc welding, also Recommended Safe Practices for Gas-Shielded Arc Welding, A6.1-1966, American Welding Society.
- (2) Before starting operations, all connections to the machine must be checked to make certain they are properly made. The work lead must be firmly attached to the work; magnetic work clamps must be freed from adherent metal particles of spatter on contact

surfaces. Coiled welding cable must be spread out before use to avoid serious overheating and damage to insulation.

- (3) The employer must ensure that the welding machine frame grounding is checked with special attention given to safety ground connections of portable machines.
- (4) Cylinders must be kept away from radiators, piping systems, layout tables, etc., that may be used for grounding electric circuits. Any practice such as the tapping of an electrode against a cylinder to strike an arc is prohibited.
- (5) There must be no leaks of cooling water, shielding gas or engine fuel.
- (6) The employer must ensure that the machine has proper switching equipment for shutting down.
- (7) Printed rules and instructions covering operation of equipment supplied by the manufacturers must be strictly followed.
- (8) Electrode holders when not in use must be placed so that they cannot make electrical contact with persons, conducting objects, fuel or compressed gas tanks.
- (9) Cables with splices within 10 feet of the holder are prohibited. The welder should not coil or loop welding electrode cable around parts of the body.

WAC 296-307-49015 Maintaining arc welding equipment.

- (1) The operator should report any equipment defect or safety hazard to the supervisor and discontinue using the equipment until its safety is ensured. Repairs must be made only by qualified persons.
- (2) Machines that have become wet must be thoroughly dried and tested before being used.
- (3) Work and electrode lead cables should be frequently inspected for wear and damage. Cables with damaged insulation or exposed bare conductors must be replaced. Lengths of work and electrode cables must be joined by connecting means specifically intended for the purpose. The connecting means must have insulation adequate for the service conditions.

WAC 296-307-495 Fire prevention and protection.

WAC 296-307-49501 Basic fire prevention precautions.

For more information on these basic precautions and the special precautions of WAC 296-307-49503, including fire protection and prevention responsibilities of welders, cutters, their supervisors (including outside contractors), and management, see the Standard for Fire Prevention in Use of Cutting and Welding Processes, NFPA Standard 51B, 1962.

The basic precautions for fire prevention in welding or cutting work are:

- (1) If the object to be welded or cut cannot readily be moved, all movable fire hazards in the vicinity must be taken to a safe place.

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- (2) If the object to be welded or cut cannot be moved and if all the fire hazards cannot be removed, then guards must be used to confine the heat, sparks, and slag, and to protect the fire hazards.
 - (3) If the requirements of this section cannot be met, then welding and cutting are prohibited.

WAC 296-307-49503 Special fire prevention precautions.

When the nature of the work to be performed falls within the scope of WAC 296-307-49501(2), certain additional precautions may be necessary:

- (1) Wherever there are floor openings or cracks in the flooring that cannot be closed, precautions must be taken so that no readily combustible materials on the floor below will be exposed to sparks that drop through. The same precautions must be observed with regard to cracks or holes in walls, open doorways, and open or broken windows.
- (2) Suitable fire extinguishing equipment must be maintained in a state of readiness for instant use. Such equipment may consist of pails of water, buckets of sand, hose, or portable extinguishers depending upon the nature and quantity of the combustible material exposed.
- (3) The following requirements apply to fire watch:
 - (a) Fire watchers are required whenever welding or cutting is performed in locations where other than a minor fire might develop, or any of the following conditions exist:
 - (i) Appreciable combustible material, in building construction or contents, closer than 35 feet to the point of operation.
 - (ii) Appreciable combustibles are more than 35 feet away but are easily ignited by sparks.
 - (iii) Wall or floor openings within a 35-foot radius expose combustible material in adjacent areas including concealed spaces in walls or floors.
 - (iv) Combustible materials are adjacent to the opposite side of metal partitions, walls, ceilings, or roofs and are likely to be ignited by conduction or radiation.
 - (b) Fire watchers must have fire extinguishing equipment readily available and be trained in its use. They must be familiar with facilities for sounding an alarm in the event of a fire. They must watch for fires in all exposed areas, try to extinguish them only when obviously within the capacity of the equipment available, or otherwise sound the alarm. A fire watch must be maintained for at least a half hour after completion of welding or cutting operations to detect and extinguish possible smoldering fires.
- (4) Before cutting or welding is permitted, the area must be inspected by the individual responsible for authorizing cutting and welding operations. The responsible individual must designate precautions to be followed in granting authorization to proceed, preferably in the form of a written permit.

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- (5) Where combustible materials such as paper clippings, wood shavings, or textile fibers are on the floor, the floor must be swept clean for a radius of 35 feet. Combustible floors must be kept wet, covered with damp sand, or protected by fire-resistant shields. Where floors have been wet down, employees operating arc welding or cutting equipment must be protected from possible shock.
 - (6) Cutting and welding are prohibited in the following situations:
 - (a) In areas not authorized by management.
 - (b) In sprinklered buildings while such protection is impaired.
 - (c) In the presence of explosive atmospheres (mixtures of flammable gases, vapors, liquids, or dusts with air), or where explosive atmospheres may develop inside uncleaned or improperly prepared tanks or equipment that have previously contained such materials, or that may develop in areas with an accumulation of combustible dusts.
 - (d) In areas near the storage of large quantities of exposed, readily ignitable materials such as bulk sulphur, baled paper, or cotton.
 - (7) Where practical, all combustibles must be relocated at least 35 feet from the worksite. Where relocation is impractical, combustibles must be protected with flameproofed covers or otherwise shielded with metal or asbestos guards or curtains. Edges of covers at the floor should be tight to prevent sparks from going under them. This precaution is also important at overlaps where several covers are used to protect a large pile.
 - (8) Ducts and conveyor systems that might carry sparks to distant combustibles must be suitably protected or shut down.
 - (9) Where cutting or welding is done near walls, partitions, ceiling, or roof of combustible construction, fire-resistant shields or guards must be provided to prevent ignition.
 - (10) If welding is to be done on a metal wall, partition, ceiling, or roof, precautions must be taken to prevent ignition of combustibles on the other side, due to conduction or radiation, preferably by relocating combustibles. Where combustibles are not relocated, a fire watch on the opposite side from the work must be provided.
 - (11) Welding must not be attempted on a metal partition, wall, ceiling, or roof having a combustible covering nor on walls or partitions of combustible sandwich-type panel construction.
 - (12) Cutting or welding on pipes or other metal in contact with combustible walls, partitions, ceilings or roofs must not be undertaken if the work is close enough to cause ignition by conduction.
 - (13) The employer is responsible for the safe use of cutting and welding equipment on the property and:
 - (a) Based on fire potentials of plant facilities, the employer must establish areas and procedures for cutting and welding;
 - (b) The employer must designate an individual responsible for authorizing cutting and welding operations in areas not specifically designed for such processes;

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- (c) The employer must insist that cutters or welders and their supervisors are suitably trained in the safe operation of their equipment and the safe use of the process; and
 - (d) The employer must advise all contractors about flammable materials or hazardous conditions of which they may not be aware.
- (14) The supervisor must:
- (a) Ensure that cutting and welding equipment is handled and used safely.
 - (b) Determine the combustible materials and hazardous areas present or likely to be present in the work location.
 - (c) Protect combustibles from ignition by the following:
 - (i) Have the work moved to a location free from dangerous combustibles;
 - (ii) If the work cannot be moved, have the combustibles moved to a safe distance from the work or have the combustibles properly shielded against ignition; and
 - (iii) See that cutting and welding are so scheduled that plant operations that might expose combustibles to ignition are not started during cutting or welding.
 - (d) Secure authorization for the cutting or welding operations from the designated management representative.
 - (e) Determine that the cutter or welder secures their approval that conditions are safe before going ahead;
 - (f) Determine that fire protection and extinguishing equipment are properly located at the site; and
 - (g) Ensure fire watches are available at the site when required.
- (15) Cutting or welding is permitted only in areas that are or have been made fire safe. Within the confines of an operating plant or building, cutting and welding should preferably be done in a specific area designed for such work, such as a maintenance shop or a detached outside location. Such areas should be of noncombustible or fire-resistive construction, essentially free of combustible and flammable contents, and suitably segregated from adjacent areas. When work cannot be moved practically, as in most construction work, the area must be made safe by removing combustibles or protecting combustibles from ignition sources.

WAC 296-307-49505 Precautions to be taken when welding or cutting containers.

- (1) No welding, cutting, or other hot work may be performed on used drums, barrels, tanks or other containers until they have been cleaned thoroughly enough to be certain that there are no flammable materials present or any substances such as greases, tars, acids, or other materials which when subjected to heat, might produce flammable or toxic vapors. Any pipe lines or connections to the drum or vessel must be disconnected or blanked.
- (2) All hollow spaces, cavities, or containers must be vented to permit the escape of air or gases before preheating, cutting or welding. Purging with inert gas is recommended.

WAC 296-307-49507 Precautions to be taken when welding in confined spaces.

- (1) When arc welding work is stopped for a substantial time, such as during lunch or overnight, all electrodes must be removed from the holders and the holders carefully located so that accidental contact cannot occur and the machine be disconnected from the power source.
- (2) In order to eliminate the possibility of gas escaping through leaks or improperly closed valves, when gas welding or cutting, the torch valves must be closed and the gas supply to the torch positively shut off at some point outside the confined area whenever the torch is not to be used for a substantial period of time, such as during lunch hour or overnight. Where practical, the torch and hose must also be removed from the confined space.

WAC 296-307-500 Protection of employees.

WAC 296-307-50001 Eye protection.

- (1) Helmets or hand shields must be used during all arc welding or arc cutting operations, excluding submerged arc welding. Goggles should also be worn during arc welding or cutting operations to provide protection from injurious rays from adjacent work, and from flying objects. The goggles may have either clear or colored glass, depending on the amount of exposure to adjacent welding operations. Helpers or attendants must have proper eye protection.
- (2) Goggles or other suitable eye protection must be used during all gas welding or oxygen cutting operations. Spectacles without side shields, with suitable filter lenses are permitted for use during gas welding operations on light work, for torch brazing, or for inspection.
- (3) All operators and attendants of resistance welding or resistance brazing equipment must use transparent face shields or goggles, depending on the job, to protect their faces or eyes as required.
- (4) Suitable goggles must be provided where needed for brazing operations not above.

WAC 296-307-50003 Specifications for eye protection.

- (1) Helmets and hand shields must be made of a material that is an insulator for heat and electricity. Helmets, shields and goggles must be not readily flammable and must be able to be sterilized.
- (2) Helmets and hand shields must be arranged to protect the face, neck and ears from direct radiant energy from the arc.
- (3) Helmets must have filter plates and cover plates designed for easy removal.
- (4) All parts must be constructed of a material that will not readily corrode or discolor the skin.
- (5) Goggles must be ventilated to prevent fogging of the lenses as much as practical.

- (6) Cover lenses or plates should be provided to protect each helmet, hand shield, or goggle filter lens or plate.
- (7) All glass for lenses must be tempered, substantially free from scratches, air bubbles, waves and other flaws. Except when a lens is ground to provide proper optical correction for defective vision, the front and rear surfaces of lenses and windows must be smooth and parallel.
- (8) Lenses must be marked with the source and shade.
- (9) Following is a guide to select proper shade numbers. Individual needs may vary.

Welding Operation	Shade No.
Shielded metal-arc welding--1/16-, 3/32-, 1/8-, 5/32-inch electrodes	10
Gas-shielded arc welding (nonferrous)-1/16-, 3/32-, 1/8-, 5/32-inch electrodes	11
Gas-shielded arc welding (ferrous)-1/16-, 3/32-, 1/8-, 5/32-inch electrodes	12
Shielded metal-arc welding:	
3/16-, 7/32-, 1/4-inch electrodes	12
5/16-, 3/8-inch electrodes	14
Atomic hydrogen welding	10-14
Carbon arc welding	14
Soldering	2
Torch brazing	3 or 4
Light cutting, up to 1 inch	3 or 4
Medium cutting, 1 inch to 6 inches	4 or 5
Heavy cutting, 6 inches and over	5 or 6
Gas welding (light) up to 1/8 inch	4 or 5
Gas welding (medium) 1/8 inch to 1/2 inch	5 or 6
Gas welding (heavy) 1/2 inch and over	6 or 8

Note: In gas welding or oxygen cutting where the torch produces a high yellow light it is desirable to use a filter or lens that absorbs the yellow or sodium line in the visible light of the operation.

Note: In gas welding or oxygen cutting where the torch produces a high yellow light it is desirable to use a filter lens that absorbs the yellow or sodium line in the visible light of the operation.

- (10) All filter lenses and plates must meet the test for transmission of radiant energy prescribed in ANSI Z 87.1-1968--American National Standard Practice for Occupational and Educational Eye and Face Protection.
- (11) Where the work permits, an arc welder should be enclosed in an individual booth painted with a finish of low-reflectivity such as zinc oxide (an important factor for absorbing ultraviolet radiations) and lamp black, or must be enclosed with noncombustible screens similarly painted. Booths and screens must permit circulation of air at floor level.

Employees or other persons adjacent to the welding areas must be protected from the rays by noncombustible or flameproof screens or shields or must be required to wear appropriate goggles.

WAC 296-307-50005 Protective clothing for welders.

- (1) Employees exposed to the hazards created by welding, cutting, or brazing operations must be protected by personal protective equipment according to the requirements of chapter 296-307 WAC Part H. Appropriate protective clothing required for any welding operation will vary with the size, nature and location of the work to be performed.
- (2) The following suggestions may be helpful when choosing protective clothing:
 - (a) Except when engaged in light work, all welders should wear flameproof gauntlet gloves.
 - (b) Flameproof aprons made of leather, asbestos, or other suitable material may help to protect against radiated heat and sparks.
 - (c) Woolen clothing is better than cotton because it is less easily ignited and helps to protect the welder from changes in temperature. Cotton clothing, if used, should be chemically treated to reduce its combustibility. All outer clothing such as jumpers or overalls should be reasonably free from oil or grease.
 - (d) Sparks may lodge in rolled-up sleeves, pockets, or cuffs. Therefore sleeves and collars should be buttoned, and clothing should have no front pockets. Trousers or overalls should be uncuffed.
 - (e) For heavy work, fire-resistant leggings, high boots, or other equivalent means should be used.
 - (f) In production work a sheet metal screen in front of the employee's legs can provide further protection against sparks and molten metal in cutting operations.

- (g) Capes or shoulder covers made of leather or other suitable materials should be worn during overhead welding or cutting operations. Leather skull caps may be worn under helmets to prevent head burns.
- (h) For welding and cutting overhead or in extremely confined spaces, ear protection is sometimes desirable.
- (i) Where there is exposure to sharp or heavy falling objects, or a hazard of bumping in confined spaces, hard hats or head protectors must be used.

WAC 296-307-50007 Other requirements that apply to employee protection.

- (1) The employer must ensure that a welder or helper working on platforms, scaffolds, or runways is protected against falling by using railings, safety belts, life lines, or other equally effective safeguards.
- (2) Welders must place welding cable and other equipment so that it is clear of passageways, ladders, and stairways.

WAC 296-307-50009 Employee protection for work in confined spaces.

Confined space. A relatively small or restricted space such as a tank, boiler, pressure vessel, or small compartment of a ship.

- (1) Confined spaces must be ventilated. For ventilation requirements see WAC 296-307-50011 through 296-307-50029.
- (2) When welding or cutting in a confined space, the gas cylinders and welding machines must be left outside. Before operations are started, heavy portable equipment mounted on wheels must be securely blocked to prevent accidental movement.
- (3) Where a welder must enter a confined space through a manhole or other small opening, means must be provided for quickly removing the welder in case of emergency. When safety belts and lifelines are used, they must be attached so that the welder's body cannot be jammed in a small exit opening. An attendant with a preplanned rescue procedure must be stationed outside to observe the welder at all times and be able to put rescue operations into effect.
- (4) After welding operations are completed, the welder must mark the hot metal or provide some other means of warning other employees.

WAC 296-307-50011 General requirements that apply to welding ventilation.

- (1) The following three factors in arc and gas welding must be considered when determining the amount of contamination to which welders may be exposed:
 - (a) Dimensions of space in which welding is to be done (especially ceiling height);
 - (b) Number of welders; and
 - (c) The possibility of hazardous fumes, gases, or dust according to the metals involved.
- (2) Other factors involved may require ventilation or respiratory protective devices as needed to meet the requirements of this section. Such factors include:

- (a) Atmospheric conditions;
 - (b) Heat generated; and
 - (c) Presence of volatile solvents.
- (3) When welding must be performed in a space entirely screened on all sides, the screens must be arranged so that no serious restriction of ventilation exists. The screens should be mounted so that they are about 2 feet above the floor unless the work is performed at so low a level that the screen must be extended nearer to the floor to protect nearby employees from the glare of welding.
- (4) Local exhaust or general ventilating systems must be provided and arranged to keep the amount of toxic fumes, gases, or dusts below the maximum allowable in chapter [296-62](#) WAC.

Note: A number of potentially hazardous materials are employed in fluxes, coatings, coverings, and filler metals used in welding and cutting or are released to the atmosphere during welding and cutting. These include but are not limited to the materials itemized in WAC 296-307-50019 through 296-307-50029.

- (5) The employer must determine which potentially hazardous materials are associated with welding and cutting and inform employees through signs, labels or other appropriate means.
- (a) Welding may produce fumes and gases hazardous to health. Avoid breathing these fumes and gases. Use adequate ventilation. See ANSI Z 49.1-1967, Safety in Welding and Cutting, published by the American Welding Society.
 - (b) Brazing (welding) filler metals containing cadmium in significant amounts must carry the following notice on tags, boxes, or other containers:

WARNING

CONTAINS CADMIUM-POISONOUS FUMES MAY BE FORMED ON HEATING

- Do not breathe fumes. Use only adequate ventilation such as fume collectors, exhaust ventilators, or air-supplied respirators. See ANSI Z 49.1-1967.
- If chest pain, cough, or fever develops after use call physician immediately.
- Keep children away when using.

- (c) Brazing and gas welding fluxes containing fluorine compounds must have a cautionary wording to indicate that they contain fluorine compounds. The American Welding Society recommends the following for brazing and gas welding fluxes:

**CAUTION
CONTAINS FLUORIDES**

This flux when heated gives off fumes that may irritate eyes, nose and throat.

- Avoid fumes. Use only in well-ventilated spaces.
- Avoid contact of flux with eyes or skin.
- Do not take internally.

WAC 296-307-50013 Ventilation must be provided for general welding and cutting.

- (1) Mechanical ventilation must be provided when welding or cutting is done on metals not covered in WAC 296-307-50019 through 296-307-50029 in the following locations:
 - (a) In a space of less than 10,000 cubic feet per welder.
 - (b) In a room with a ceiling height of less than 16 feet.
 - (c) In confined spaces or where the welding space contains partitions, balconies, or other structural barriers to the extent that they significantly obstruct cross-ventilation.
- (2) Ventilation must be at the minimum rate of 2,000 cubic feet per minute per welder.

Exception: This requirement does not apply where local exhaust hoods and booths that meet the requirements of WAC 296-307-50015, or airline respirators approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH) for such purposes are provided. Natural ventilation is considered sufficient for welding or cutting operations where the restrictions in subsection (1) of this section are not present.

WAC 296-307-50015 Local exhaust hoods and booths.

Mechanical local exhaust ventilation may be provided by either of the following:

- (1) Freely movable hoods intended to be placed by the welder as near as practical to the work being welded and provided with a rate of airflow sufficient to maintain a velocity in the direction of the hood of 100 linear feet per minute in the zone of welding when the hood is at its most remote distance from the point of welding. The rates of ventilation required to accomplish this control velocity using a 3-inch wide flanged suction opening are shown in the following table:

Welding Zone	Minimum air flow cubic feet/minute ¹	Duct Diameter Inches ²
4 to 6 inches from arc or torch	150	3
6 to 8 inches from arc or torch	275	3 ½
8 to 10 inches from arc or torch	425	4 ½
10 to 12 inches from arc or torch	600	5 ½
¹ When brazing with cadmium brazing materials or when cutting on such materials increased rates of ventilation may be required. ² Nearest half-inch duct diameter based on 4,000 feet per minute velocity in pipe.		

- (2) A fixed enclosure with a top and at least two sides that surround the welding or cutting operations and with a rate of airflow sufficient to maintain a velocity away from the welder of not less than 100 linear feet per minute.

WAC 296-307-50017 Ventilation must be provided in confined spaces.

- (1) All welding and cutting operations carried on in confined spaces must be adequately ventilated to prevent the accumulation of toxic materials or possible oxygen deficiency. This applies to welders, helpers, and other employees in the immediate vicinity. All replacement air must be clean and respirable.
- (2) In circumstances where it is impossible to provide such ventilation, airline respirators or hose masks approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH) for this purpose must be used.
- (3) In areas immediately hazardous to life, hose masks with blowers or self-contained breathing equipment must be used. The breathing equipment must be approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH).
- (4) Where welding operations are carried on in confined spaces and where welders and helpers are provided with hose masks, hose masks with blowers or self-contained breathing equipment approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH), an employee must be stationed on the outside of such confined spaces to ensure the safety of those working within.
- (5) Oxygen must not be used for ventilation.

WAC 296-307-50019 Welding fluorine compounds.

In confined spaces, welding or cutting involving fluxes, coverings, or other materials that contain fluorine compounds must be done according to WAC 296-307-50017.

Fluorine compound. A compound that contains fluorine as an element in chemical combination, not as a free gas.

Note: The need for local exhaust ventilation or airline respirators for welding or cutting in other than confined spaces will depend on the circumstances. However, such protection is desirable for fixed-location production welding and for all production welding on stainless steels. Where air samples taken at the welding location indicate that the fluorides liberated are below the maximum allowable concentration, such protection is not necessary.

WAC 296-307-50021 Welding zinc.

- (1) In confined spaces welding or cutting involving zinc-bearing base or filler metals or metals coated with zinc-bearing materials must be done according to WAC 296-307-50017.
- (2) Indoors, welding or cutting involving zinc-bearing base or filler metals coated with zinc-bearing materials must be done according to WAC 296-307-50015.

WAC 296-307-50023 Welding lead.

- (1) In confined spaces, welding involving lead-base metals (erroneously called lead-burning) must be done according to WAC 296-307-50017.
- (2) Indoors, welding involving lead-base metals must be done according to WAC 296-307-50015.
- (3) In confined spaces or indoors, welding or cutting involving metals containing lead, other than as an impurity, or involving metals coated with lead-bearing materials, including paint, must be done using local exhaust ventilation or airline respirators. Outdoors, such operations must be done using respiratory protective equipment approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH) for such purposes. In all cases, employees in the immediate vicinity of the cutting operation must be protected as necessary by local exhaust ventilation or airline respirators.

Note: See chapter [296-62](#) WAC for additional requirements on lead.

WAC 296-307-50025 Welding beryllium.

Welding or cutting indoors, outdoors, or in confined spaces involving beryllium-containing base or filler metals must be done using local exhaust ventilation and airline respirators unless atmospheric tests under the most adverse conditions have established that employee exposure is within the acceptable concentrations defined by WAC 296-307-62625. In all cases, employees in the immediate vicinity of the welding or cutting operations must be protected as necessary by local exhaust ventilation or airline respirators.

WAC 296-307-50027 Welding cadmium.

- (1) Welding or cutting indoors or in confined spaces involving cadmium-bearing or cadmium-coated base metals must be done using local exhaust ventilation or airline respirators unless atmospheric tests under the most adverse conditions have established that employee exposure is within the acceptable concentrations defined by chapter [296-62](#) WAC. Outdoors, such operations must be done using respiratory protective equipment such as fume respirators approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH) for such purposes.
- (2) Welding (brazing) involving cadmium-bearing filler metals must be done using ventilation as prescribed in WAC 296-307-50015 or 296-307-50017 if the work is to be done in a confined space.

Note: See chapter 296-62 WAC for additional requirements on cadmium.

WAC 296-307-50029 Welding mercury.

Welding or cutting indoors or in a confined space involving metals coated with mercury-bearing materials, including paint, must be done using local exhaust ventilation or airline respirators unless atmospheric tests under the most adverse conditions have established that employee exposure is within the acceptable concentrations defined by WAC 296-307-62625. Outdoors, such operations must be done using respiratory protective equipment approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH) for such purposes.

PART W
POWERED INDUSTRIAL TRUCKS (FORKLIFTS)

WAC		Page
296-307-520	Powered industrial trucks (forklifts).	1
296-307-52001	Scope.....	1
296-307-52003	Powered industrial truck.....	1
296-307-52005	Manufacturer’s requirements that apply to powered industrial trucks. ..	1
296-307-52007	Classifications of powered industrial trucks.	1
296-307-52009	The employer must consider the following before choosing a powered industrial truck.	2
296-307-52011	Requirements for determining which trucks to use in specific hazardous environments.....	2
296-307-52013	Using converted trucks.	7
296-307-52015	Overhead safety guards.....	7
296-307-52017	Load backrests.	8
296-307-52019	Requirements that apply to fuel handling and storage.....	8
296-307-52021	Lighting for operating areas.....	8
296-307-52023	Carbon monoxide gas is levels.....	8
296-307-52025	Dockboards (bridge plates).....	8
296-307-52027	Loading trucks, trailers, and railroad cars with powered industrial trucks.	9
296-307-52029	Operator training requirements for powered industrial trucks.	9
296-307-52030	Additional (nonmandatory) information that may assist with powered industrial truck operator training.	11
296-307-52031	Operating powered industrial trucks.....	14
296-307-52033	Use of trucks to open or close freight car doors.	15
296-307-52035	Lifting employees on the forks of trucks.	15
296-307-52037	Using platforms for hoisting employees.....	16
296-307-52039	Traveling in a powered industrial truck.	16
296-307-52041	Traveling speeds of powered industrial trucks.....	16
296-307-52043	Loading powered industrial trucks.	17
296-307-52045	Servicing powered industrial trucks.....	17
296-307-52047	Maintaining powered industrial trucks.....	17

WAC 296-307-520 Powered industrial trucks (forklifts).

WAC 296-307-52001 Scope.

WAC 296-307-520 applies to all powered industrial trucks used in agricultural operations.

WAC 296-307-52003 Powered industrial truck.

Powered industrial truck (or truck). A fork truck, industrial tractor, platform lift truck, motorized hand truck, or other specialized industrial trucks, powered by electric motors or internal combustion engines. The definition does not include compressed gas-operated industrial trucks, tractor-mounted forklifts, or vehicles intended primarily for earth moving or over-the-road hauling.

WAC 296-307-52005 Manufacturer's requirements that apply to powered industrial trucks.

- (1) All powered industrial trucks in use by an employer must meet the applicable requirements of design, construction and stability as defined by the American National Standards Institute B56.1-1969, Safety Standards for Powered Industrial Trucks, except for vehicles intended primarily for earth moving or over-the-road hauling. All new powered industrial trucks acquired and used by an employer on or after March 1, 2000, must meet the applicable requirements of design, construction and stability as defined in ASME B56.1-1993. The employer must ensure that all powered industrial trucks are inspected, maintained and operated in accordance with this section and the manufacturer's recommendations and specifications.
- (2) Approved trucks must have a label indicating approval by the testing laboratory as meeting the specifications and requirements of ANSI B56.1-1969.
- (3) Modifications or additions must only be performed with the manufacturer's prior written approval. When modifications or additions are made, capacity, operation, and maintenance instruction plates, tags, or decals must be changed accordingly.
- (4) If the truck is equipped with front-end attachments other than factory installed attachments, it must be marked to identify the attachments and show the approximate weight of the truck and attachment combination at maximum elevation with the load centered from side to side.
- (5) The user must ensure that all nameplates and markings are in place and legible.

WAC 296-307-52007 Classifications of powered industrial trucks.

Powered industrial trucks are identified according to the following classifications:

- (1) **D Classification.** Trucks that are diesel engine powered that have minimum safeguards against inherent fire hazards.

-
- (2) **DS Classification.** Diesel powered trucks that, in addition to meeting all the requirements for the type D trucks, with additional safeguards to the exhaust, fuel, and electrical systems.
 - (3) **DY Classification.** Diesel powered trucks that have all the safeguards of the DS trucks; in addition, any electrical equipment is completely enclosed. They are equipped with temperature limitation features.
 - (4) **E Classification.** Electrically powered trucks with minimum acceptable safeguards against inherent fire hazards.
 - (5) **ES Classification.** Electrically powered trucks that, in addition to all of the requirements for the E trucks, are provided with additional safeguards to the electrical system to prevent emission of hazardous sparks and to limit surface temperatures.
 - (6) **EE Classification.** 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.
 - (7) **EX Classification.** Electrically powered trucks that differ from E, ES, or EE type trucks in that the electrical fittings and equipment are so designed, constructed, and assembled to be used in atmospheres containing flammable vapors or dusts.
 - (8) **G Classification.** Gasoline powered trucks that have minimum acceptable safeguards against inherent fire hazards.
 - (9) **GS Classification.** Gasoline powered trucks with additional safeguards to the exhaust, fuel, and electrical systems.
 - (10) **LP Classification.** Liquefied petroleum gas-powered trucks that have minimum acceptable safeguards against inherent fire hazards.
 - (11) **LPS Classification.** LP-gas powered trucks that in addition to meeting the requirements for LP trucks, are provided with additional safeguards to the exhaust, fuel, and electrical systems.

WAC 296-307-52009 The employer must consider the following before choosing a powered industrial truck.

Before choosing the industrial truck to use, the user must determine whether the atmosphere or location is hazardous or nonhazardous. The type of industrial truck must be chosen according to the requirements of WAC 296-307-52011.

WAC 296-307-52011 Requirements for determining which trucks to use in specific hazardous environments.

Following are the minimum truck types required in specific hazardous environments. The employer may choose to use industrial trucks having greater safeguards. Tables W-1 and W-2 give specific vehicle usage information by Group and Class.

TABLE W-1

Summary Table on Use of Industrial Trucks in Various Locations

CLASSES (Description of classes)	GROUPS (Examples of locations or atmosphere in classes and groups)				DIVISIONS (Nature of hazardous conditions)	
UNCLASSIFIED Locations not possessing atmospheres as described in other columns.	No group designations in Unclassified Piers and wharves inside and outside general storage, general industrial or commercial properties				No divisions in Unclassified	
CLASS I LOCATIONS	A	B	C	D	1	2
Locations in which flammable gases or vapors are, or may be, present in the air in quantities sufficient to produce explosive or ignitable mixtures.	Acetylene	Hydrogen	Ethyl ether	Gasoline Naphtha Alcohols Acetone Lacquer solvent Benzene	Conditions exists continuously, intermittently, or periodically under normal operating conditions.	Condition may occur due to accidentally, for example, due to a puncture of a storage drum.
CLASS II LOCATIONS	E		F	G	1	2

CLASSES (Description of classes)	GROUPS (Examples of locations or atmosphere in classes and groups)			DIVISIONS (Nature of hazardous conditions)	
Locations which are hazardous because of the presence of combustible dust.	Metal dust	Carbon black Coal dust Coke dust	Grain dust Flour dust Starch dust Organic dust	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.
CLASS III LOCATIONS	Class III has no groups			1	2
Locations where easily ignitable fibers or flyings are present but not likely to be in suspension in quantities sufficient to produce ignitable mixtures.	Baled waste, cocoa fiber, cotton, excelsior, hemp, istle, jute, kapok, oakum, sisal, Spanish moss, synthetic fibers, tow.			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).

AUTHORIZED USES OF TRUCKS BY TYPES IN GROUPS OF CLASSES AND DIVISIONS

	UNCLASSIFIED	CLASS I								CLASS II						CLASS III	
		DIV I				DIV II				DIV I			DIV II			DIV I	DIV II
Groups in classes	None	A	B	C	D	A	B	C	D	E	F	G	E	F	G	None	None
<i>Type of truck authorized:</i>																	
<i>Diesel:</i>																	
Type D. . . .	D** . . .	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Type DS. . . .	. . . . .	...	...	...	...	...	...	...	DS. . .	...	...	...	...	...	DS. . .	...	DS
Type DY. . . .	. . . . .	...	...	...	...	...	...	...	DY. . .	...	...	...	...	...	DY. . .	DY. . .	DY
<i>Electric:</i>																	
Type E. . . .	E** . . .	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	E
Type ES. . . .	. . . . .	...	...	...	...	...	...	...	ES. . .	...	...	...	...	...	ES. . .	...	ES
Type EE. . . .	. . . . .	...	...	...	...	...	...	...	EE. . .	...	...	...	...	...	EE. . .	EE. . .	EE
Type EX. . . .	. . . . .	...	...	...	EX. . .	...	...	...	EX. . .	...	EX. . .	EX. . .	...	...	EX. . .	EX. . .	EX
<i>Gasoline:</i>	G** . . .	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	GS

Safety Standards for Agriculture Trucks (Forklifts)

Powered Industrial

	UNCLASSIFIED	CLASS I								CLASS II						CLASS III	
		DIV I				DIV II				DIV I			DIV II			DIV I	DIV II
Groups in classes	None	A	B	C	D	A	B	C	D	E	F	G	E	F	G	None	None
Type G. . . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	GS. . .	. . .	. . .	. . .	. . .	. . .	GS. . .	. . .
Type GS. . . .																	
<i>LP-Gas:</i>																	
Type LP. . . .	LP** . . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Type LPS. . . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	LPS. . .	. . .	. . .	. . .	. . .	. . .	LPS. . .	. . .	LPS

**Trucks conforming to these types may also be used

- (1) Powered industrial trucks are prohibited in atmospheres with a hazardous concentration of:
- (a) Acetaldehyde;
 - (b) Acetylene;
 - (c) Butadiene;
 - (d) Cyclopropane;
 - (e) Diethyl ether;
 - (f) Ethylene;
 - (g) Ethylene oxide;
 - (h) Hydrogen (or gases or vapors equivalent in hazard to hydrogen, such as manufactured gas);
 - (i) Isoprene;
 - (j) Propylene oxide; or
 - (k) Unsymmetrical dimethyl hydrazine (UDMH).
 - (i) Only approved EX trucks, or other trucks approved by the manufacturer, may be used in atmospheres containing hazardous concentrations of metal dust, including:
 - (A) Aluminum, magnesium, and their commercial alloys;
 - (B) Other dusts of similarly hazardous characteristics; or
 - (C) In atmospheres containing:
 - (I) Carbon black;
 - (II) Coal; or
 - (III) Coke dust.
 - (ii) In atmospheres where dust of magnesium, aluminum or aluminum bronze may be present, fuses, switches, motor controllers, and circuit breakers of trucks must have enclosures specifically approved for such locations.
- (2) Only approved EX trucks, or other trucks approved by the manufacturer, may be used in atmospheres containing:
- (a) Acetone;
 - (b) Acrylonitrile;
 - (c) Alcohol;
 - (d) Ammonia;
 - (e) Benzene;

- (f) Bencol;
- (g) Butane;
- (h) Ethylene dichloride;
- (i) Gasoline;
- (j) Hexane;
- (k) Lacquer solvent vapors;
- (l) Naphtha;
- (m) Natural gas;
- (n) Propane;
- (o) Propylene;
- (p) Styrene;
- (q) Vinyl acetate;
- (r) Vinyl chloride; or
- (s) Xylenes;

in quantities sufficient to produce explosive or ignitable mixtures.

- (3) Only approved DY, EE, or EX trucks, or other trucks approved by the manufacturer, may be used in locations where volatile flammable liquids or flammable gases are handled, processed or used, if the hazardous liquids, vapors or gases are normally confined within closed containers or closed systems from which they can escape only in case of accidental rupture or breakdown, or in case of abnormal equipment operation.

Only approved DY, EE, or EX trucks, or other trucks approved by the manufacturer, may also be used in locations in which hazardous concentrations of gases or vapors are normally prevented by mechanical ventilation but that might become hazardous through failure or abnormal operation of the ventilating equipment.

- (4) Only approved DS, ES, GS, or LPS trucks, or other trucks approved by the manufacturer, may be used in locations used for the storage of hazardous liquids in sealed containers or liquefied or compressed gases in containers. This classification includes locations where volatile flammable liquids or flammable gases or vapors are used but are hazardous only in case of an accident or an unusual operation condition.

The quantity of hazardous material that might escape in case of accident, the adequacy of ventilating equipment, the total area involved, and the business's history of explosions or fires are all factors that should be considered in determining which truck has sufficient safeguards for the location.

- (a) Only approved EX trucks, or other trucks approved by the manufacturer, may be used in atmospheres in which combustible dust is or may be suspended in quantities sufficient to produce explosive or ignitable mixtures, or where mechanical failure or abnormal operation of machinery or equipment might cause such mixtures to be produced.

-
- (b) The EX classification, or other trucks approved by the manufacturer as having equal or greater safeguards, usually includes the working areas of:
- (i) Grain handling and storage plants;
 - (ii) Rooms containing grinders or pulverizers;
 - (iii) Cleaners;
 - (iv) Graders;
 - (v) Scalpers;
 - (vi) Open conveyors or spouts;
 - (vii) Open bins or hoppers;
 - (viii) Mixers or blenders;
 - (ix) Automatic or hopper scales;
 - (x) Packing machinery;
 - (xi) Elevator heads and boots;
 - (xii) Stock distributors;
 - (xiii) Dust and stock collectors (except all-metal collectors vented to the outside), and all similar dust producing machinery and equipment in:
 - (A) Grain processing plants;
 - (B) Starch plants;
 - (C) Sugar pulverizing plants;
 - (D) Malting plants;
 - (E) Hay grinding plants, and other similar locations; and
 - (F) Areas where combustible dust may, under normal operating conditions, be present in the air in quantities sufficient to produce explosive or ignitable mixtures.
- (5) Only approved DY, EE, or EX trucks, or other trucks approved by the manufacturer, may be used in atmospheres in which deposits or accumulations of combustible dust may be ignited by arcs or sparks from the truck, if combustible dust will not normally be suspended or thrown into suspension by the normal operation of equipment or apparatus in quantities sufficient to produce explosive or ignitable mixtures.
- (6) Only approved DY, EE, or EX trucks, or other trucks approved by the manufacturer, may be used in locations with easily ignitable fibers or flyings if the fibers or flyings are not likely to be suspended in quantities sufficient to produce ignitable mixtures.
- (7) Only approved DS, DY, ES, EE, EX, GS, or LPS trucks, or other trucks approved by the manufacturer, may be used in locations, including outside storage, where easily ignitable fibers are stored or handled, but are not processed or manufactured. E trucks that have been previously used in these locations may continue to be used.

-
- (8) If storage warehouses and outside storage locations are hazardous, the specified approved truck, or other truck approved by the manufacturer, must be used. If not classified as hazardous, any approved D, E, G, or LP truck, or other truck approved by the manufacturer, may be used, or trucks meeting the requirements for these types may be used.

WAC 296-307-52013 Using converted trucks.

When powered industrial trucks that were originally approved to use gasoline are converted to use LP-gas according to WAC 296-307-52047(12), they may be used in locations where G, GS or LP, and LPS trucks are specified.

WAC 296-307-52015 Overhead safety guards.

- (1) High-lift rider trucks must be fitted with an overhead guard manufactured according to WAC 296-307-52005(1), unless operating conditions do not permit.
- (2) An overhead guard must be used as protection against falling objects.

<p>Note: An overhead guard is intended to offer protection from the impact of small packages, boxes, bagged material, and other objects involved in the job, but not to withstand the impact of a falling capacity load.</p>

WAC 296-307-52017 Load backrests.

- (1) A load backrest extension must be used whenever necessary to minimize the possibility of the load or part of it from falling rearward.
- (2) If the type of load presents a hazard, the user must equip fork trucks with a vertical load backrest extension manufactured according to WAC 296-307-52005(1).

WAC 296-307-52019 Requirements that apply to fuel handling and storage.

- (1) The employer must ensure that liquid fuels such as gasoline and diesel fuel are stored and handled according to NFPA Flammable and Combustible Liquids Code (NFPA No. 30-1996).
- (2) The employer must ensure that LP-gas fuel is stored and handled according to NFPA Storage and Handling of Liquefied Petroleum Gases (NFPA No. 58-1998).

WAC 296-307-52021 Lighting for operating areas.

- (1) Adequate lighting should be provided in operating areas. (See ANSI Practice for Industrial Lighting, (ANSI/IES RP-7 1990.)
- (2) Where general lighting is inadequate, directional lighting must be provided on the truck.

WAC 296-307-52023 Carbon monoxide gas levels.

Concentration levels of carbon monoxide gas created by truck operations must not exceed the levels specified in WAC [296-62-075](#), Part L (general occupational health standards).

Note: Questions concerning degree of concentration and methods of sampling should be referred to a qualified industrial hygienist.

WAC 296-307-52025 Dockboards (bridge plates).

- (1) Portable and powered dockboards must be strong enough to support the load carried on them.
- (2) Portable dockboards must be secured in position, either by anchors or anti-slipping devices.
- (3) Powered dockboards must meet the design and construction requirements of Commercial Standard CS202-56 (1956) "Industrial Lifts and Hinged Loading Ramps" published by the U.S. Department of Commerce.
- (4) Dockboard or bridge plates must be driven over carefully and slowly and their rated capacity never exceeded.
- (5) Portable dockboards must have handholds for safe handling.
- (6) Railroad cars must be kept stationary while dockboards or bridge plates are in position.

WAC 296-307-52027 Loading trucks, trailers, and railroad cars with powered industrial trucks.

- (1) Wheel stops or other positive protection must be provided to prevent railroad cars from moving during loading or unloading.
- (2) Fixed jacks may be necessary to support a semi-trailer and prevent up-ending during loading or unloading if the trailer is not coupled to a tractor.
- (3) Many truck-trailers are equipped with a rear-end protection device to prevent cars from wedging underneath during a collision. These protection devices must be used with equipment that secures the truck-trailer to the loading dock. Wheel chocks are not required under the following conditions:
 - (a) Trucks or trailers are secured to the loading dock with a mechanical system that prevents movement away from the dock during loading, unloading, and boarding.
 - (b) All of the mechanical equipment is installed, maintained, and used as recommended by the manufacturer.
 - (c) Any damaged mechanical equipment is removed from service immediately and is not used to secure trucks and trailers.
- (4) The flooring of trucks, trailers, and railroad cars must be checked for breaks and weakness before use.

WAC 296-307-52029 Operator training requirements for powered industrial trucks.

- (1) **Safe operation.**
 - (a) The employer must ensure that each powered industrial truck operator is trained in

the safe operation of a powered industrial truck, and is competent to operate a powered industrial truck safely.

- (b) Prior to permitting an employee to operate a powered industrial truck (except for training purposes), the employer must ensure that each operator has successfully completed the training required by this section.

(2) **Training program implementation.**

- (a) Trainees may operate a powered industrial truck only under the direct supervision of persons who have the knowledge, training, and experience to train operators and where such operation does not endanger the trainee or other employees.

Note: The employer, or any other qualified person of the employer's choosing, may give required training and evaluation.

- (b) Training must consist of formal instruction and/or practical training, conveyed in a manner that the trainee understands.

Note: Formal instruction may include lecture, discussion, interactive computer learning, video tape and/or written material. Practical training may include demonstrations performed by the trainer and practical exercises performed by the trainee.

(3) **Training program content.** Powered industrial truck operators must receive initial training in the topics that follow, except in topics that the employer can demonstrate are not applicable to safe operation of the truck in the employer's workplace.

- (a) Truck-related topics:
 - (i) Operating instructions, warnings and precautions for the types of truck the operator will be authorized to operate;
 - (ii) Differences between the truck and the automobile;
 - (iii) Truck controls and instrumentation: where they are located, what they do, and how they work;
 - (iv) Engine or motor operation;
 - (v) Steering and maneuvering;
 - (vi) Visibility (including restrictions due to loading);
 - (vii) Fork and attachment adaptation, operation, and use limitations;
 - (viii) Vehicle capacity;
 - (ix) Vehicle stability;
 - (x) Any vehicle inspection and maintenance that the operator will be required to perform;
 - (xi) Refueling and/or charging and recharging of batteries;
 - (xii) Operating limitations;

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- (xiii) Any other operating instructions, warnings, or precautions listed in the operator's manual for the types of vehicle that the employee is being trained to operate.
- (b) Workplace-related topics:
 - (i) Surface conditions where the vehicle will be operated;
 - (ii) Composition of loads to be carried and load stability;
 - (iii) Load manipulation, stacking and unstacking;
 - (iv) Pedestrian traffic in areas where the vehicle will be operated;
 - (v) Narrow aisles and other restricted places where the vehicle will be operated;
 - (vi) Hazardous (classified) locations where the vehicle will be operated;
 - (vii) Ramps and other sloped surfaces that could affect the vehicle's stability;
 - (viii) Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust;
 - (ix) Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation.
- (4) **Retraining.**
- (a) Retraining in relevant topics must be provided to the operator when:
 - (i) The operator has been observed to operate the vehicle in an unsafe manner;
 - (ii) The operator has been involved in an accident or near-miss incident;
 - (iii) The operator has received an evaluation that reveals that the operator is not operating the truck safely;
 - (iv) The operator is assigned to drive a different type of truck; or
 - (v) The condition of the workplace changes in a manner that could affect safe operation of the truck.
 - (b) Retraining must be provided to an operator if three years has elapsed since he or she last received training.
- (5) **Avoidance and duplicative training.** If an operator has previously received training in a topic specified in subsection (3) of this section, and such training is appropriate to the truck and working conditions encountered, additional training in that topic is not required if the operator can provide proof of such training within three years, and the employer can verify operator competency.
- (6) **Recordkeeping.** Employers must keep records showing that each operator has been trained or received retraining as required by this section. These records must include the name of the operator, the date of the training or retraining, and the name of the person(s) giving the training or retraining.
- (7) **Implementation dates.** The employer must ensure that operators of powered industrial trucks are trained, as appropriate, by the effective date of this section. Employees hired

on or after the effective date of this section must be trained and found competent prior to being assigned to operate a powered industrial truck.

- (8) **Nonmandatory guidance.** To assist employers in implementing operator training requirements, a nonmandatory appendix has been added as WAC 296-307-52030. This appendix does not add to, alter, or reduce the requirements of this section.

WAC 296-307-52030 Additional (nonmandatory) information that may assist with powered industrial truck operator training.

- (1) **Definitions.** The following definitions may help to explain the principle of stability:

Center of gravity. The point on an object at which all of the object's weight is concentrated. For symmetrical loads, the center of gravity is at the middle of the load.

Counterweight. The weight that is built into the truck's basic structure and is used to offset the load's weight and to maximize the vehicles resistance to tipping over.

Fulcrum. The truck's axis of rotation when it tips over.

Grade. The slope of a surface, which is usually measured as the number of feet of rise or fall over a hundred foot horizontal distance (the slope is expressed as a percent).

Lateral stability. A truck's resistance to overturning sideways.

Line of action. An imaginary vertical line through an object's center of gravity.

Load center. The horizontal distance from the load's edge (or the fork's or other attachment's vertical face) to the line of action through the load's center of gravity.

Longitudinal stability. The truck's resistance to overturning forward or rearward.

Moment. The product of the object's weight times the distance from a fixed point (usually the fulcrum). In the case of a powered industrial truck, the distance is measured from the point at which the truck will tip over to the object's line of action. The distance is always measured perpendicular to the line of action.

Track. The distance between the wheels on the same axle of the truck.

Wheelbase. The distance between the centerline of the vehicle's front and rear wheels.

- (2) **General.**

- (a) Determining the stability of a powered industrial truck is simple once a few basic principles are understood. There are many factors that contribute to a vehicle's stability: The vehicle's wheelbase, track, and height; the load's weight distribution; and the vehicle's counterweight location (if the vehicle is so equipped).
- (b) The "stability triangle", used in most stability discussions, demonstrates stability simply (see Figures 1 and 2).

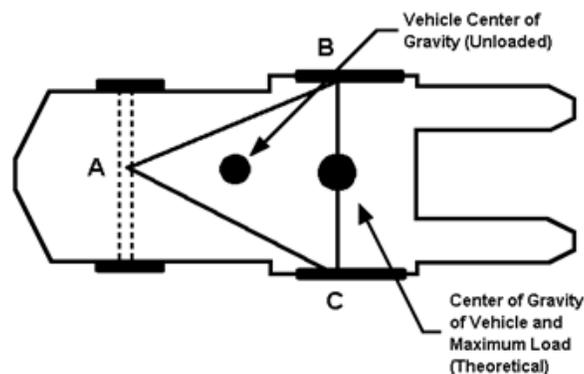
- (3) **Basic principles.**

- (a) Whether an object is stable depends on the object's "moment" (see definitions, this section) at one end of a system being greater than, equal to, or smaller than the object's moment at the system's other end. This principle can be seen in the way a seesaw or teeter-totter works: That is, if the product of the load and distance from

the fulcrum (moment) is equal to the moment at the device's other end, the device is balanced and it will not move. However, if there is a greater moment at one end of the device, the device will try to move downward at the end with the greater moment.

- (b) The longitudinal stability of a counterbalanced powered industrial truck depends on the vehicle's moment and the load's moment. In other words, if the mathematic product of the load-moment (the distance from the front wheels, the approximate point at which the vehicle would tip forward) to the load's center of gravity times the load's weight is less than the vehicle's moment, the system is balanced and will not tip forward. However, if the load's moment is greater than the vehicle's moment, the greater load-moment will force the truck to tip forward.
- (4) The stability triangle.
- (a) Almost all counterbalanced powered industrial trucks have a three-point suspension system, that is, the vehicle is supported at three points. This is true even if the vehicle has four wheels. The truck's steer axle is attached to the truck by a pivot pin in the axle's center. When the points are connected with imaginary lines, this three-point support forms a triangle called the stability triangle. Figure 1 depicts the stability triangle.

Figure 1

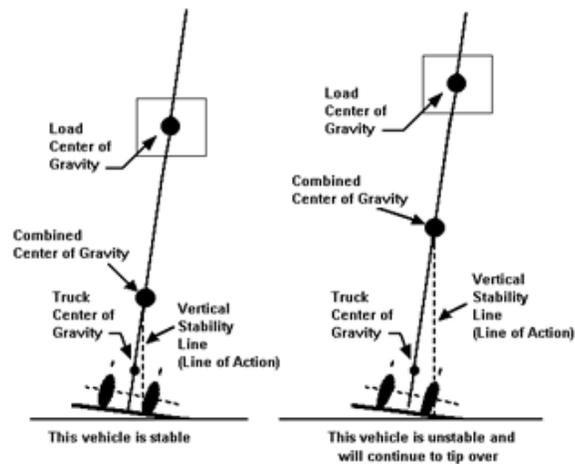


Notes:

1. When the vehicle is loaded, the combined center of gravity shifts toward line B-C. Theoretically, the maximum load will result in the center of gravity at the line B-C. In actual practice, the combined center of gravity should never be at line B-C.
 2. The addition of additional counterweight will cause the truck center of gravity to shift toward point A and result in a truck that is less stable laterally.
- (b) When the vehicle's line of action, or load center, falls within the stability triangle, the vehicle is stable and will not tip over. However, when the vehicle's line of action

or the vehicle/load combination falls outside the stability triangle, the vehicle is unstable and may tip over.

Figure 2



(5) **Longitudinal stability.**

- (a) The axis of rotation when a truck tips forward is the front wheels' points of contact with the pavement. When a powered industrial truck tips forward, the truck will rotate about this line. When a truck is stable, the vehicle-moment must exceed the load-moment. As long as the vehicle-moment is equal to or exceeds the load-moment, the vehicle will not tip over. On the other hand, if the load-moment slightly exceeds the vehicle-moment, the truck will begin to tip forward, thereby causing the rear to lose contact with the floor or ground and resulting in loss of steering control. If the load-moment greatly exceeds the vehicle-moment, the truck will tip forward.
- (b) To determine the maximum safe load-moment, the truck manufacturer normally rates the truck at a maximum load at a given distance from the front face of the forks. The specified distance from the front face of the forks to the line of action of the load is commonly called the load center. Because larger trucks normally handle loads that are physically larger, these vehicles have greater load centers. Trucks with a capacity of 30,000 pounds or less are normally rated at a given load weight at a 24-inch load center. Trucks with a capacity greater than 30,000 pounds are normally rated at a given load weight at a 36- or 48-inch load center. To safely operate the vehicle, the operator should always check the data plate to determine the maximum allowable weight at the rated load center.
- (c) Although the true load-moment distance is measured from the front wheels, this distance is greater than the distance from the front face of the forks. Calculating the maximum allowable load-moment using the load-center distance always provides a lower load-moment than the truck was designed to handle. When handling unusual loads, such as those that are larger than 48 inches long (the center of gravity is

greater than 24 inches) or that have an offset center of gravity, etc., a maximum allowable load-moment should be calculated and used to determine whether a load can be safely handled. For example, if an operator is operating a 3,000-pound capacity truck (with a 24-inch load center), the maximum allowable load-moment is 72,000 inch-pounds (3,000 times 24). If a load is 60 inches long (30-inch load center), then the maximum that this load can weigh is 2,400 pounds (72,000 divided by 30).

(6) Lateral stability.

- (a) The vehicle's lateral stability is determined by the line of action's position (a vertical line that passes through the combined vehicle's and load's center of gravity) relative to the stability triangle. When the vehicle is not loaded, the truck's center of gravity location is the only factor to be considered in determining the truck's stability. As long as the line of action of the combined vehicle's and load's center of gravity falls within the stability triangle, the truck is stable and will not tip over. However, if the line of action falls outside the stability triangle, the truck is not stable and may tip over. Refer to Figure 2.
- (b) Factors that affect the vehicle's lateral stability include the load's placement on the truck, the height of the load above the surface on which the vehicle is operating, and the vehicle's degree of lean.

(7) Dynamic stability.

- (a) Up to this point, the stability of a powered industrial truck has been discussed without considering the dynamic forces that result when the vehicle and load are put into motion. The weight's transfer and the resultant shift in the center of gravity due to the dynamic forces created when the machine is moving, braking, cornering, lifting, tilting, and lowering loads, etc., are important stability considerations.
- (b) When determining whether a load can be safely handled, the operator should exercise extra caution when handling loads that cause the vehicle to approach its maximum design characteristics. For example, if an operator must handle a maximum load, the load should be carried at the lowest position possible, the truck should be accelerated slowly and evenly, and the forks should be tilted forward cautiously. However, no precise rules can be formulated to cover all of these eventualities.

WAC 296-307-52031 Operating powered industrial trucks.

- (1) No operator may drive a truck up to anyone standing in front of a fixed object.
- (2) No one may stand or pass under the elevated portion of any truck, whether loaded or empty.
- (3) Employers must not allow people to ride on powered industrial trucks unless a safe place to ride is provided.

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- (4) Employers must prohibit employees from placing any body parts between the uprights of the mast or outside the running lines of the truck.
 - (5) When an operator leaves a powered industrial truck unattended:
 - (a) The load must be fully lowered;
 - (b) The controls must be neutralized;
 - (c) The power must be shut off; and
 - (d) The brakes must be set.
 - (e) If the truck is parked on an incline, the wheels must be blocked.

A powered industrial truck is "unattended" when the operator is 25 feet or more away from the vehicle, which remains in view, or whenever the operator leaves the vehicle and it is not in view.
 - (6) When a truck operator is dismounted, within 25 feet of the truck, and still in view, the load must be fully lowered, the controls must be neutralized, and the brakes must be set to prevent movement.
 - (7) The operator must maintain a safe distance from the edge of ramps or platforms while operating on any elevated dock, or platform or freight car.
 - (8) There must be enough headroom for trucks to operate under overhead installations, lights, pipes, sprinkler systems, or other overhead projections.
 - (9) An active operator protection restraint device (such as a seatbelt or lap-bar) or system must be used, when provided.

WAC 296-307-52033 Use of trucks to open or close freight car doors.

Trucks may only be used for opening or closing freight car doors with an approved device that meets the following requirements:

- (1) The door opening or closing device requires that the force applied by the device to the door is parallel to the door travel.
- (2) The truck operator is trained in the use of the door opening or closing device and keeps the operation in full view while opening and closing.
- (3) The area is clear of people while the door is moved with a device.

WAC 296-307-52035 Lifting employees on the forks of trucks.

Employees may be lifted on the lifting carriage or forks of a powered industrial truck under the following conditions:

- (1) The truck is equipped with vertical only, or vertical and horizontal controls elevatable with the lifting carriage or forks.
- (2) A safety platform is firmly secured to the lifting carriage and/or forks.
- (3) Employees on the platform have a mechanism to shut off power to the truck.
- (4) Employees on the platform are protected from falling objects according to the operating conditions.

WAC 296-307-52037 Using platforms for hoisting employees.

A platform built specifically for hoisting people may be used to lift employees when:

- (1) The platform is securely attached to the forks and has standard guardrails and toeboards installed on all sides.
- (2) The hydraulic system is designed so that the lift mechanism will not drop faster than 135 feet per minute in the event of a failure in any part of the system. Forklifts used for elevating work platforms are identified as meeting this requirement.
- (3) A safety strap is installed or the control lever is locked to prevent the boom from tilting.
- (4) An operator attends the lift equipment while employees are on the platform.
- (5) The operator is in the normal operating position while raising or lowering the platform.
- (6) The vehicle remains stationary while employees are on the platform.

Exception: Inching or maneuvering at very slow speed is permissible.

- (7) The area between employees on the platform and the mast is adequately guarded to prevent contact with chains or other shear points.

WAC 296-307-52039 Traveling in a powered industrial truck.

- (1) The operator must maintain a safe distance of approximately three truck lengths from the truck ahead. The truck must be kept under control at all times.
- (2) The operator must yield the right of way to ambulances, fire trucks, or other vehicles in emergency situations.
- (3) Passing other trucks traveling in the same direction at intersections, blind spots, or other dangerous locations is prohibited.
- (4) Railroad tracks must be crossed diagonally wherever possible. The operator must not park closer than 8 feet from the center of railroad tracks.
- (5) The operator must look in the direction of, and keep a clear view of, the path of travel.
- (6) Stunt driving and horseplay are prohibited.
- (7) The operator must approach elevators slowly, and then enter squarely after the elevator car is properly leveled. Once on the elevator, the operator must neutralize controls, shut off power, and set the brakes.
- (8) Motorized hand trucks must enter elevator or other confined areas with load end forward.
- (9) The operator must avoid running over loose objects on the roadway surface.
- (10) Access to fire aisles, stairways, and fire equipment must be kept clear.

WAC 296-307-52041 Traveling speeds of powered industrial trucks.

- (1) The operator must observe all traffic regulations, including authorized plant speed limits.

- (2) The operator must slow down and sound the horn at cross aisles and other locations where vision is obstructed. If the load obstructs a forward view, the driver must travel with the load trailing.

Exception: If traveling with the load trailing creates new hazards, it is not required.
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- (3) The operator must ascend and descend grades slowly.
 - (a) At grades over 10 percent, loaded trucks must be driven with the load upgrade.
 - (b) Unloaded trucks should be operated on all grades with the load carrier downgrade.
 - (c) On all grades the load and load carrier must be tilted back if applicable, and raised only as far as necessary to clear the road surface.
- (4) Under all travel conditions, the truck must be operated at a speed that will permit it to be stopped safely.
- (5) The driver must slow down for wet and slippery floors.
- (6) While negotiating turns, the operator must slow to a safe speed and turn the wheel in a smooth, sweeping motion.

WAC 296-307-52043 Loading powered industrial trucks.

- (1) All loads must be stable or safely arranged. Exercise caution when handling off-center loads that cannot be centered.
- (2) All loads must be within the rated capacity of the truck.
- (3) Take care securing, manipulating, positioning, and transporting loads when attachments are used. Trucks with attachments must be operated as partially loaded trucks when not handling a load.
- (4) Place the load carrier under the load as far as possible. Tilt the mast backward to stabilize the load.
- (5) Use extreme care when tilting the load forward or backward, particularly when high tiering. Avoid tilting the load forward with the load carrier elevated except to pick up a load, or when the load is in a deposit position over a rack or stack. When stacking or tiering, use only enough backward tilt to stabilize the load.

WAC 296-307-52045 Servicing powered industrial trucks.

- (1) Powered industrial trucks that need repairs, are defective, or in any way unsafe must be taken out of service until restored to safe operating condition.
- (2) Stop the engine before filling fuel tanks. Avoid spilling fuel.
- (3) When oil or fuel spills, wash the spill away carefully or evaporate the spill completely and replace the fuel tank cap before restarting engine.
- (4) No truck may be operated with a leak in the fuel system.
- (5) Open flames are prohibited for checking electrolyte level in storage batteries or gasoline level in fuel tanks.

WAC 296-307-52047 Maintaining powered industrial trucks.

- (1) Powered industrial trucks must be removed from service when not in safe operating condition. All repairs must be made by an authorized employee.
- (2) No repairs may be made in Class I, II, and III locations.
- (3) When repairs to fuel and ignition systems of industrial trucks involve fire hazards, the repairs must be conducted only in designated locations.
- (4) Trucks in need of repairs to the electrical system must have the battery disconnected prior to repair.
- (5) Industrial truck parts must be replaced only by parts of equivalent safety.
- (6) Industrial trucks must not be altered so that the relative positions of parts are different from when they were manufactured. Industrial trucks must not have parts added or eliminated, except as provided in WAC 296-307-52005. Fork trucks must not have additional counterweighting added unless approved by the truck manufacturer.
- (7) Industrial trucks must be examined at least daily before being placed in service. Industrial trucks must not be placed in service if the examination shows any unsafe condition.

Where industrial trucks are used on a round-the-clock basis, they must be examined after each shift. Defects must be immediately reported and corrected.

- (8) Water mufflers must be filled daily or as frequently as necessary to prevent the water supply from dropping below 75 percent. Vehicles must not be operated if muffler screens or other parts are clogged. Any vehicle that emits hazardous sparks or flames from the exhaust system must immediately be removed from service until the emission of such sparks and flames has been eliminated.
- (9) When the temperature of any part of any truck exceeds its normal operating temperature, the vehicle must be removed from service until the cause for overheating has been eliminated.
- (10) Industrial trucks must be kept clean and free of excess accumulations of combustible materials, oil, and grease. Noncombustible agents should be used for cleaning trucks. Low flash point (below 100°F) solvents must not be used. High flash point (at or above 100°F) solvents may be used. Take precautions regarding toxicity, ventilation, and fire hazard according to the agent or solvent used.
- (11) Industrial trucks originally approved to use gasoline fuel may be converted to use LP-gas fuel if the converted truck has the features specified for LP or LPS designated trucks. The converted equipment must be approved. The employer may find a description of the conversion system and the recommended method of installation in the "listed by report" of a nationally recognized testing laboratory.

PART X
RIM WHEEL SERVICING

WAC		Page
296-307-530	Rim wheel servicing.	1
296-307-53001	Scope.....	1
296-307-53003	Definitions that apply to rim wheel servicing.....	1
296-307-53005	Employee provided training for employees who service rim wheels.	2
296-307-53007	Restraining devices.	3
296-307-53009	Equipment an employer must provide for rim wheel servicing.....	3
296-307-53011	Wheel component assembly.	4
296-307-53013	Safe operating procedures for servicing multipiece rim wheels.....	4
296-307-53015	Safe operating procedures for servicing single-piece rim wheels.....	5
296-307-53017	Ordering the OSHA charts.....	6

WAC 296-307-530 Rim wheel servicing.

WAC 296-307-53001 Scope.

WAC 296-307-530 applies to the servicing of multipiece and single-piece rim wheels used on large vehicles such as trucks, tractors, trailers, buses and off-road machines. It does not apply to servicing rim wheels used on automobiles, or on pickup trucks and vans with automobile tires or truck tires designated "LT."

WAC 296-307-53003 Definitions that apply to rim wheel servicing.

Barrier. A fence, wall, or structure placed between a single-piece rim wheel and an employee during tire inflation, to contain the rim wheel components in the event of the sudden release of the contained air of the single-piece rim wheel.

Charts. The United States Department of Labor, Occupational Safety and Health Administration (OSHA) publications entitled "Demounting and Mounting Procedures for Truck/Bus Tires" and "Multipiece Rim Matching Chart," the National Highway Traffic Safety Administration (NHTSA) publications entitled "Demounting and Mounting Procedures for Truck/Bus Tires" and "Multipiece Rim Matching Chart," or any other poster that contains at least the same instructions, safety precautions and other information contained in the charts that is applicable to the types of wheels being serviced.

Demounting. The opposite of mounting.

Installing a rim wheel. The transfer and attachment of an assembled rim wheel onto a vehicle axle hub.

Mounting a tire. The assembly or putting together of the wheel and tire components to form a rim wheel, including inflation.

Multipiece rim wheel. The assembly of a multipiece wheel with the tire tube and other components.

Multipiece wheel. A vehicle wheel consisting of two or more parts, one of which is a side or locking ring designed to hold the tire on the wheel by interlocking components, when the tire is inflated.

Removing. The opposite of installing.

Restraining device. A cage, rack, assembly of bars, or other components that will constrain all rim wheel components during an explosive separation of a multipiece rim wheel, or during the sudden release of the contained air of a single-piece rim wheel.

Rim manual. A publication containing instructions from the manufacturer or other qualified organization for correct mounting, demounting, maintenance, and safety precautions peculiar to the type of wheel being serviced.

Rim wheel. An assembly of tire, tube and liner (where appropriate), and wheel components.

Service or servicing. The mounting and demounting of rim wheels, and related activities such as inflating, deflating, installing, removing, and handling.

Service area. That part of an employer's premises used for the servicing of rim wheels, or any other place where an employee services rim wheels.

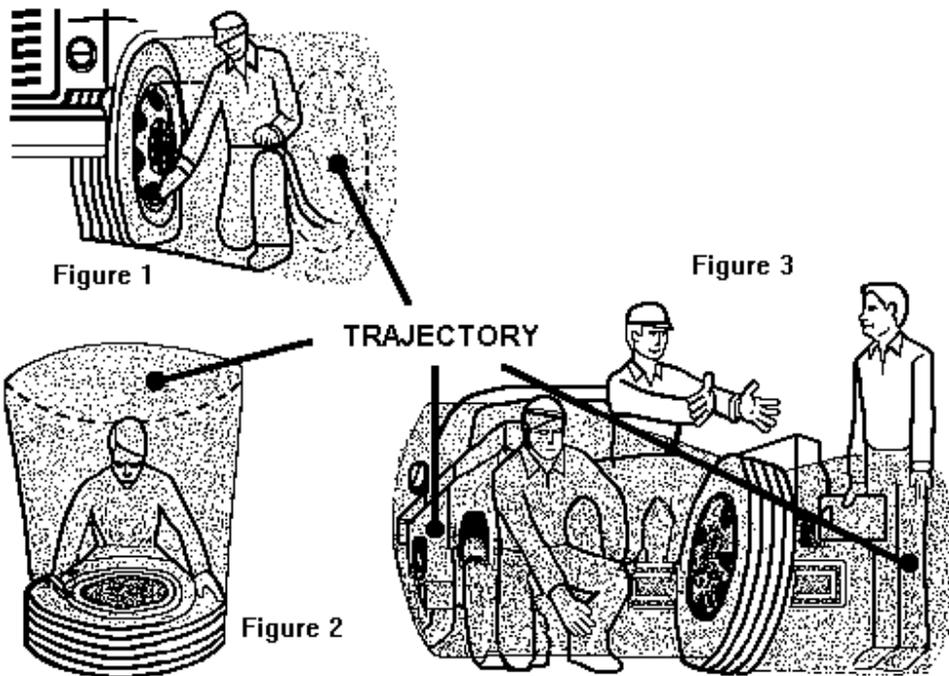
Single-piece rim wheel. The assembly of single-piece rim wheel with the tire and other components.

Single-piece wheel. A vehicle wheel consisting of one part, designed to hold the tire on the wheel when the tire is inflated.

Trajectory:

- (a) Any potential path that a rim wheel component may travel during an explosive separation, or the sudden release of the pressurized air;
- (b) An area at which an air blast from a single-piece rim wheel may be released.

The trajectory may deviate from paths that are perpendicular to the assembled position of the rim wheel. (See Figure for examples of trajectories.)



Wheel. The part of a rim wheel that provides the method of attachment of the assembly to the axle of a vehicle and also provides the means to contain the inflated portion of the assembly (i.e., the tire and/or tube).

WAC 296-307-53005 Employer provided training for employees who service rim wheels.

- (1) The employer must implement a training program that covers at least the following:
 - (a) The hazards involving in servicing rim wheels.
 - (b) The safe operating procedures for the types of wheel serviced, described in WAC 296-307-53013 and 296-307-53015; and
 - (c) The applicable data contained in the charts (rim manuals) and the contents of this standard.
- (2) The employer must ensure that each employee demonstrates and maintains the ability to service rim wheels safely, including the following:
 - (a) Demounting tires (including deflation);
 - (b) Inspecting and identifying the rim wheel components;
 - (c) Mounting tires (including inflation with a restraining device or other safeguard required by this section);
 - (d) Using the restraining device and other equipment required by this section;
 - (e) Handling rim wheels;
 - (f) Inflating the tire when a single-piece rim wheel is mounted on a vehicle;
 - (g) Understanding the necessity of standing outside the trajectory both during inflation of the tire and during inspection of the rim wheel following inflation; and
 - (h) Installing and removing rim wheels.
- (3) If the employer believes that any employee is unable to read and understand the charts or rim manual, the employer must instruct the employee in the contents of the charts and rim manual in a manner that the employee can understand.
- (4) The employer must evaluate each employee's ability to perform these tasks safely, and provide additional training as necessary to ensure that each employee maintains proficiency.

WAC 296-307-53007 Restraining devices.

- (1) The employer must furnish a restraining device for inflating tires on multipiece wheels.
- (2) The employer must provide a restraining device for inflating tires on single-piece wheels unless the rim wheel will be bolted onto a vehicle during inflation.
- (3) Restraining devices must:
 - (a) Withstand the force of a rim wheel separation occurring at 150% of the maximum tire pressure for the rim wheel being serviced.
 - (b) Prevent the rim wheel components from being thrown out of the device.
 - (c) The restraining device is visually inspected before each day's use and after any rim

wheel separation or sudden release of contained air. Any damaged restraining device is immediately removed from service.

- (d) If the restraining device is removed from service, it is not returned to service until repaired and reinspected. If the restraining device requires structural repair, it is not returned to service until certified by either the manufacturer or a registered professional engineer to meet the strength requirements of (a) of this subsection.

WAC 296-307-53009 Equipment an employer must provide for rim wheel servicing.

- (1) The employer must furnish an airline assembly and ensure that employees use it for inflating tire.
- (2) The airline assembly must contain the following components:
 - (a) A clip-on chuck;
 - (b) An in-line valve with a pressure gauge or a presettable regulator; and
 - (c) Enough hose between the clip-on chuck and the in-line valve (if one is used) to allow the employee to stand outside the trajectory.
- (3) Current charts or rim manuals for the types of wheels being serviced must be available in the service area.
- (4) The employer must furnish the tools recommended in the rim manual for the type of wheel being serviced and ensure that they are the only tools used to service rim wheels.

WAC 296-307-53011 Wheel component assembly.

- (1) The employer must ensure that multipiece wheel components are not interchanged except as provided in the charts or rim manual.
- (2) Multipiece wheel components and single-piece wheels must be inspected prior to assembly. Any wheel or wheel component that is bent out of shape, pitted from corrosion, broken, or cracked must not be used. Mark damaged wheels or components "unserviceable" and remove from the service area. Replace damaged or leaky valves.
- (3) Rim flanges, rim gutters, rings, bead seating surfaces and the bead areas of tires must be free of any dirt, surface rust, scale or loose or flaked rubber build-up prior to mounting and inflation.
- (4) The size (bead diameter and tire/wheel widths) and type of both the tire and the wheel must be checked for compatibility before assembly.

WAC 296-307-53013 Safe operating procedures for servicing multipiece rim wheels.

The employer must establish safe operating procedures for servicing multipiece rim wheels, and ensure that employees are instructed in and follow the procedures. The employer's procedures must include at least the following:

- (1) Before demounting, remove the valve core to completely deflate the tire.

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- (2) Remove the valve core to completely deflate the tire before removing a rim wheel from the axle whenever:
 - (a) The tire has been driven on underinflated at eighty percent or less of its recommended pressure; or
 - (b) There is obvious or suspected damage to the tire or wheel components.
 - (3) Apply rubber lubricant to bead and rim mating surfaces during wheel assembly and tire inflation, unless the tire or wheel manufacturer recommends against it.
 - (4) A tire on a vehicle underinflated at more than eighty percent of the recommended pressure may be inflated while the rim wheel is on the vehicle, only if remote control inflation equipment is used and no employees remain in the trajectory during inflation.

Tires may be inflated outside a restraining device only to pressure sufficient to force the tire bead onto the rim ledge and to create an airtight seal with the tire and bead.

- (6) Whenever a rim wheel is in a restraining device, the employee must not rest any part of the body or equipment on the restraining device.
- (7) After tire inflation, inspect the tire and wheel components while still within the restraining device. Ensure that they are properly seated and locked. If further adjustment to the tire or wheel components is necessary, deflate the tire by removing the valve core before making adjustments.
- (8) Never correct the seating of side and lock rings by hammering, striking, or forcing the components while the tire is pressurized.
- (9) Cracked, broken, bent, or otherwise damaged rim components must not be reworked, welded, brazed, or otherwise heated.
- (10) When handling multipiece rim wheels, employees must stay out of the trajectory unless the performance of the servicing makes the employee's presence in the trajectory necessary.
- (11) Do not apply heat to a multipiece wheel or wheel component.

WAC 296-307-53015 Safe operating procedures for servicing single-piece rim wheels.

The employer must establish safe operating procedures for servicing single-piece rim wheels, and ensure that employees are instructed in and follow the procedures. The employer's procedures must include at least the following:

- (1) Before demounting, remove the valve core to completely deflate the tire.
- (2) Mount and demount tires only from the narrow ledge side of the wheel. Take care to avoid damaging the tire beads while mounting. Only mount tires on compatible wheels of matching bead diameter and width.
- (3) Apply nonflammable rubber lubricant to bead and wheel mating surfaces before rim wheel assembly, unless the tire or wheel manufacturer recommends against it.
- (4) When using a tire changing machine, inflate tires only to the minimum pressure necessary to force the tire bead onto the rim ledge while on the tire changing machine.

-
- (5) When using a bead expander, remove the bead expander before the valve core is installed and as soon as the rim wheel becomes airtight (the tire bead slips onto the bead seat).
 - (6) Always inflate tires within a restraining device, positioned behind a barrier, or bolted on the vehicle with the lug nuts fully tightened.
 - (7) Inflate tires only when the trajectory area is clear of flat, solid objects.
 - (8) Employees stay out of the trajectory when inflating a tire.
 - (9) Tires must not be inflated to more than the inflation pressure stamped in the sidewall unless a higher pressure is recommended by the manufacturer.
 - (10) Tires must not be inflated above the maximum pressure recommended by the manufacturer to seat the tire bead firmly against the rim flange.
 - (11) Heat must not be applied to a single-piece wheel.
 - (12) Cracked, broken, bent, or otherwise damaged wheels must not be reworked, welded, brazed, or otherwise heated.

WAC 296-307-53017 Ordering the OSHA charts.

OSHA charts are available through OSHA area offices. The employer may find the address and telephone number of the nearest OSHA office in the local telephone directory under U.S. Government, U.S. Department of Labor, Occupational Safety and Health Administration. Single copies are available without charge.

If the employer wants multiple copies of these charts, the employer may order them from the Publications Office, U.S. Department of Labor, Room N3101, Washington, D.C. 20210.
Telephone: (202) 523-9667.

PART Y-1
EMPLOYER CHEMICAL HAZARD COMMUNICATION

Note: Chapter 296-307 Safety standards for agriculture Part Y-1 Employer chemical hazard communication (WAC 296-307-550 through 296-307-55060) and Part Y-2 Material safety data sheets and label preparation (WAC 296-307-560 through 296-307-59050 have been repealed. Please refer to chapter 296-901 WAC Globally harmonized system for hazard communication.

PART Y-2
MATERIAL SAFETY DATA SHEETS AND LABEL PREPARATION

Note: Chapter 296-307 Safety standards for agriculture Part Y-1 Employer chemical hazard communication (WAC 296-307-550 through 296-307-55060) and Part Y-2 Material safety data sheets and label preparation (WAC 296-307-560 through 296-307-59050 have been repealed. Please refer to chapter [296-901](#) WAC Globally harmonized system for hazard communication.

**PART Y-3
LIGHTING**

WAC		Page
296-307-570	Lighting rule.....	1
296-307-57005	Provide and maintain adequate lighting.	1

WAC 296-307-570 Lighting rule.

Employer responsibility:

To provide and maintain adequate lighting in the workplace.

WAC 296-307-57005 Provide and maintain adequate lighting.

Note: This section establishes minimal levels of lighting for safety purposes only. Guidelines pertaining to optimal levels of lighting and illumination may be found in Practice for Industrial Lighting, ANSI/IES RP7-1979.

- (1) The employer must provide and maintain adequate lighting for all work activities in the workplace. See the following table.

Lighting Table		
	Minimum Acceptable average lighting level in an area:	Any one single measurement used to determine the average lighting level.*cannot be less than:
	(Foot-candles)	(Foot-candles)
Indoor task	10	5
Outdoor task	5	2.5
Nontask activities for both indoor and outdoor	3	1.5

Lighting levels must be measured at thirty inches above the floor/working surface or at the task.

- (2) The employer must have adequate light for employees to see nearby objects that might be potential hazards or to see to operate emergency controls or other equipment, if general lighting is not available.

Notes:

1. Lighting levels can be measured with a light meter.
2. Conversion information: 1 foot candle = 1 lumen incident per square foot = 10.76 lux.

PART Y-4

ENVIRONMENTAL TOBACCO SMOKE IN THE OFFICE

WAC

Page

296-307-590	Environmental tobacco smoke in the office--Summary.	1
296-307-59005	Prohibit tobacco smoke in the office work environment.....	1

WAC 296-307-590 Environmental tobacco smoke in the office-- Summary.

Employer responsibility:

To eliminate exposure to environmental tobacco smoke in the office work environment.

The employer must prohibit tobacco smoke in the office work environment.

Note: This rule does not preempt any federal, state, municipal, or other local authority's regulation of indoor smoking that is more protective than this section.

Definitions:

Office work environment. An indoor or enclosed occupied space where clerical work, administration, or business is carried out.

In addition, it includes:

- a. Other workplace spaces controlled by the employer and used by office workers, such as cafeterias, meeting rooms, and washrooms.
- b. Office areas of manufacturing and production facilities, not including process areas.
- c. Office areas of businesses such as food and beverage establishments, agricultural operations, construction, commercial trade, services, etc.

Smoking. A person is smoking if they are:

- a. Lighting up;
- b. Inhaling;
- c. Exhaling;
- d. Carrying a pipe, cigar or cigarette of any kind that is burning.

Link: For work environments outside the office, contact the local health department using the link: <http://www.seconhandsmokesyou.com> or by calling them directly.

WAC 296-307-59005 Prohibit tobacco smoke in the office work environment.

Exemption: The minimum criteria specified in this rule do not apply to outdoor structures provided for smokers such as gazebos or lean-tos that maintain the twenty five feet distance from entrances, exits, windows that open, and ventilation intakes that serve an enclosed area where smoking is prohibited.

- (1) The employer must prohibit smoking in the office work environment
- (2) The employer must use administrative controls to prevent tobacco smoke from entering the office from outside the building.

- (3) The employer must make sure that outside smoking areas used by their employees are at least twenty-five feet from entrances, exits, windows that open, and ventilation intakes that serve an enclosed area where smoking is prohibited.

PART Y-5 RESPIRATORS

WAC	Page
296-307-594	Scope..... 1
296-307-596	Respirator program administrator..... 2
296-307-59605	Designate a program administrator..... 2
296-307-598	Voluntary respirator use requirements..... 2
296-307-59805	Make sure voluntary use of respirators is safe..... 3
296-307-59810	Keep voluntary use program records. 5
296-307-600	Written respirator program and recordkeeping. 5
296-307-60005	Develop and maintain a written program. 5
296-307-60010	Keep respirator program records. 8
296-307-602	Respirator selection. 8
296-307-60205	Select and provide appropriate respirators..... 8
296-307-604	Medical evaluations. 13
296-307-60405	Provide medical evaluations. 14
296-307-606	Fit testing..... 17
296-307-60605	Conduct fit testing..... 18
296-307-608	Training. 19
296-307-60805	Provide effective training..... 19
296-307-610	Maintenance..... 21
296-307-61005	Maintain respirators in a clean and reliable condition..... 21
296-307-61010	Store respirators properly. 22
296-307-61015	Inspect and repair respirators. 23
296-307-612	Safe use and removal of respirators. 25
296-307-61205	Prevent sealing problems with tight-fitting respirators. 25
296-307-61210	Make sure employees leave the use area before removing respirators.. 25
296-307-614	Standby requirements for immediately dangerous to life or health (IDLH) conditions..... 26
296-307-61405	Provide standby assistance in immediately dangerous to life or health (IDLH) conditions..... 26
296-307-616	Air quality for self-contained breathing apparatus (SCBA) and air-line respirators. 27
296-307-61605	Make sure breathing air and oxygen meet established specifications. ... 27
296-307-61610	Prevent conditions that could create a hazardous breathing air supply. 28
296-307-61615	Make sure compressors do not create a hazardous breathing air supply..... 28
296-307-618	Labeling of air-purifying respirator filters, cartridges, and canisters. ... 30
296-307-61805	Keep labels readable on respirator filters, cartridges, and canisters during use..... 30
296-307-620	Required procedures for respiratory protection program..... 31
296-307-62005	Use this medical questionnaire for medical evaluations..... 31

WAC		Page
296-307-62010	Follow these fit-testing procedures for tight-fitting respirators.	40
296-307-62015	Follow procedures established for cleaning and disinfecting respirators.	77
296-307-62020	Follow procedures established for seal checking respirators.	78
296-307-622	Definitions.	81

WAC 296-307-594 Scope.

This part applies to all use of respirators at work.

Important:

Before the employer decides to use respirators, the employer is required to evaluate respiratory hazards and implement control methods as outlined in WAC 296-307-624 through 296-307-628, Respiratory hazards.

The term “**respiratory hazards**” will be used throughout this part to refer to oxygen deficient conditions and harmful airborne hazards.

Definition:

Respirators. A type of personal protective equipment designed to protect the wearer from respiratory hazards.

The employer can use Table 1 for general guidance on which sections apply.

<i>Table 1 Sections That Apply to the Employer’s Workplace</i>						
If employees...	Then the sections marked with an “X” apply...					
	596	598	600	602-618	620	622
Request and are permitted to voluntarily use filtering-facepiece respirators, and are not exposed to a respiratory hazard		X				X
Request and are permitted to voluntarily use respirators that are not filtering-facepiece respirators, and are not exposed to a respiratory hazard	X	X			X	X
Are required to use any respirator by WISHA or the employer	X		X	X	X	X
Would use an escape respirator in an emergency	X		X	X	X	X

Reference: See WAC 296-307-100, Personal protective equipment (PPE) to find requirements for other types of personal protective equipment (PPE), such as eye, hand, and head protection.

WAC 296-307-596 Respirator program administrator.

Employer responsibility:

To make sure a capable individual is in charge of respirator program development and management.

WAC 296-307-59605 Designate a program administrator.

Exemption: The employer does not need to designate a program administrator if employees use only filtering-facepiece respirators and do so only as voluntary use.

Definition:

Voluntary use. Respirator use that is requested by the employee and permitted by the employer when **NO** respiratory hazard exists.

The employer must designate a program administrator who has overall responsibility for the employer's program and has sufficient training or experience to:

- (1) Oversee program development and coordinate implementation
- (2) Conduct required evaluations of program effectiveness outlined in WAC 296-307-60005.

WAC 296-307-598 Voluntary respirator use requirements.

Employer responsibility:

To make sure voluntary use of respirators by employees does not create job safety or health hazards.

<i>The employer must meet the requirements...</i>	<i>in this section:</i>
Make sure voluntary use of respirators is safe.	WAC 296-307-59805
Keep voluntary use respiratory program records.	WAC 296-307-59810

Important:

1. Respirator use is **NOT** voluntary if a respiratory hazard, such as exposure to a substance over the permissible exposure limit (PEL) or hazardous exposure to an airborne biological hazard, is present.
2. To evaluate respiratory hazards in the employer's workplace, see WAC 296-307-624, Scope.
3. Some requirements in this section do not apply if only filtering-facepiece respirators are used voluntarily. Some filtering-facepiece respirators are equipped with a sorbent layer for absorbing "nuisance" organic vapors. These can be used for voluntary use, but are not NIOSH certified for protection against hazardous concentrations of organic vapor.

WAC 296-307-59805 Make sure voluntary use of respirators is safe.**Definition:**

Voluntary use. Respirator use that is requested by the employee and permitted by the employer when **NO** respiratory hazard exists.

Important: If the employer chooses to require respirator use, use is not voluntary and the required use sections of this part apply.

- (1) The employer must make sure voluntary respirator use does **NOT**:
 - (a) Interfere with an employee's ability to work safely, such as restricting necessary vision or radio communication; or
 - (b) Create health hazards.

Notes: Examples of health hazards include:

1. Skin irritation, dermatitis, or other health effects caused by using a dirty respirator;
2. Illness created by sharing contaminated respirators;
3. Health effects caused by use of an unsafe air supply, such as carbon monoxide poisoning.

- (2) The employer must provide all voluntary respirator users with the advisory information in Table 2 at no cost to them.

Note: If employees are provided the advisory information required in the previous section, WAC 296-307-598, the employer does not need to provide the additional information in Table 2 to those employees.

- (3) The employer must develop and maintain a written program that includes the following:

- (a) Medical evaluation provisions as specified in WAC 296-307-604.
- (b) Procedures to properly clean and disinfect respirators, according to WAC 296-307-62015, if they are reused.
- (c) How to properly store respirators, according to WAC 296-307-61010, so that using them does not create hazards.
- (d) Procedures to make sure there is a safe air supply, according to WAC 296-307-616, when using air-line respirators and SCBAs.
- (e) Training according to WAC 296-307-608 when necessary to ensure respirator use does not create a hazard.

Notes:

1. Pay for medical evaluations, training, travel related costs, and wages. The employer does not need to pay for respirators employees use only voluntarily.
2. If the employer has both voluntary and required respirator users, the employer may choose to treat voluntary users as required users. Doing this exceeds the requirements in this section.

Exemption: If employees use only filtering-facepiece respirators and do so only voluntarily, the employer does not need to develop and maintain a written program.

Use Table 2 to provide information to employees who voluntarily use any type of respirator.

Table 2 Advisory Information for Employees Who Voluntarily Use Respirators	
<ul style="list-style-type: none"> • Respirators protect against airborne hazards when properly selected and used. WISHA recommends voluntary use of respirators when exposure to substances is below WISHA permissible exposure limits (PELs) because respirators can provide employees an additional level of comfort and protection. 	
<ul style="list-style-type: none"> • If the employee chooses to voluntarily use a respirator (whether it is provided by the employee or the employer) be aware that respirators can create hazards for the user. Employees can avoid these hazards if they know how to use the respirator properly and how to keep it clean. Take these steps: 	
<ul style="list-style-type: none"> <ul style="list-style-type: none"> – Read and follow all instructions provided by the manufacturer about use, maintenance (cleaning and care), and warnings regarding the respirator's limitations. 	
Advisory Information for employees Who Voluntarily Use Respirators	

Table 2 Advisory Information for Employees Who Voluntarily Use Respirators	
–	Choose respirators that have been certified for use to protect against the substance of concern. The National Institute for Occupational Safety and Health (NIOSH) certifies respirators. If a respirator is not certified by NIOSH, employees have no guarantee that it meets minimum design and performance standards for workplace use.
	◆ A NIOSH approval label will appear on or in the respirator packaging. It will tell the employee and employer what protection the respirator provides.
–	The employee should keep track of respirator so the employee does not mistakenly use someone else's.
–	Do not wear the respirator into:
	◆ Atmospheres containing hazards that the respirator is not designed to protect against.
	For example, a respirator designed to filter dust particles will not protect against solvent vapor, smoke or oxygen deficiency.
	◆ Situations where respirator use is required.

WAC 296-307-59810 Keep voluntary use program records.

Exemption: If employees use only filtering-facepiece respirators voluntarily, the employer does not need to follow these recordkeeping requirements.

- (1) The employer must keep copies of:
 - (a) The current written respirator program;
 - (b) Written recommendations from the LHCP;
- (2) The employer must allow records required by this section to be examined and copied by affected employees and their representatives.

WAC 296-307-600 Written respirator program and recordkeeping.

Employer responsibility:

To develop, implement, and maintain a written program that provides clear instruction for safe and reliable respirator use.

<i>The employer must meet the requirements...</i>	<i>in this section:</i>
Develop and maintain a written program.	WAC 296-307-60005
Keep respiratory records.	WAC 296-307-60010

WAC 296-307-60005 Develop and maintain a written program.

Exemption: This section does **NOT** apply to respirator use that is voluntary. See WAC 296-307-59805 for voluntary use program requirements.

- (1) The employer must develop a complete worksite-specific written respiratory protection program that includes the applicable elements listed in Table 3.

Note: Pay for respirators, medical evaluations, fit testing, training, maintenance, travel costs, and wages.

- (2) The employer must keep its program current and effective by evaluating it and making corrections. Do ALL of the following:
- (a) Make sure procedures and program specifications are followed and appropriate.
 - (b) Make sure selected respirators continue to be effective in protecting employees. For example, if changes in work area conditions, level of employee exposure, or employee physical stress have occurred, the employer needs to reevaluate respirator selection.
 - (c) Have supervisors periodically monitor employee respirator use to make sure employees are using them properly.
 - (d) Regularly ask employees required to use respirators about their views concerning program effectiveness and whether they have problems with:
 - (i) Respirator fit during use;
 - (ii) Any effects of respirator use on work performance;
 - (iii) Respirators being appropriate for the hazards encountered;
 - (iv) Proper use under current worksite conditions;
 - (v) Proper maintenance.

When developing a written program include applicable elements listed in Table 3.

Table 3 Required Elements for Required-Use Respirator Programs	
•	Selection:
—	Procedures for respirator selection

Table 3 Required Elements for Required-Use Respirator Programs	
–	A list specifying the appropriate respirator for each respiratory hazard in the workplace
–	Procedures for issuing the proper type of respirator, if appropriate
•	Medical evaluation provisions
•	Fit-test provisions and procedures, if tight-fitting respirators are selected
•	Training provisions that address:
–	Respiratory hazards encountered during:
	◆ Routine activities
	◆ Infrequent activities, for example, bimonthly cleaning of equipment
	◆ Reasonably foreseeable emergencies, for example, rescue, spill response, or escape situations
–	Proper use of respirators, for example, how to put on or remove respirators, and use limitations.
<i>Note:</i>	<i>The employer does NOT need to repeat training on respiratory hazards if employees have been trained on this in compliance with other rules such as WAC 296-307-550, employer chemical hazard communication.</i>
•	Respirator use procedures for:
–	Routine activities
–	Infrequent activities
–	Reasonably foreseeable emergencies
•	Maintenance:
–	Procedures and schedules for respirator maintenance covering:
	◆ Cleaning and disinfecting
	◆ Storage
	◆ Inspection and repair
	◆ When to discard respirators
–	A cartridge or canister change schedule if air-purifying respirators are selected for use against gas or vapor contaminants and an end-of-service-life-indicator (ESLI) is not available. In addition, provide:

Table 3 Required Elements for Required-Use Respirator Programs

◆	The data and other information the employer relied on to calculate change schedule values (for example, highest contaminant concentration estimates, duration of employee respirator use, expected maximum humidity levels, user breathing rates, and safety factors)
•	Procedures to ensure a safe air quantity and quality if atmosphere-supplying respirators (air-line or SCBA) are selected
•	Procedures for evaluating program effectiveness on a regular basis

WAC 296-307-60010 Keep respirator program records.

- (1) The employer must keep the following records:
- (a) Current respirator program;
 - (b) Each employee's current fit test record, if fit testing is conducted. Fit test records must include:
 - (i) Employee name;
 - (ii) Test date;
 - (iii) Type of fit-test performed;
 - (iv) Description (type, manufacturer, model, style, and size) of the respirator tested;
 - (v) Results of fit tests, for example, for quantitative fit tests include the overall fit factor and a print out, or other recording of the test.
 - (c) Training records that include employee's names and the dates trained;
 - (d) Written recommendations from the LHCP.
- (2) The employer must allow records required by this section to be examined and copied by affected employees and their representatives.

WAC 296-307-602 Respirator selection.**Employer responsibility:**

To select and provide respirators that are appropriate for the hazard, user, and worksite conditions.

Exemption: This section does **NOT** apply to voluntary respirator use. See WAC 296-307-598 of this part for voluntary use program requirements.

WAC 296-307-60205 Select and provide appropriate respirators.

Important:

See WAC 296-307-624, Scope, for:

1. Hazard evaluation requirements. Evaluation results are necessary for respirator selection.
2. A list of substance-specific rules that may also apply. Those listed rules have additional respirator selection requirements.

The employer must select and provide, at no cost to employees, appropriate respirators for routine use, infrequent use, and reasonably foreseeable emergencies (such as escape, emergency, and spill response situations) by completing the following process:

Respirator Selection Process

Step 1: If the only respirator use is for escape, skip to Step 8 to select appropriate respirators.

Step 2: If the respiratory hazard is a biological aerosol, such as TB (tuberculosis), anthrax, psittacosis (parrot fever), or hanta virus, select a respirator appropriate for nonemergency activities recognized to present a health risk to workers and skip to **Step 8**.

- (a) If respirator use will occur during **emergencies**, skip to **Step 8** and document the analysis used to select the appropriate respirator.
- (b) Use Centers for Disease Control (CDC) selection guidance for exposures to specific biological agents when this guidance exists. Visit <https://www.cdc.gov>.

Step 3: If the respiratory hazard is a pesticide, follow the respirator specification on the pesticide label and skip to **Step 9**.

Step 4: Determine the expected exposure concentration for each respiratory hazard of concern. Use the results from the evaluation required by WAC 296-307-624, Respiratory hazards.

Step 5: Determine if the respiratory hazard is classified as IDLH; if it is not IDLH skip to **Step 7**. The respiratory hazard **IS** classified as IDLH if:

- (a) The atmosphere is oxygen deficient or oxygen enriched; or
- (b) The employer **CANNOT** measure or estimate expected exposure concentration; or
- (c) The measured or estimated expected exposure concentration is greater or equal to the IDLH value in the NIOSH Pocket Guide to Chemical Hazards.

Notes:

1. WISHA uses the IDLH values in the 1990 edition of the NIOSH Pocket Guide to Hazardous Chemicals to determine the existence of IDLH conditions. The employer may use more recent editions of this guide. Visit www.cdc.gov/niosh for more information.
2. If your measured or estimated expected exposure concentration is below NIOSH's IDLH values, proceed to **Step 7**.

Step 6: Select an appropriate respirator from one of the following respirators for IDLH conditions and skip to **Step 8**:

- (a) Full-facepiece, pressure demand, self-contained breathing apparatus (SCBA) certified by NIOSH for a minimum service life of thirty minutes; or
- (b) Full-facepiece, pressure demand air-line respirator equipped with an auxiliary self-contained air supply.

Exception: If the respiratory hazard is oxygen deficiency AND the employer can show oxygen concentrations can be controlled within the ranges listed in Table 4 under **ALL** foreseeable conditions, the employer is allowed to select **ANY** type of SCBA or air-line respirator.

Table 4 Concentration Ranges for Oxygen Deficiency	
Altitude (as ft. above sea level)	Oxygen Concentration Range (as percent oxygen)
Below 3,001	16.0 - 19.5
3,001 - 4,000	16.4 - 19.5
4,001 - 5,000	17.1 - 19.5
5,001 - 6,000	17.8 - 19.5
6,001 - 8,000	19.3 - 19.5
Above 8,000 feet the exception does not apply.	

Step 7: Identify respirator types with assigned protection factors (APFs) from Table 5 that are appropriate to protect employees from the expected exposure concentration.

Step 8: Consider hazards that could require selection of specific respirator types. For example, select full-facepiece respirators to prevent eye irritation or abrasive blasting helmets to provide particle rebound protection.

Step 9: Evaluate user and workplace factors that might compromise respirator performance, reliability or safety.

If the respiratory hazard is a pesticide, follow the requirements on the pesticide label and skip to **Step 11**.

Examples:

- (a) High humidity or temperature extremes in the workplace.
- (b) Necessary voice communication.
- (c) High traffic areas and moving machinery.
- (d) Time or distance for escape.

Step 10: Follow Table 6 requirements to select an air-purifying respirator.

If Table 6 requirements cannot be met, the employer must select an air-line respirator or an SCBA.

Step 11: Make sure respirators the employer selects are certified by the National Institute for Occupational Safety and Health (NIOSH).

To maintain certification, make sure the respirator is used according to cautions and limitations specified on the NIOSH approval label.

Note: While selecting respirators, the employer will need to select a sufficient number of types, models or sizes to provide for fit testing. The employer can also consider other respirator use issues, such as accommodating facial hair with a loose fitting respirator.

Use Table 5 to identify the assigned protection factor for different types of respirators.

Table 5 Assigned Protection Factors (APF) for Respirator Types	
If the respirator is a(n) . . .	Then the APF is . . .
Air-purifying respirator with a:	
• Half-facepiece	10
• Full-facepiece	100
<i>Note: Half-facepiece includes 1/4 masks, filtering facepieces, and elastomeric facepieces.</i>	
Powered air-purifying respirator (PAPR) with a:	
• Loose-fitting facepiece	25
• Half-facepiece	50
• Full-facepiece, equipped with HEPA filters, chemical cartridges or canisters	1000
• Hood or helmet, equipped with HEPA filters, chemical cartridges or canisters	1000
Air-line respirator with a:	
• Half-facepiece and designed to operate in demand mode	10
• Loose-fitting facepiece and designed to operate in continuous flow mode	25
• Half-facepiece and designed to operate in continuous-flow, or pressure-demand mode	50
• Full-facepiece and designed to operate in demand mode	100

Table 5 Assigned Protection Factors (APF) for Respirator Types	
If the respirator is a(n) . . .	Then the APF is . . .
Air-purifying respirator with a:	
<ul style="list-style-type: none"> • Full-facepiece and designed to operate in continuous-flow or pressure-demand mode 	1000
<ul style="list-style-type: none"> • Helmet or hood and designed to operate in continuous-flow mode 	1000
Self-contained breathing apparatus (SCBA) with a tight fitting:	
<ul style="list-style-type: none"> • Half-facepiece and designed to operate in demand mode 	10
<ul style="list-style-type: none"> • Full-facepiece and designed to operate in demand mode 	100
<ul style="list-style-type: none"> • Full-facepiece and designed to operate in pressure-demand mode 	10,000
Combination respirators:	
<ul style="list-style-type: none"> • Find the APF for each type of respirator in the combination. 	The lowest value
<ul style="list-style-type: none"> • Use the lower APF to represent the combination. 	

Use Table 6 to select air-purifying respirators for particle, vapor, or gas contaminants.

Table 6 Requirements for Selecting Any Air-purifying Respirator	
If the contaminant is a . . .	Then . . .
<ul style="list-style-type: none"> • Gas or vapor 	<ul style="list-style-type: none"> • Provide a respirator with canisters or cartridges equipped with a NIOSH-certified, end-of-service-life indicator (ESLI) or • If a canister or cartridge with an ESLI is not available, develop a cartridge change schedule to make sure the canisters or cartridges are replaced before they are no longer effective; or • Select an atmosphere-supplying respirator
<ul style="list-style-type: none"> • Particle, such as a dust, spray, mist, fog, fume, or aerosol 	<ul style="list-style-type: none"> • Select respirators with filters certified to be at least 95% efficient by NIOSH <ul style="list-style-type: none"> – For example, N95s, R99s, P100s, or High Efficiency Particulate Air filters (HEPA); or

Table 6 Requirements for Selecting Any Air-purifying Respirator	
If the contaminant is a . . .	Then . . .
	<ul style="list-style-type: none"> The employer may select respirators NIOSH certified as “dust and mist,” “dust, fume, or mist,” or “pesticides.” The employer can only use these respirators if particles primarily have a mass median aerodynamic diameter of at least two micrometers. <p><i>Note: These respirators are no longer sold for occupational use.</i></p>

WAC 296-307-604 Medical evaluations.

Employer responsibility:

To make sure a respirator used under the employer’s specific worksite conditions is not a health risk to employees.

<p>Exemption: This section does NOT apply to employees who only use:</p> <ol style="list-style-type: none"> 1. Filtering-facepiece respirators voluntarily. See WAC 296-307-598 of this part for voluntary use requirements; or 2. Escape-only respirators that are mouthpiece, loose-fitting, or hooded respirators.
--

<p>Important:</p> <p>Using a respirator can create physical risks for an employee each time it is worn. The extent of these risks depends on these factors:</p> <ol style="list-style-type: none"> 1. Type of respirator; 2. Environmental conditions at the worksite; 3. Physical demands of the work; 4. Use of other protective clothing; 5. Employee's health status.

WAC 296-307-60405 Provide medical evaluations.

<p>Important:</p> <p>If the employer has provided an employee with a medical evaluation addressing respirator use, as required by another chapter, that evaluation will meet the requirements of this section.</p>

The employer must follow the medical evaluation process, Steps 1 through 7 in this section, to provide medical evaluations for employees at no cost to them.

Medical Evaluation Process

Step 1: Identify employees who need medical evaluations and determine the frequency of evaluations from Table 7. Include employees who:

- (a) Are required to use respirators; or
- (b) Voluntarily use respirators that are not filtering-facepiece respirators.

Note: The employer may use a previous employer's medical evaluation for an employee if the employer can:

1. Show the employee's previous work and use conditions were substantially similar to the employer's; and
2. Obtain a copy of the licensed healthcare professional's (LHCP's) written recommendation approving the employee's use of the respirator chosen by you.

Step 2: Identify a licensed healthcare professional (LHCP) to perform the medical evaluations.

Note: If the employer selects a different LHCP, they do not need to have new medical evaluations done.

Step 3: Make sure the LHCP has the following information before the evaluation is completed:

- (a) Information describing the respirators employees may use, including the weight and type.
- (b) How the respirators will be used, including:
 - (i) How often the respirator will be used, for example, daily, or once a month;
 - (ii) The duration of respirator use, for example, a minimum of one hour, or up to twelve hours;
 - (iii) The employee's expected physical work effort;
 - (iv) Additional personal protective clothing and equipment to be worn;
 - (v) Temperature and humidity extremes expected during use.
- (c) A copy of the employer's written respiratory protection program **and** this part.

Notes:

1. The employer may choose to send the questionnaire to the LHCP ahead of time, giving time to review it and add any necessary questions.
2. The LHCP determines what questions to add to the questionnaire, if any; however, questions in Parts 1-3 may not be deleted or substantially altered.

Step 4: Administer the medical questionnaire in WAC 296-307-61605 to employees, or provide them a medical exam that obtains the same information.

Note: The employer may use on-line questionnaires if the questions are the same and requirements of this section are met.

- (a) Administer the examination or questionnaire at no cost to employees:
 - (i) During the employee's normal working hours; or
 - (ii) At a time and place convenient to the employee.
- (b) Maintain employee confidentiality during examination or questionnaire administration:
 - (i) Do **not** view employee's answers on the questionnaire;
 - (ii) Do **not** act in a manner that may be considered a breach of confidentiality.

Note: Providing confidentiality is important for securing successful medical evaluations. It helps make sure the LHCP gets complete and dependable answers on the questionnaire.

- (c) Make sure employees understand the content of the questionnaire.
- (d) Provide the employee with an opportunity to discuss the questionnaire or exam results with the LHCP.

Step 5: Provide follow-up evaluation for employees when:

- (a) The LHCP needs more information to make a final recommendation; or
- (b) An employee gives any positive response to questions 1-8 in Part 2 or to questions 1-6 in Part 3 of the WISHA medical evaluation questionnaire in WAC 296-307-61605.

Note: Follow-up may include:

1. Employee consultation with the LHCP such as a telephone conversation to evaluate positive questionnaire responses;
2. Medical exams;
3. Medical tests or other diagnostic procedures.

Step 6: Obtain a written recommendation from the LHCP that contains only the following medical information:

- (a) Whether or not the employee is medically able to use the respirator;
- (b) Any limitations of respirator use for the employee;
- (c) What future medical evaluations, if any, are needed;
- (d) A statement that the employee has been provided a copy of the written recommendation.

Step 7: Provide a powered, air-purifying respirator (PAPR) when the LHCP determines the employee should not wear a negative-pressure air-purifying respirator **AND** is able to wear a PAPR.

Reference: See WAC 296-307-602 for requirements regarding selection of air-purifying respirators.

Notes:

1. The employer may discontinue medical evaluations for an employee when the employee no longer uses a respirator.
2. If the employer has staff conducting its medical evaluations, they may keep completed questionnaires and findings as confidential medical records, if they are maintained separately from other records.

Use Table 7 to determine medical evaluation frequency.

Table 7 Evaluation Frequency	
Type of Evaluation:	When required:
Initial medical evaluations	<ul style="list-style-type: none"> • Before respirators are fit-tested or used in the workplace.
Subsequent medical evaluations	<ul style="list-style-type: none"> • If any of these occur: <ul style="list-style-type: none"> – The employer’s licensed healthcare professional (LHCP) recommends them; for example, periodic evaluations at specified intervals. – A respirator program administrator or supervisor informs the employer that an employee needs reevaluation. – Medical signs or symptoms (such as breathing difficulties) are: <ul style="list-style-type: none"> ◆ Observed during fit-testing or program evaluation; or ◆ Reported by the employee – Changes in worksite conditions such as physical work effort, personal protective clothing, or temperature that could substantially increase the employee's physiological stress.

WAC 296-307-606 *Fit testing.*

Employer responsibility:

To make sure negative and positive-pressure tight-fitting respirators can provide an adequate fit and acceptable level of comfort to employees.

Exemption: This section does **NOT** apply to any respirators that are:

1. Voluntarily used. See WAC 296-307-598 for voluntary use requirements.
2. Mouthpiece respirators.

Important:

1. Fit testing is an activity where the seal of a respirator is tested to determine if it is adequate.
2. This section covers general **requirements** for fit testing. Fit-testing **procedures** are covered in WAC 296-307-62010 of this part.

WAC 296-307-60605 Conduct fit testing.

- (1) The employer must provide, at no cost to the employee, fit tests for all tight fitting respirators on the following schedule:
 - (a) Before employees are assigned duties that may require the use of respirators;
 - (b) At least every twelve months after initial testing;
 - (c) Whenever any of the following occurs:
 - (i) A different respirator facepiece is chosen such as a different type, model, style, or size;
 - (ii) The employer becomes aware of a physical change in an employee that could affect respirator fit. For example, the employer may observe, or be told about, facial scarring, dental changes, cosmetic surgery, or obvious weight changes;
 - (iii) An employee notifies the employer, or the employer's LHCP, that the respirator fit is unacceptable. During the retest, the employer must give an employee reasonable opportunity to select a different respirator facepiece (size, model, etc.).

Note: The employer may accept a fit test completed by a previous employer **IF:**

1. The employer obtains written documentation of the fit test; and
2. The results of the fit test are not more than twelve months old; and
3. The employee will use the same respirator (the same type, model, style, and size); and
4. The fit test was conducted in a way that meets the requirements of WAC 296-307-606 and 296-307-62010.

-
- (2) The employer must select an appropriate fit-testing procedure from WAC 296-307-62010 of this part **AND**:
- (a) Use quantitative fit-test methods when a negative pressure respirator will be used in concentrations requiring a protection factor greater than 10. This includes:
 - (i) Full facepiece air-purifying respirators;
 - (ii) SCBAs operated in demand (negative pressure) mode;
 - (iii) Air-line respirators operated in demand mode.
 - (b) Make sure PAPRs, SCBAs, or air-line respirators are fit tested in negative-pressure mode.
- (3) The employer must make sure the person conducting fit testing is able to do ALL of the following:
- (a) Prepare test solutions if required;
 - (b) Make sure equipment works properly;
 - (c) Perform tests properly;
 - (d) Recognize invalid tests;
 - (e) Calculate fit factors properly if required.

Notes:

1. No specific training program or certification is required for those who conduct fit tests.
2. The employer should consider evaluating these individuals to determine their proficiency in the fit-testing method to be used.
3. The employer can use an evaluation form such as the form included in the American National Standard for Respirator Fit Testing Methods, ANSI/AIHA Z88.10-2001 to determine if the individual meets these requirements. Visit www.ansi.org or www.aiha.org.

WAC 296-307-608 Training.**Employer responsibility:**

To make sure employees who are required to use respirators understand and can demonstrate proper respirator use and maintenance.

Important:

This section applies to employees who voluntarily use respirators only when training is necessary to prevent the respirator from creating a hazard. See WAC 296-307-598 for voluntary use requirements.

WAC 296-307-60805 Provide effective training.

- (1) The employer must train employees, based on their duties, if they do any of the following:
 - (a) Use respirators;
 - (b) Supervise respirator users;
 - (c) Issue, repair, or adjust respirators.
- (2) The employer must present effective training in a way that employees understand.

Notes:

1. Training may be provided using audiovisuals, slide presentations, formal classroom instruction, informal discussions during safety meetings, training programs conducted by outside sources, or a combination of these methods.
2. The employer may want to have instructors available when using video or automated training methods to:
 - a. Encourage and provide responses to questions for the benefit of employees;
 - b. Evaluate employees' understanding of the material;
 - c. Provide other instructional interaction to employees.

- (3) The employer must make sure a qualified instructor provides training
- (4) The employer must provide training, at no cost to the employee, at these times:
 - (a) Initially, before worksite respirator use begins;
 - (b) Periodically, within twelve months of the previous training;
 - (c) Additionally, when the following occur:
 - (i) The employee has not retained knowledge or skills; or
 - (ii) Changes in the worksite, or type of respirator make previous training incomplete or obsolete.

Notes:

1. The employer may accept an employee's previous training, such as training provided by another employer, to satisfy the initial training requirement if:
 - a. The employer can demonstrate the employee received training within the past twelve months; and
 - b. The employee can demonstrate the knowledge and skills to use required respirators effectively.
2. If the employer accepts an employee's previous training to satisfy the initial training requirement, the employer is still responsible for providing periodic, and additional training when needed. Periodic training would need to be provided within twelve months of the employee's previous training.

- (5) The employer must make sure employees can demonstrate the following knowledge and skills as required by their duties:
- (a) Why the respirator is necessary. Include, for example, information identifying respiratory hazards such as hazardous chemicals, the extent of the employee's exposure, and potential health effects and symptoms;
 - (b) The respirator's capabilities and limitations. Include, for example, how the respirator provides protection and why air-purifying respirators cannot be used in oxygen-deficient conditions;
 - (c) How improper fit, use, or maintenance can compromise the respirator's effectiveness and reliability;
 - (d) How to properly inspect, put on, seal check, use, and remove the respirator;
 - (e) How to clean, disinfect, repair, and store the respirator, or how to get this done by someone else;
 - (f) How to use the respirator effectively in emergency situations; including what to do when a respirator fails and where emergency respirators are stored;
 - (g) Medical signs and symptoms that may limit or prevent the effective use of respirators such as shortness of breath or dizziness;
 - (h) The employer's general obligations under this part. For example, developing a written program, selecting appropriate respirators, and providing medical evaluations.

WAC 296-307-610 Maintenance.

Employer responsibility:

To make sure respirators are maintained so they will function properly and not create health hazards such as skin irritation.

<i>The employer must meet the requirements...</i>	<i>in this section:</i>
Maintain respirators in a clean and reliable condition.	WAC 296-307-61005
Store respirators properly.	WAC 296-307-61010
Inspect and repair respirators.	WAC 296-307-61015

Important:

This section applies to employees who voluntarily use respirators only when maintenance is necessary to prevent the respirator from creating a hazard. See WAC 296-307-598 for voluntary use requirements.

WAC 296-307-61005 Maintain respirators in a clean and reliable condition.

- (1) The employer must make sure respirators are kept, at no cost to the employee, clean, sanitary and in good working order. Do at least the following:

Clean and disinfect respirators as often as specified in Table 8 of this section.

Notes:

1. Use required cleaning and disinfecting procedures in WAC 296-307-62015, or the manufacturer's procedures that:
 - a. Result in a clean and sanitary respirator;
 - b. Do not damage the respirator;
 - c. Do not harm the user.
2. Automated cleaning and disinfecting are permitted;
3. Cleaning and disinfecting may be done by a central facility as long as you make sure respirators provided are clean, sanitary, and function properly.

- (2) The employer must make sure respirators are assembled properly after cleaning or disinfecting.

Use Table 8 to determine how often to clean and disinfect respirators.

Table 8 Required Frequencies for Cleaning and Disinfecting Respirators	
If, the respirator will be ...	Then, clean and disinfect the respirator ...
<ul style="list-style-type: none"> • Used exclusively by one employee 	<ul style="list-style-type: none"> • As often as needed to: <ul style="list-style-type: none"> – Keep it clean and functional AND – To prevent health hazards such as skin irritation
<ul style="list-style-type: none"> • Shared for nonemergency use 	<ul style="list-style-type: none"> • Before it is worn by another employee
OR	

<i>Table 8 Required Frequencies for Cleaning and Disinfecting Respirators</i>	
If, the respirator will be . . .	Then, clean and disinfect the respirator . . .
<ul style="list-style-type: none"> • Used for fit-testing or training 	
<ul style="list-style-type: none"> • Shared for emergency use 	<ul style="list-style-type: none"> • After each use so the respirator is immediately ready for use at all times

WAC 296-307-61010 Store respirators properly.

- (1) The employer must store respirators to protect them from **ALL** of the following:
 - (a) Deformation of the facepiece or exhalation valve;
 - (b) Sunlight or extreme temperatures or other conditions;
 - (c) Contamination such as dust or damaging chemicals;
 - (d) Excessive moisture.

Note: Use coffee cans, sealable plastic bags, or other suitable means of protection.

- (2) The employer must follow these additional requirements for emergency respirators:
 - (a) Keep respirators accessible to the work area;
 - (b) Store respirators in compartments or with covers clearly marked as containing emergency respirators;
 - (c) Follow additional storage instructions from the respirator manufacturer;
 - (d) Store an adequate number of emergency respirators in each area where they may be needed.

Note: Emergency respirators include mouthpiece respirators and other respirators that are limited to escape-only use by their NIOSH certification.

WAC 296-307-61015 Inspect and repair respirators.

- (1) The employer must conduct respirator inspections as often as specified in Table 9.
- (2) The employer must make sure respirator inspections cover **all** of the following:
 - (a) Respirator function;
 - (b) Tightness of connections;
 - (c) The condition of the facepiece, head straps, valves, connecting tubes, and cartridge, canisters or filters;
 - (d) Pliability and deterioration of elastomeric parts;
 - (e) Maintenance of air or oxygen cylinders;
 - (f) Making sure SCBA air cylinders are at ninety percent of the manufacturer's recommended pressure level;
 - (g) Proper functioning of SCBA regulators when air-flow is activated;
 - (h) Proper functioning of SCBA low-pressure warning devices when activated.

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- (3) The employer must certify inspections for emergency respirators by documenting the following:
- (a) Inspection date;
 - (b) Serial number of each respirator or other identifying information;
 - (c) Inspector's name or signature;
 - (d) Inspection findings;
 - (e) Required action, if problems are found.

Note: When documenting inspections the employer may either:

1. Provide the information on a tag or label and attach it to the respirator compartment; or
2. Include the information in an inspection report stored in paper or electronic files accessible to employees.

- (4) The employer must repair or replace any respirator that is not functioning properly **before** the employee returns to a situation where respirators are required.
- (a) If respirators fail inspection or are not functioning properly during use due to problems such as leakage, vapor or gas breakthrough, or increased breathing resistance, ALL of the following apply:
 - (i) Do **NOT** permit such respirators to be used until properly repaired or adjusted;
 - (ii) Use only NIOSH-certified parts;
 - (iii) Make sure repairs and adjustments are made by appropriately trained individuals.
 - (b) Use the manufacturer or a technician trained by the manufacturer to repair or adjust reducing and admission valves, regulators, and warning devices on SCBAs or air-line respirators.
 - (c) Follow the manufacturer's recommendations and specifications for the type and extent of repairs.

Use Table 9 to determine how often to inspect respirators.

Table 9 Required Frequencies for Respirator Inspections	
If the respirator is . . .	Then inspect . . .
A SCBA in any use	<ul style="list-style-type: none"> • Before each use and • During cleaning; or • Monthly if NOT used
Used for nonemergencies, including day-to-day or infrequent use	<ul style="list-style-type: none"> • Inspect before each use; and • During cleaning
Used only for emergencies	<ul style="list-style-type: none"> • Check for proper function before and after each use; and • Inspect at least monthly as instructed by the manufacturer
Used for escape-only purposes	<ul style="list-style-type: none"> • Before carrying into a work place for use

WAC 296-307-612 Safe use and removal of respirators.

Employer responsibility:

To make sure respirator use and removal is safe.

Exemption: These sections do **NOT** apply to employees who voluntarily use any type of respirator. See WAC 296-307-598 for voluntary use requirements.

<i>The employer must meet the requirements...</i>	<i>in this section:</i>
Prevent sealing problems with tight-fitting respirators.	WAC 296-307-61005
Make sure employees leave the use area before removing respirators.	WAC 296-307-61010

WAC 296-307-61205 Prevent sealing problems with tight-fitting respirators.

- (1) The employer must make sure employees use the procedure in WAC 296-307-62020 to perform a user seal check each time they put on their tight-fitting respirator.

- (2) The employer must make sure employees do **NOT** use a respirator if employees have a characteristic that interferes with the respirator facepiece seal or valve function. For example, stubble, moustaches, sideburns, bangs, hairlines, or scars between the face and the sealing surface of the respirator will affect the seal.
- (3) The employer must make sure corrective glasses or personal protective equipment (PPE) do **NOT** interfere with the facepiece seal. Examples of PPE include safety glasses, goggles, faceshields, clothing, and hard hats.

WAC 296-307-61210 Make sure employees leave the use area before removing respirators.

The employer must make sure employees leave the use area for **any** of these reasons:

- (1) To replace air-purifying filters, cartridges, or canisters;
- (2) When they smell or taste (detect) vapor or gas leakage from, for example, cartridges, canister, or the facepiece seal;
- (3) When they detect changes in breathing resistance;
- (4) To readjust their respirators;
- (5) To wash their faces and respirators as necessary to prevent skin or eye irritation;
- (6) If they become ill;
- (7) If they experience sensations of dizziness, nausea, weakness, breathing difficulty, coughing, sneezing, vomiting, fever, or chills.

WAC 296-307-614 Standby requirements for immediately dangerous to life or health (IDLH) conditions.

Employer responsibility:

To provide adequate assistance to employees using respirators in conditions immediately dangerous to life or health (IDLH).

WAC 296-307-61405 Provide standby assistance in immediately dangerous to life or health (IDLH) conditions.

Important:

WISHA currently uses the IDLH values in the 1990 *NIOSH Pocket Guide to Chemical Hazards* to determine the existence of IDLH conditions. The employer may use more recent editions of this guide. Visit <https://www.cdc.gov/niosh> for more information.

- (1) The employer must provide at least two standby employees outside the IDLH area.

Note: The employer need only one standby employee if the IDLH condition is well characterized, will remain stable and the employer can show one employee can adequately do **ALL** of the following:

1. Monitor employees in the IDLH area;
2. Implement communication;
3. Initiate rescue duties.

- (2) The employer must train and equip standby employees to provide effective emergency rescue. Equip them with:
 - (a) A pressure-demand SCBA or a pressure-demand air-line respirator with an auxiliary SCBA, for each standby employee
 - (b) Appropriate retrieval equipment, when it would help with the effective rescue of the entrant, or an equivalent means of rescue
- (3) The employer must make sure standby employees maintain visual, voice, or signal line communication with employees in the IDLH area
- (4) The employer must make sure that in the event of an emergency:
 - (a) Standby employees notify the employer or the employer's designee before they enter the IDLH area to -provide emergency rescue;
 - (b) The employer provides necessary assistance when notified.

WAC 296-307-616 Air quality for self-contained breathing apparatus (SCBA) and air-line respirators.

Employer responsibility:

To provide employees who use SCBAs or air-line respirators with an acceptable air supply.

<i>The employer must meet the requirements...</i>	<i>in this section:</i>
Make sure breathing air and oxygen meet established specifications.	WAC 296-307-61605
Prevent conditions that could create a hazardous breathing air supply.	WAC 296-307-61610
Make sure compressors do not create a hazardous breathing air supply.	WAC 296-307-61615

WAC 296-307-61605 Make sure breathing air and oxygen meet established specifications.

- (1) The employer must make sure that all SCBAs and air-line respirators are provided with safe breathing air and oxygen according to the following:

Compressed breathing air must meet the following specifications for Grade D air:

- (a) Oxygen (volume/volume) within 19.5-23.5%;
- (b) Hydrocarbon (condensed): no more than five milligrams per cubic meter of air;
- (c) Carbon **monoxide** (CO): no more than ten parts per million (ppm);
- (d) Carbon **dioxide** (CO₂): no more than 1,000 ppm;
- (e) No noticeable odor.

Reference: See the American National Standards Institute - Compressed Gas Association Commodity Specification for Air (G-7.1.1989) for more information. Contact your local library to access a copy.

- (2) The employer must make sure the moisture content of the air supplied meets the following:
- (a) Air supplied to respirators from cylinders must **NOT** exceed a dew point of -50°F (or -45.6°C) at 1 atmospheric pressure.
 - (b) Compressor supplied air must not exceed a dew point of 10°F (or 5.56°C) **BELOW** the use temperature at 1 atmospheric pressure.
- (3) The employer must make sure cylinders obtained from a supplier of breathing air must have a certificate of analysis that verifies each cylinder's contents meet Grade D and dew point standards.
- (4) The employer must make sure compressed and liquid oxygen must meet the United States Pharmacopoeia requirements for medical or breathing oxygen.

WAC 296-307-61610 Prevent conditions that could create a hazardous breathing air supply.

- (1) The employer must use SCBA and air-line respirators safely:

Do not supply compressed oxygen to SCBAs or air-line respirators that previously used compressed air.

Note: Compressed air leaves residues containing hydrocarbons such as oil or grease. Fire or explosion can occur if compressed oxygen makes contact with these residues.

- (2) The employer must use breathing air couplings on air-line respirators that are **NOT** compatible with couplings for nonrespirable air or other gas systems, for example, utility air used for manufacturing purposes.

- (3) The employer must **NOT** allow asphyxiating substances to enter breathing air lines; for example, do not flush nitrogen through worksite airlines also used for breathing air.
- (4) The employer must use equipment specifically designed for oxygen service or distribution **IF** oxygen concentrations greater than 23.5% are used.

Note: Respiratory equipment **NOT** designed for oxygen service or distribution can create fire or explosion hazards in oxygen concentrations higher than 23.5%.

- (5) The employer must make sure cylinders used to supply breathing air for SCBAs or air-line respirators are tested and maintained as described in the federal Department of Transportation's (DOT) Shipping Container Specification Regulations, Title 49 CFR Parts 173 and 178.

Notes:

1. Use only cylinders marked (with serial number, cylinder pressure, DOT exemption number, and test dates) according to these DOT regulations
2. To find any Code of Federal Regulations (CFR) visit:
www.access.gpo.gov.

WAC 296-307-61615 Make sure compressors do not create a hazardous breathing air supply.

Important:

1. Ambient-air movers (or pumps) used to supply air to respirators must be used according to the manufacturer's instructions.
2. Respirators used with ambient-air movers must be approved by NIOSH to operate within the pressure ranges of the air mover.

- (1) The employer must locate or modify compressor intakes so they will not pick up contaminated air or exhaust gases such as carbon monoxide from:
 - (a) Fuel-powered vehicles; or
 - (b) The internal combustion motor of the compressor; or
 - (c) Other contaminant sources in the area, for example, a ventilation system discharge.

Notes:

1. The employer may need to reposition or extend the compressor's intake or engine exhaust pipe or outlet, especially if they are located near each other.
2. Be aware that exhaust gases may not adequately disperse when the compressor is operated in:
 - a. An enclosed space such as a small room, a corner, or near a wall; or
 - b. In turbulent wind conditions.

-
- (2) The employer must equip compressors with suitable air-purifying filters, water traps, and sorbents (such as charcoal beds) and maintain them as follows:
- (a) Periodically change or clean them according to the manufacturer or supplier's instructions
 - (b) Keep a tag at the compressor with the following information:
 - (i) When the sorbent and filters were last replaced or cleaned;
 - (ii) The date of the most recent changes or cleaning;
 - (iii) The signature of the person authorized by the employer to perform changes or cleaning.

Note: To be sure the employer is providing the recommended operating pressure for respirators, the employer may need to install a delivery pressure gauge at the point where the manifold respirator hose is attached.

- (3) The employer must make sure the carbon monoxide (CO) level in breathing air from compressors does **NOT** exceed ten parts per million (ppm).

Note: If the employer does not have a reliable CO-free area available for locating compressor intake, consider these examples of methods to prevent CO contamination of the air supply:

1. Use of continuous and effective carbon monoxide alarms and filters;
2. Conduct frequent monitoring of air quality;
3. Use a CO converter (converts CO to carbon dioxide).

- (4) The employer must maintain CO levels in oil lubricated compressors by using at least one of the following:
- (a) An effective CO alarm;
 - (b) An effective high temperature alarm **AND** testing the air supply often enough to see if CO levels exceed ten ppm.

Notes:

1. How often to test depends on a number of considerations, for example:
 - a. Compressor age;
 - b. Maintenance history of the compressor;
 - c. Stability of CO readings.
2. If the CO or high temperature alarm cannot be heard by the employee, a flashing light or other effective alternative to an audio alarm needs to be used;
3. Safeguards, such as alarms, are necessary to prevent CO contamination resulting from compressor overheating;
4. Any type of oil-lubricated compressor, such as screw or piston types, may produce dangerous levels of CO if overheating occurs.
Old compressors are known to leak oil due to worn parts, increasing the possibility for overheating. Newer compressors may also overheat if maintenance practices are poor. For example, poor maintenance practices may lead to disconnected or incorrectly set alarms, inoperative shut-offs, or an impaired cooling system.
5. The employer needs to instruct employees to move to a safe area when the alarm sounds and to stop using respirators.

WAC 296-307-618 Labeling of air-purifying respirator filters, cartridges, and canisters.**Employer responsibility:**

To make sure employees, their supervisors, and program administrators can easily check for the correct air-purifying filters, cartridges, and canisters on respirators.

Exemption: This section does **NOT** apply to filtering-facepiece respirators when used voluntarily. See WAC 296-307-598 for voluntary use requirements.

WAC 296-307-61805 Keep labels readable on respirator filters, cartridges, and canisters during use.

The employer must make sure the NIOSH certification labeling and color-coding on air-purifying respirator filters, cartridges, and canisters remains readable and intact during use.

WAC 296-307-620 Required procedures for respiratory protection program.

Employer responsibility:

To use the procedures and questionnaire provided in this section when implementing a respiratory protection program.

<i>The employer must meet the requirements...</i>	<i>in this section:</i>
Use this medical questionnaire for medical evaluations.	WAC 296-307-62005
Follow these fit-testing procedures for tight-fitting respirators.	WAC 296-307-62010
Follow procedures established for cleaning and disinfecting respirators.	WAC 296-307-62015
Follow procedures established for seal checking respirators.	WAC 296-307-62020

WAC 296-307-62005 Use this medical questionnaire for medical evaluations.

The employer must use the medical questionnaire in Table 10 when conducting medical evaluations.

<p>Note:</p> <ol style="list-style-type: none"> 1. The employer may use a physical exam instead of this questionnaire if the exam covers the same information as the questionnaire. 2. The employer may use on-line questionnaires if the questions are the same and the requirements in WAC 296-307-604 of this part are met. 3. The employer may choose to send the questionnaire to the LCHP ahead of time, giving time to review it and add any necessary questions. 4. The LHCP determines what questions to add to the questionnaire, if any; however, questions in Parts 1-3 may not be deleted or substantially altered.

Table 10 WISHA Medical Evaluation Questionnaire
Employer instructions:
<ul style="list-style-type: none"> The employer may use on-line questionnaires if the requirements in WAC 296-307-60405 are met.
<ul style="list-style-type: none"> The employer must tell the employee how to deliver or send the completed questionnaire to the healthcare provider the employer selected.
<ul style="list-style-type: none"> The employer must NOT view employees' questionnaires.
Healthcare provider's instructions:
<ul style="list-style-type: none"> Review the information in this questionnaire and any additional information provided by the employer.
<ul style="list-style-type: none"> The healthcare provider may add questions to this questionnaire at the discretion of the healthcare provider; HOWEVER, questions in Parts 1-3 may not be deleted or substantially altered.
<ul style="list-style-type: none"> Follow-up evaluation is required for any positive response to questions 1-8 in Part 2, or questions 1-6 in Part 3. This might include: Phone consultations to evaluate positive responses, medical tests, and diagnostic procedures.
<ul style="list-style-type: none"> When the health care provider's evaluation is complete, send a copy of the written recommendation to the employer AND employee.
Employee information and instructions:
<ul style="list-style-type: none"> The employee's employer must allow the employee to answer this questionnaire during normal working hours, or at a time and place that is convenient to the employee.
<ul style="list-style-type: none"> The employee's employer or supervisor must not look at or review the employee's answers at any time.

Part 1 - Employee Background Information**All employees must complete this part****Please print**

1. Today's date:
 2. Your name:
 3. Your age (to nearest year):
 4. Sex (circle one): Male / Female
 5. Your height: ft. in.
 6. Your weight: lbs.
 7. Your job title:
 8. A phone number where you can be reached by the healthcare professional who reviews this questionnaire (include Area Code):
 9. The best time to call you at this number:
 10. Has your employer told you how to contact the healthcare professional who Yes / No
will review this questionnaire?
 11. Check the type of respirator(s) you will be using:
 - a. N, R, or P filtering-facepiece respirator (for example, a dust mask, or an N95 filtering-facepiece respirator).
 - b. Check all that apply.
 - Half mask Full facepiece mask Helmet hood Escape
 - Nonpowered cartridge or canister Powered air-purifying cartridge respirator (PAPR)
 - Supplied-air or Air-line
 - Self-contained breathing apparatus (SCBA): Demand or Pressure demand
 - Other:
 12. Have you previously worn a respirator? Yes / No
- If "yes," describe what type(s):

Part 2 - General Health Information		
All employees must complete this part		
Please circle "Yes" or "No"		
1. Do you <i>currently</i> smoke tobacco, or have you smoked tobacco in the last month?	Yes	No
2. Have you <i>ever had</i> any of the following conditions?		
a. Seizures (fits):	Yes	No
b. Diabetes (sugar disease):	Yes	No
c. Allergic reactions that interfere with your breathing:	Yes	No
d. Claustrophobia (fear of closed-in places):	Yes	No
e. Trouble smelling odors:	Yes	No
3. Have you <i>ever had</i> any of the following pulmonary or lung problems?		
a. Asbestosis:	Yes	No
b. Asthma:	Yes	No
c. Chronic bronchitis:	Yes	No
d. Emphysema:	Yes	No
e. Pneumonia:	Yes	No
f. Tuberculosis:	Yes	No
g. Silicosis:	Yes	No
h. Pneumothorax (collapsed lung):	Yes	No
i. Lung cancer:	Yes	No
j. Broken ribs:	Yes	No
k. Any chest injuries or surgeries:	Yes	No
l. Any other lung problem that you have been told about:	Yes	No
4. Do you <i>currently</i> have any of the following symptoms of pulmonary or lung illness?		
a. Shortness of breath:	Yes	No
b. Shortness of breath when walking fast on level ground or walking up a slight hill or incline:	Yes	No
c. Shortness of breath when walking with other people at an ordinary pace on level ground:	Yes	No
d. Have to stop for breath when walking at your own pace on level ground:	Yes	No
e. Shortness of breath when washing or dressing yourself:	Yes	No

WAC 296-307-62005 (Cont.)

Part 2 - General Health Information (Cont.)		
f. Shortness of breath that interferes with your job:	Yes	No
g. Coughing that produces phlegm (thick sputum):	Yes	No
h. Coughing that wakes you early in the morning:	Yes	No
i. Coughing that occurs mostly when you are lying down:	Yes	No
j. Coughing up blood in the last month:	Yes	No
k. Wheezing:	Yes	No
l. Wheezing that interferes with your job:	Yes	No
m. Chest pain when you breathe deeply:	Yes	No
n. Any other symptoms that you think may be related to lung problems:	Yes	No
5. Have you <i>ever had</i> any of the following cardiovascular or heart problems?	Yes	No
a. Heart attack:	Yes	No
b. Stroke:	Yes	No
c. Angina:	Yes	No
d. Heart failure:	Yes	No
e. Swelling in your legs or feet (not caused by walking):	Yes	No
f. Heart arrhythmia (heart beating irregularly):	Yes	No
g. High blood pressure:	Yes	No
h. Any other heart problem that you have been told about:	Yes	No
6. Have you <i>ever had</i> any of the following cardiovascular or heart symptoms?	Yes	No
a. Frequent pain or tightness in your chest:	Yes	No
b. Pain or tightness in your chest during physical activity:	Yes	No
c. Pain or tightness in your chest that interferes with your job:	Yes	No
d. In the past 2 years, have you noticed your heart skipping or missing a beat:	Yes	No
e. Heartburn or indigestion that is not related to eating:	Yes	No
f. Any other symptoms that you think may be related to heart or circulation problems:	Yes	No
7. Do you <i>currently</i> take medication for any of the following problems?	Yes	No
a. Breathing or lung problems:	Yes	No
b. Heart trouble:	Yes	No
c. Blood pressure:	Yes	No
d. Seizures (fits):	Yes	No
8. If you have used a respirator, have you <i>ever had</i> any of the following problems? (If you have never used a respirator, check the following space and go to question 9):		
a. Eye irritation:	Yes	No
b. Skin allergies or rashes:	Yes	No

Part 2 - General Health Information (Cont.)		
c. Anxiety:	Yes	/ No
d. General weakness or fatigue:	Yes	/ No
e. Any other problem that interferes with your use of a respirator?	Yes	/ No
9. Would you like to talk to the healthcare professional who will review this questionnaire about your answers?	Yes	/ No

Part 3 - Additional Questions for Users of Full-Facepiece Respirators or SCBAs		
Please circle "Yes" or "No"		
1. Have you <i>ever lost</i> vision in either eye (temporarily or permanently)?	Yes	/ No
2. Do you <i>currently</i> have any of these vision problems?		
a. Need to wear contact lenses:	Yes	/ No
b. Need to wear glasses:	Yes	/ No
c. Color blindness:	Yes	/ No
d. Any other eye or vision problem:	Yes	/ No
3. Have you <i>ever had</i> an injury to your ears, including a broken ear drum?	Yes	/ No
4. Do you <i>currently</i> have any of these hearing problems?		
a. Difficulty hearing:	Yes	/ No
b. Need to wear a hearing aid:	Yes	/ No
c. Any other hearing or ear problem:	Yes	/ No
5. Have you <i>ever had</i> a back injury?	Yes	/ No
6. Do you <i>currently</i> have any of the following musculoskeletal problems?		
a. Weakness in any of your arms, hands, legs, or feet:	Yes	/ No
b. Back pain:	Yes	/ No
c. Difficulty fully moving your arms and legs:	Yes	/ No
d. Pain or stiffness when you lean forward or backward at the waist:	Yes	/ No
e. Difficulty fully moving your head up or down:	Yes	/ No
f. Difficulty fully moving your head side to side:	Yes	/ No
g. Difficulty bending at your knees:	Yes	/ No
h. Difficulty squatting to the ground:	Yes	/ No
i. Climbing a flight of stairs or a ladder carrying more than 25 lbs:	Yes	/ No
j. Any other muscle or skeletal problem that interferes with using a respirator:	Yes	/ No

Part 4 - Discretionary Questions		
Complete questions in this part only if your employer's healthcare provider says they are necessary		
1. In your present job, are you working at high altitudes (over 5,000 feet) or in a place that has lower than normal amounts of oxygen?	Yes	No
If "yes," do you have feelings of dizziness, shortness of breath, pounding in your chest, or other symptoms when you are working under these conditions:	Yes	No
2. Have you ever been exposed (at work or home) to hazardous solvents, hazardous airborne chemicals (such as gases, fumes, or dust), or have you come into skin contact with hazardous chemicals?	Yes	No
If "yes," name the chemicals, if you know them:		
3. Have you ever worked with any of the materials, or under any of the conditions, listed below:		
a. Asbestos?	Yes	No
b. Silica (for example, in sandblasting)?	Yes	No
c. Tungsten/cobalt (for example, grinding or welding this material)?	Yes	No
d. Beryllium?	Yes	No
e. Aluminum?	Yes	No
f. Coal (for example, mining)?	Yes	No
g. Iron?	Yes	No
h. Tin?	Yes	No
i. Dusty environments?	Yes	No
j. Any other hazardous exposures?	Yes	No
If "yes," describe these exposures:		
4. List any second jobs or side businesses you have:		
5. List your previous occupations:		
6. List your current and previous hobbies:		
7. Have you been in the military services?	Yes	No
If "yes," were you exposed to biological or chemical agents (either in training or combat)?	Yes	No
8. Have you ever worked on a HAZMAT team?	Yes	No
9. Other than medications for breathing and lung problems, heart trouble, blood pressure, and seizures mentioned earlier in this questionnaire, are you taking any other medications for any reason (including over-the-counter medications)?	Yes	No
If "yes," name the medications if you know them:		
10. Will you be using any of the following items with your respirator(s)?		
a. HEPA filters:	Yes	No
b. Canisters (for example, gas masks):	Yes	No
c. Cartridges:	Yes	No
11. How often are you expected to use the respirator(s)?		
a. Escape-only (no rescue):	Yes	No

Part 4 - Discretionary Questions

Complete questions in this part only if your employer's healthcare provider says they are necessary

b. Emergency rescue only: Yes / No

c. Less than 5 hours *per week*: Yes / No

d. Less than 2 hours *per day*: Yes / No

e. 2 to 4 hours *per day*: Yes / No

f. Over 4 hours *per day*:

12. During the period you are using the respirator(s), is your work effort:

a. *Light* (less than 200 kcal per hour): Yes / No

If "yes," how long does this period last during the average

Shift: hrs. mins.

Examples of a light work effort are sitting while writing, typing, drafting, or performing light assembly work; or standing while operating a drill press (1-3 lbs.) or controlling machines.

b. *Moderate* (200 to 350 kcal per hour): Yes / No

If "yes," how long does this period last during the average

Shift: hrs. mins.

Examples of moderate work effort are sitting while nailing or filing; driving a truck or bus in urban traffic; standing while drilling, nailing, performing assembly work, or transferring a moderate load (about 35 lbs.) at trunk level; walking on a level surface about 2 mph or down a 5-degree grade about 3 mph; or pushing a wheelbarrow with a heavy load (about 100 lbs.) on a level surface.

c. *Heavy* (above 350 kcal per hour): Yes / No

If "yes," how long does this period last during the average

Shift: hrs. mins.

Examples of heavy work are lifting a heavy load (about 50 lbs.) from the floor to your waist or shoulder; working on a loading dock; shoveling; standing while bricklaying or chipping castings; walking up an 8-degree grade about 2 mph; climbing stairs with a heavy load (about 50 lbs.).

13. Will you be wearing protective clothing and/or equipment (other than the respirator) when you are using your respirator? Yes / No

If "yes," describe this protective clothing and/or equipment:

14. Will you be working under hot conditions (temperature exceeding 77°F): Yes / No

15. Will you be working under humid conditions: Yes / No

16. Describe the work you will be doing while using your respirator(s):

17. Describe any special or hazardous conditions you might encounter when you are using your respirator(s) (for example, confined spaces, life-threatening gases):

18. Provide the following information, if you know it, for each toxic substance that you will be exposed to when you are using your respirator(s):

Name of the first toxic substance:

Estimated maximum exposure level per shift:

Duration of exposure per shift:

Name of the second toxic substance:

Part 4 - Discretionary Questions**Complete questions in this part only if your employer's healthcare provider says they are necessary**

Estimated maximum exposure level per shift:

Duration of exposure per shift:

Name of the third toxic substance:

Estimated maximum exposure level per shift:

Duration of exposure per shift:

The name of any other toxic substances that you will be exposed to while using your respirator:

19. Describe any special responsibilities you will have while using your respirator(s) that may affect the safety and well-being of others (for example, rescue, security).

WAC 296-307-62010 Follow these fit-testing procedures for tight-fitting respirators.**Important:**

1. This section contains procedural requirements that apply during actual fit testing.
2. See WAC 296-307-606 of this part for fit-testing requirements that apply to the employer's overall program.

Exemption: This section does **NOT** apply to employees who:

1. Voluntarily use respirators; or
2. Are required to use mouthpiece respirators.

The employer must conduct fit testing according to all of the following:

- (1) Follow the procedure in Table 11 to choose a respirator for fit testing:
 - (a) Prior to conducting fit tests; and
 - (b) Any time an employee must select a different respirator such as when a previously selected respirator fails a test
- (2) Select and follow at least one of the following fit test procedures:
 - (a) Qualitative fit-test procedures:
 - (i) Isoamyl acetate vapor (IAA, banana oil) in Table 12;
 - (ii) Saccharine aerosol in Table 13;
 - (iii) Bitrex™ aerosol in Table 14;
 - (iv) Irritant smoke in Table 15.
 - (b) Quantitative fit-test procedures:
 - (i) Ambient aerosol condensation nuclei counter such as the Portacount™, in Table 16;

- (ii) Controlled negative pressure (CNP) such as the FitTester 3000™, in Table 17;
 - (iii) Generated aerosol in Table 18.
- (3) Make sure employees perform the appropriate fit-test exercises listed in Table 19.
 - (4) Clean and maintain equipment according to the manufacturer's instructions.
 - (5) Make sure during fit testing employees wear any safety equipment that could:
 - (a) Interfere with respirator fit; and
 - (b) Be worn in the workplace. For example, chemical splash goggles.
 - (6) Check, prior to fit testing, for conditions that may interfere with the respirator seal or valve functions. If the employer finds such conditions, do not conduct fit testing for that individual.

Note: Examples of conditions that may interfere with the respirator seal or valve functions include:

1. Moustache, stubble, sideburns, bangs, hairline, and other types of facial hair in areas where the respirator facepiece seals or that interfere with valve function;
2. Temple bars of corrective eyewear or headgear that extend through the face seal area.

Table 11 Procedure for Choosing a Respirator for Fit Testing

1. Inform the employee:	
	<ul style="list-style-type: none"> • To choose the most comfortable respirator that provides an adequate fit
	<ul style="list-style-type: none"> • That each respirator sample represents a different size and, if more than one model is supplied, a different shape
	<ul style="list-style-type: none"> • That if fitted and used properly, the respirator chosen will provide adequate protection
2. Provide a mirror and show the employee how to:	
	<ul style="list-style-type: none"> • Put on the respirator
	<ul style="list-style-type: none"> • Position the respirator on the face
	<ul style="list-style-type: none"> • Set strap tension.
<p><i>Note:</i> This instruction does NOT take the place of the employee's formal training since it is only a review.</p>	

<i>Table 11 Procedure for Choosing a Respirator for Fit Testing</i>	
3. Review with the employee how to check for a comfortable fit around the nose, cheeks and other areas on the face.	
	<ul style="list-style-type: none"> • Tell the employee the respirator should be comfortable while talking or wearing eye protection.
4. Have the employee hold each facepiece against the face, taking enough time to compare the fit of each. The employee can then either:	
	<ul style="list-style-type: none"> • Reject any facepiece that clearly does not feel comfortable or fit adequately
	OR
	<ul style="list-style-type: none"> • Choose which facepiece is most acceptable and which is less acceptable, if any.
<i>Note:</i>	
<ul style="list-style-type: none"> • <i>Supply as many respirator models and sizes as needed to make sure the employee finds a respirator that is acceptable and fits correctly</i> • <i>To save time later, during this step note the more acceptable facepieces in case the one chosen fails the fit test or proves unacceptable later.</i> 	
5. Have the employee wear the most acceptable respirator for AT LEAST 5 minutes to evaluate comfort and fit. Do ALL of the following during this time:	
	<ul style="list-style-type: none"> • Ask the employee to observe and comment about the comfort and fit: <ul style="list-style-type: none"> – Around the nose, cheeks, and other areas on the face – When talking or wearing eye protection
	<ul style="list-style-type: none"> • Have the employee put on the respirator and adjust the straps until they show proficiency
	<ul style="list-style-type: none"> • Evaluate the respirator's general fit by checking: <ul style="list-style-type: none"> – Proper chin placement – Properly tightened straps (do NOT

Table 11 Procedure for Choosing a Respirator for Fit Testing	
	over tighten)
	– Acceptable fit across the nose bridge
	– Respirator size; it must span the distance from nose to chin
	– To see if the respirator stays in position
	<ul style="list-style-type: none"> • Have the employee complete a successful seal check as specified in WAC 296-307-62020 of this chapter
	<ul style="list-style-type: none"> – Prior to the seal check they must settle the respirator on their face by taking a few slow deep breaths WHILE SLOWLY:
	<ul style="list-style-type: none"> ◆ Moving their head from side-to-side
	AND
	<ul style="list-style-type: none"> ◆ Up and down.
6. If the employee finds the respirator unacceptable , allow the employee to select another one and return to Step 5. Otherwise, proceed to Step 7.	
7. Before starting the fit test , you must:	
	<ul style="list-style-type: none"> • Describe the fit test including screening procedures, employee responsibilities, and test exercises
	AND
	<ul style="list-style-type: none"> • Make sure the employee wears the respirator AT LEAST five minutes.

Table 12 Isoamyl Acetate (Banana Oil) Vapor Test Procedure	
Important:	
	<ul style="list-style-type: none"> This is a qualitative fit-test (QLFT) procedure
	<ul style="list-style-type: none"> The success of this test depends on preserving the employee's odor sensitivity to isoamyl acetate (IAA) vapor
	<ul style="list-style-type: none"> – Vapor accumulations in ambient air can decrease odor sensitivity. To prevent this:
	<ul style="list-style-type: none"> ◆ Prepare ALL solutions in a location separate from screening and test areas
	<ul style="list-style-type: none"> ◆ Conduct screening and tests in separate well-ventilated rooms. For example, use an exhaust fan or laboratory hood to prevent IAA vapor from accumulating in the room air
	<ul style="list-style-type: none"> – Always use odor-free water, for example, distilled or spring water that is 25°C (77.°F).
	<ul style="list-style-type: none"> Isoamyl acetate is also known as isopentyl acetate.
Screening Preparations	
Important:	
	Odor threshold screening determines if the employee can detect weak concentrations of IAA vapor.
1. Choose an appropriate location to conduct screening.	
	<ul style="list-style-type: none"> Conduct screening and tests in separate well-ventilated rooms.
2. Prepare a stock solution AT LEAST weekly as follows:	

Table 12 Isoamyl Acetate (Banana Oil) Vapor Test Procedure	
	<ul style="list-style-type: none"> • Add one milliliter (ml) of pure IAA to 800 ml of odor-free water in a one-liter glass jar with a metal lid using a measuring dropper or pipette
	<ul style="list-style-type: none"> • Seal the jar with the lid and shake it for 30 seconds
	<ul style="list-style-type: none"> • Clean the dropper or pipette.
3. Prepare the odor test solution daily as follows:	
	<ul style="list-style-type: none"> • Add 0.4 ml from the stock solution to 500 ml of water in a one liter glass jar with a metal lid using a clean pipette or dropper
	<ul style="list-style-type: none"> • Seal the jar with the lid and shake it for 30 seconds
	<ul style="list-style-type: none"> • Let this solution stand for 2-3 minutes so the IAA concentration above the liquid reaches equilibrium
	<ul style="list-style-type: none"> • Label this jar so you know the contents but the employee cannot know its contents, for example, "1."
<p><i>Note:</i> To maintain the integrity of the test, use labels that peel off easily AND periodically switch the labels.</p>	
4. Prepare a "test blank" solution as follows:	
	<ul style="list-style-type: none"> • Add 500 ml of odor-free water to a one liter glass jar with a metal lid
	<ul style="list-style-type: none"> • Seal the jar
	<ul style="list-style-type: none"> • Label the jar so you know the contents but the employee cannot know its contents.
5. Type or neatly print the following instructions on a card and place it on the table in front of the two test jars:	

Table 12 Isoamyl Acetate (Banana Oil) Vapor Test Procedure	
	<i>“The purpose of this test is to find out if you can smell banana oil at a low concentration. While both jars contain water, one ALSO contains a small amount of banana oil.</i>
	<i>Make sure the lid is secure then pick up a jar and shake it for two seconds. Open the jar and sniff at the opening. Repeat this for the second jar.</i>
	<i>Tell the individual conducting the fit test which jar contains banana oil.”</i>
Test Preparations	
6. Choose an appropriate location to conduct fit testing.	
	<ul style="list-style-type: none"> • Conduct screening and tests in separate well-ventilated rooms.
7. Assemble the fit test enclosure in the room.	
	<ul style="list-style-type: none"> • Invert a clear 55-gallon drum liner over a circular 2-foot diameter frame made of plywood or other lightweight rigid material or construct a similar enclosure using plastic sheeting
	<ul style="list-style-type: none"> • Hang the frame with the plastic covering so the top of the enclosure is about six inches above the employee's head
	<ul style="list-style-type: none"> • Attach a small hook inside top center of the enclosure
	<ul style="list-style-type: none"> • Tape a copy of the test exercises (see Table 28) to the inside of the test enclosure where the employee can read it.
8. Have organic vapor cartridges or equivalent on hand for each employee's chosen respirator.	

Table 12 Isoamyl Acetate (Banana Oil) Vapor Test Procedure	
9. Have ready a 6 x 5-inch piece of paper towel or other porous absorbent single-ply material AND 0.75 ml of pure IAA. Do NOT apply IAA yet.	
<i>Note:</i> <i>As an alternative to using the paper towel, you may use an IAA test swab or ampoule if it has been demonstrated to generate an equivalent test concentration.</i>	
Screening	
10. Have the employee, while NOT wearing a respirator, follow the instructions on the card provided.	
	<ul style="list-style-type: none"> • If the employee correctly identifies the jar containing IAA, proceed to conduct testing (Step 11)
	<ul style="list-style-type: none"> • If the employee is NOT able to correctly identify the jar containing IAA, you must STOP and use a different fit test protocol.
Test	
11. BEFORE entering the fit test room, have the employee attach cartridges, put on, properly adjust, and seal check the respirator. Have the employee enter the test enclosure.	
12. Wet the paper towel with 0.75 ml of pure IAA AND fold it in half.	
13. Pass the paper towel to the employee inside the enclosure AND instruct the employee to hang it on the hook at the top of the enclosure.	
14. Wait two minutes for the IAA vapor to fill the enclosure.	
	<ul style="list-style-type: none"> • While waiting, explain the fit test, including the purpose of the test exercises, the importance of cooperation, and that you must be informed if a banana-like odor is detected during the test
	<ul style="list-style-type: none"> • You may also demonstrate the test exercises.
15. Have the employee perform the appropriate fit-test exercises in Table 19.	
	<ul style="list-style-type: none"> • If the employee does NOT detect IAA while performing test exercises, the fit

Table 12 Isoamyl Acetate (Banana Oil) Vapor Test Procedure	
	test has been PASSED . Proceed as follows:
	<ul style="list-style-type: none"> – BEFORE leaving the enclosure, have the employee break the respirator seal and inhale. If they detect IAA, the test is valid
	<ul style="list-style-type: none"> – When exiting the employee must remove the paper towel and give it to the individual conducting the fit test. This prevents IAA vapor from building up in the enclosure during subsequent tests
	<ul style="list-style-type: none"> – The individual conducting the fit test must keep used paper towels in a self-sealing plastic bag to prevent area contamination
	<ul style="list-style-type: none"> • If the employee detects IAA during any test exercise, the fit test has FAILED. STOP and have the employee do the following:
	<ul style="list-style-type: none"> – Quickly return to the selection room to remove the respirator. This avoids decreasing the employee's odor sensitivity
	<ul style="list-style-type: none"> – Select another respirator
	<ul style="list-style-type: none"> – Repeat screening and testing
	<ul style="list-style-type: none"> ◆ At this stage, if the employee fails the screening part of this procedure, the employee can repeat it AFTER waiting at least five minutes for odor sensitivity to return.

Table 13 Saccharin Aerosol Test Procedure	
Screening Preparations	
Important:	
	<ul style="list-style-type: none"> This is a qualitative fit-test (QLFT) procedure
	<ul style="list-style-type: none"> Taste threshold screening determines whether the employee being tested can detect the taste of saccharin
	<ul style="list-style-type: none"> The employee must NOT eat, smoke, chew gum or drink anything but plain water for at least fifteen minutes BEFORE the fit test. Sweet foods or drink consumed before the test may make the employee unable to detect saccharin during screening
	<ul style="list-style-type: none"> Nebulizers must be thoroughly rinsed in water and shaken dry:
	<ul style="list-style-type: none"> Each morning and afternoon
	OR
	<ul style="list-style-type: none"> At least every four hours.
	<ul style="list-style-type: none"> You may use commercially prepared solutions if they meet the requirements in this procedure.
1. Obtain a test enclosure (hood) that meets the following specifications:	
	<ul style="list-style-type: none"> Twelve inches in diameter by fourteen inches tall
	<ul style="list-style-type: none"> A clear front portion
	<ul style="list-style-type: none"> Enough space inside to allow free movement of the head when a respirator is worn
	<ul style="list-style-type: none"> A 3/4 inch (or 1.9 centimeter) hole to accommodate the nebulizer nozzle. The hole must line up in front of the wearer's

Table 13 Saccharin Aerosol Test Procedure	
nose and mouth.	
<i>Note:</i>	
<ul style="list-style-type: none"> • <i>An enclosure similar to the 3M hood assembly, parts #FT 14 and #FT 15 combined, meets these specifications</i> • <i>This enclosure can also be used for testing.</i> 	
2. Obtain and assemble two clean DeVilbiss Model 40 Inhalation Medication Nebulizers or equivalent.	
3. Prepare the screening solution as follows:	
	<ul style="list-style-type: none"> • Dissolve 83.0 milligrams of sodium saccharin USP in 100 ml of warm distilled water
OR	
	<ul style="list-style-type: none"> • IF you have already prepared the fit-test solution, you can make the screening solution by adding 1 ml of this solution to 100 ml of distilled water.
4. Add about 1 ml of the screening solution to one of the nebulizers.	
	<ul style="list-style-type: none"> • Mark this nebulizer to distinguish it from the one to be used for fit testing.
Test Preparations	
5. Prepare the fit-test solution as follows:	
	<ul style="list-style-type: none"> • Add 83.0 grams of sodium saccharin to 100 ml of warm water.
6. Add about 1 ml of the test solution to the second nebulizer.	
	<ul style="list-style-type: none"> • Mark this nebulizer to distinguish it from the one used for screening
7. Have particulate filters ready for the employee's chosen respirator or have filtering-facepiece respirators ready.	
Screening	
8. Have the employee, while NOT wearing a respirator, put on the test enclosure.	
9. Instruct the employee to:	

Table 13 Saccharin Aerosol Test Procedure	
	<ul style="list-style-type: none"> Breath through a slightly open mouth with tongue extended during screening AND testing
	<ul style="list-style-type: none"> Immediately report when a sweet taste is detected.
10. Insert the nebulizer into the front hole of the test enclosure AND administer saccharin as follows:	
	<ul style="list-style-type: none"> Direct the nozzle away from the employee's nose and mouth
	<ul style="list-style-type: none"> Complete 10 squeezes in rapid succession
	<ul style="list-style-type: none"> Each time firmly squeeze the bulb so it collapses completely, then release and allow it to fully expand.
11. Ask the employee if a sweet taste is detected.	
	<ul style="list-style-type: none"> If YES, screening is completed. Proceed to conduct testing, Step 14, AFTER you:
	<ul style="list-style-type: none"> – Ask the employee to remember the taste for reference during the fit test
	<ul style="list-style-type: none"> – Note the employee's taste threshold as "10" regardless of the number of squeezes actually completed
	<ul style="list-style-type: none"> If NO, screening must continue. Proceed to Step 12.
12. Repeat with 10 more squeezes. Then follow Step 11 again; EXCEPT this time note the employee's taste threshold as "20" IF a sweet taste is reported.	
	<ul style="list-style-type: none"> If a sweet taste is still NOT detected, repeat with 10 more squeezes and follow Step 11 one last time; EXCEPT this time note "30" for the taste threshold if a sweet taste is reported.

Table 13 Saccharin Aerosol Test Procedure	
13. If NO sweet taste is reported after 30 squeezes, you must STOP and choose a different fit-test protocol for the employee.	
Test	
Important:	
	<ul style="list-style-type: none"> Periodically check nebulizers to make sure they do not clog during use. A test is NOT valid if the nebulizer is clogged at the end of the test.
14. Have the employee attach particulate filters, put on, properly adjust, and seal check the respirator. Have the employee put on the test enclosure (hood).	
15. Instruct the employee to immediately report if a sweet taste is detected.	
16. Insert the nebulizer into the front hole of the test enclosure AND administer the same number of squeezes, either 10, 20, or 30, as noted during screening.	
17. Have the employee perform the appropriate fit-test exercises as described in Table 19. During this step:	
	<ul style="list-style-type: none"> Replenish the aerosol in the hood EVERY 30 seconds using 1/2 the number of squeezes used in Step 16, either 5, 10, or 15
	<ul style="list-style-type: none"> The employee must report if a sweet taste is detected: <ul style="list-style-type: none"> If NO saccharin is tasted, the test has been PASSED If saccharin is tasted the test has FAILED, have the employee select another respirator
AND	
	<ul style="list-style-type: none"> Repeat screening and testing.

Table 14 Bitrex™ Aerosol Test Procedure	
Important:	
	<ul style="list-style-type: none"> This is a qualitative fit-test (QLFT) procedure
	<ul style="list-style-type: none"> Bitrex™ (denatonium benzoate) is routinely used as a taste aversion agent in household liquids that children should not drink and is endorsed by the American Medical Association, the National Safety Council, and the American Association of Poison Control Centers
	<ul style="list-style-type: none"> The employee must NOT eat, smoke, chew gum or drink anything but plain water for at least fifteen minutes BEFORE the fit test.
Screening Preparations	
Important!	
	<ul style="list-style-type: none"> Taste threshold screening determines whether the employee being tested can detect the taste of Bitrex™
	<ul style="list-style-type: none"> Nebulizers must be thoroughly rinsed in water and shaken dry: <ul style="list-style-type: none"> – Each morning and afternoon
OR	
	<ul style="list-style-type: none"> – At least every four hours.
	<ul style="list-style-type: none"> You may use commercially prepared solutions if they meet the requirements in this procedure.
1. Obtain a test enclosure that meets the following specifications:	
	<ul style="list-style-type: none"> Twelve inches in diameter by fourteen inches tall
	<ul style="list-style-type: none"> A clear front portion
	<ul style="list-style-type: none"> Enough space inside the front to allow free movement of the head when a

Table 14 Bitrex™ Aerosol Test Procedure	
	respirator is worn
	<ul style="list-style-type: none"> • 3/4 inch (or 1.9 centimeter) hole to accommodate the nebulizer nozzle. The hole must line up in front of the wearer's nose and mouth.
	<p><i>Note:</i></p> <ul style="list-style-type: none"> • <i>An enclosure similar to the 3M hood assembly, parts #FT 14 and #FT 15 combined, meets these specifications</i> • <i>This enclosure can also be used for testing.</i>
2. Obtain and assemble two clean DeVilbiss Model 40 Inhalation Medication Nebulizers or equivalent:	
3. Prepare the screening solution as follows:	
	<ul style="list-style-type: none"> • Make up a 5% salt solution by dissolving 5.0 grams of salt (sodium chloride) into 100 ml of distilled water
	<ul style="list-style-type: none"> • Dissolve 13.5 milligrams of Bitrex™ in the salt solution.
4. Add about 1 ml of the screening solution to one of the nebulizers.	
	<ul style="list-style-type: none"> • Mark this nebulizer to distinguish it from the one to be used for fit testing.
Test Preparations	
5. Prepare the fit test solution.	
	<ul style="list-style-type: none"> • Dissolve 10.0 grams of salt (sodium chloride) into 200 ml of distilled water
	<ul style="list-style-type: none"> • Add 337.5 milligrams of Bitrex™ to the warmed salt solution.
6. Add about 1 ml of the test solution to the second nebulizer.	
	<ul style="list-style-type: none"> • Mark this nebulizer to distinguish it from the one used for screening.

Table 14 Bitrex™ Aerosol Test Procedure	
7. Have particulate filters ready for the employee's chosen respirator or have filtering-facepiece respirators ready.	
Screening	
Important: The employee must NOT eat, smoke, chew gum or drink anything but plain water for at least fifteen minutes BEFORE the screening and test	
8. Have the employee, while not wearing a respirator, put on the test enclosure.	
9. Instruct the employee to:	
	<ul style="list-style-type: none"> Breath through a slightly opened mouth with tongue extended during screening AND testing
	<ul style="list-style-type: none"> Immediately report when a bitter taste is detected.
10. Insert the nebulizer into the front hole of the test enclosure AND administer Bitrex™ as follows:	
	<ul style="list-style-type: none"> Direct the nozzle away from the employee's nose and mouth
	<ul style="list-style-type: none"> Complete 10 squeezes in rapid succession
	<ul style="list-style-type: none"> Each time firmly squeeze the bulb so it collapses completely, then release and allow it to fully expand.
11 Ask the employee whether a bitter taste is detected.	
	<ul style="list-style-type: none"> If YES, screening is completed. Proceed to conduct testing, Step 14, AFTER you: <ul style="list-style-type: none"> – Ask the employee to remember the taste for reference during the fit test – Note the employee's taste threshold as "10," regardless of the number of squeezes actually completed
	<ul style="list-style-type: none"> IF no, screening must continue. Proceed to Step 12.
12. Repeat with 10 more squeezes. Then follow Step 11 again; EXCEPT this time note the employee's taste threshold as "20" IF a bitter taste is reported.	

Table 14 Bitrex™ Aerosol Test Procedure	
	<ul style="list-style-type: none"> If a bitter taste is still NOT detected repeat with 10 more squeezes and follow Step 11 one last time; EXCEPT this time note “30” for the taste threshold if a bitter taste is reported.
13. If NO bitter taste is reported after 30 squeezes, you must STOP and choose a different fit-test protocol for the employee.	
Test	
14. Have the employee attach particulate filters, put on, properly adjust, and seal check the respirator. Have the employee put on the test enclosure.	
15. Instruct the employee to:	
	<ul style="list-style-type: none"> Breathe through a slightly opened mouth with tongue extended during screening and testing
	<ul style="list-style-type: none"> Immediately report when a bitter taste is detected.
16. Insert the nebulizer into the front hole of the test enclosure AND administer the same number of squeezes, either 10, 20, or 30, as noted during screening.	
17. Have the employee perform the appropriate fit-test exercises as described in Table 19. During this step:	
	<ul style="list-style-type: none"> Replenish the aerosol in the hood EVERY 30 seconds using 1/2 the number of squeezes used in Step 16, either 5, 10, or 15
	<ul style="list-style-type: none"> The employee must report if a bitter taste is detected:
	<ul style="list-style-type: none"> – If NO Bitrex™ is tasted, the test has been PASSED
	<ul style="list-style-type: none"> – If Bitrex™ is tasted the test has FAILED. Have the employee:
	<ul style="list-style-type: none"> ◆ Select another respirator
AND	
	<ul style="list-style-type: none"> ◆ Repeat all screening and testing steps.

Table 15 Irritant Smoke (Stannic Chloride) Test Procedure	
Important:	
<ul style="list-style-type: none"> • DO NOT USE A TEST ENCLOSURE OR HOOD FOR THIS FIT TEST! 	
<ul style="list-style-type: none"> • This is a qualitative fit-test (QLFT) procedure 	
<ul style="list-style-type: none"> • During this test an employee is exposed to irritating smoke containing hydrochloric acid produced by a stannic chloride ventilation smoke tube to detect leakage. The smoke will irritate eyes, lungs, and nasal passages 	
<ul style="list-style-type: none"> • Employee sensitivity varies, and certain employees may respond more intensely than others exposed to irritant smoke. The individual conducting the fit test must take precautions to minimize the employees' exposure to irritant smoke 	
<ul style="list-style-type: none"> • Conduct fit testing in an area with adequate ventilation to prevent exposure of the individual conducting the fit test and build-up of irritant smoke in the ambient air. 	
Screening and Test Preparations	
Important:	
<p>Sensitivity screening is necessary to determine whether the employee can detect a weak concentration of irritant smoke AND whether any gross facepiece leakage is detected.</p>	
<p>1. Obtain only stannic chloride (ventilation) smoke tubes, AND an aspirator squeeze bulb OR use a low-flow air pump set to deliver 200 milliliters of air flow per minute.</p>	
<p>2. Equip the employee's chosen respirator with P100 series filters if a negative pressure air-purifying respirator will be tested. If a powered air-purifying respirator (PAPR) will be tested equip the respirator with high-efficiency particulate air (HEPA) filters.</p>	

Table 15 Irritant Smoke (Stannic Chloride) Test Procedure	
Screening	
Important:	
When performing sensitivity screening checks use only the MINIMUM amount of smoke necessary to elicit a response from the employee.	
3. Advise the employee that the smoke can be irritating to eyes, lungs, and nasal passages AND instruct the employee to keep eyes closed while exposed.	
4. Break both ends of the ventilation smoke tube AND fit a short piece of plastic tubing, for example, two-to-six inches of tygon tubing, over one end to prevent exposure to the sharp end of the tube. Connect the other end to an aspirator bulb or a low-flow air pump set to deliver a flow of 200 ml per minute.	
5. While the employee is NOT wearing a respirator, have the employee smell a weak concentration of irritant smoke to become familiar with its irritating properties.	
<ul style="list-style-type: none"> • Carefully direct a small amount of irritant smoke toward the employee. 	
Test	
Test 6. Have the employee attach respirator filters, put on, adjust, and seal check the respirator without assistance. The employee must be proficient at these tasks.	
7. Remind the employee to keep eyes closed during testing.	
8. Direct a stream of irritant smoke toward the respirator's face seal area as follows:	
<ul style="list-style-type: none"> • Begin at least 12 inches from the facepiece AND move the smoke around the whole perimeter of the mask 	
<ul style="list-style-type: none"> • Gradually make two more passes around the perimeter of the facepiece, moving to within 6 inches of the respirator 	
<ul style="list-style-type: none"> • STOP at any time the employee detects smoke in the facepiece. If this occurs a different respirator will need to be 	

<i>Table 15 Irritant Smoke (Stannic Chloride) Test Procedure</i>	
	chosen and tested, beginning with sensitivity screening.
9. Have the employee perform appropriate fit-test exercises in Table 19 IF the employee has NOT had an involuntary response such as evidence of coughing, flinching, or other response, OR detected smoke in the facepiece.	
	<ul style="list-style-type: none"> • Continue to direct smoke from a distance of 6 inches around the facepiece perimeter
	<ul style="list-style-type: none"> – If smoke is detected at any time the test has FAILED. A different respirator must be chosen and tested, starting with sensitivity screening –
	<ul style="list-style-type: none"> – If NO smoke is detected proceed to Step 10.
10. Have the employee remove the respirator AND perform another sensitivity screening check as follows:	
	<ul style="list-style-type: none"> • Continue to use the smoke tube used for fit testing
	<ul style="list-style-type: none"> • Carefully direct a SMALL amount of irritant smoke toward the employee
	<ul style="list-style-type: none"> – The test has been PASSED IF the employee responds to the smoke
	<ul style="list-style-type: none"> – The fit test is VOIDED IF the employee does NOT respond to the smoke.

Table 16 Ambient Aerosol Condensation Nuclei Counter (Portacount™) Test Procedure	
Important:	
	<ul style="list-style-type: none"> This is a quantitative (QNFT) fit-test procedure
	<ul style="list-style-type: none"> This method uses a particle counting instrument that measures and compares the particle concentration both inside and outside the respirator facepiece while the employee performs a series of test exercises
	<ul style="list-style-type: none"> Particles in the ambient air are used as the test aerosol.
Test Preparations	
1. Obtain a test instrument such as a Portacount™.	
2. Have probed respirators available for each respirator model and size the employer uses, OR have a sampling adapter available if the employee's actual or chosen respirator will be tested.	
	<p><i>Note:</i></p> <ul style="list-style-type: none"> <i>A probed respirator has a special fitting installed on the facepiece designed to connect with the end of the test instrument's plastic sampling tube so that air samples can be taken inside the facepiece. Probed respirators can be obtained from the respirator manufacturer, or distributor, AND can only be used for fit-testing purposes</i> <i>Contact TSI Inc., OR the respirator's manufacturer to obtain probed respirators or facepiece sampling adapters.</i>
3. Follow the test instrument manufacturer's instructions for test preparation, including particle, zero, and system checks. Make sure the instrument's pass OR fail criterion is programmed to the following MINIMUM performance levels:	

Table 16 Ambient Aerosol Condensation Nuclei Counter (Portacount™) Test Procedure	
	<ul style="list-style-type: none"> For half-facepiece respirators, an overall minimum fit factor of 100 as a passing level
	<ul style="list-style-type: none"> For full-facepiece respirators, an overall minimum fit factor of 500 as a passing level
4. Have high-efficiency particulate air (HEPA) filters, OR other respirator filters available that are capable of preventing significant penetration by particles generated by the test instrument such as, P100 or N95 series filters.	
	<ul style="list-style-type: none"> If you will use a sampling adapter instead of probed respirators be sure to have the correct type for the respirators chosen.
Test	
5. Properly attach the sampling line to the facepiece probe or sampling adapter.	
6. Have the employee attach respirator filters, put on, properly adjust, and wear the respirator five minutes BEFORE the fit test. During this time you and the employee must evaluate the respirator's general fit by checking:	
	<ul style="list-style-type: none"> Proper chin placement
	<ul style="list-style-type: none"> Properly tightened straps (do NOT over tighten)
	<ul style="list-style-type: none"> Acceptable fit across the nose bridge
	<ul style="list-style-type: none"> Respirator size. It must span the distance from nose to chin
	<ul style="list-style-type: none"> To see if the respirator stays in position.
<p><i>Note:</i></p> <p><i>Wearing the respirator for five minutes permits the employee to make certain the respirator is comfortable AND allows for purging of ambient particles trapped inside the facepiece.</i></p>	
7. Have the employee perform a seal check. Make sure the sampling line is crimped to avoid leakage during the seal check. If NO leakage is detected, proceed to Step 8. If leakage is detected:	

Table 16 Ambient Aerosol Condensation Nuclei Counter (Portacount™) Test Procedure	
	<ul style="list-style-type: none"> • Determine the cause
	AND
	<ul style="list-style-type: none"> • If leakage is due to a poorly fitting facepiece, have the employee:
	<ul style="list-style-type: none"> – Choose another respirator size or model
	AND
	<ul style="list-style-type: none"> – Start again at Step 6.
8. Start the fit test cycle.	
	<ul style="list-style-type: none"> • Follow the manufacturer's instructions for operating the test instrument
	<ul style="list-style-type: none"> • Have the employee perform the appropriate fit-test exercises in Table 19
	<ul style="list-style-type: none"> – The test instrument will automatically stop and calculate the overall fit factor. Use this result to determine whether or not the test is passed
	<ul style="list-style-type: none"> ◆ The test has been PASSED if the overall fit factor is at least 100 for a half facepiece, OR 500 for a full facepiece
	<ul style="list-style-type: none"> ◆ The test has FAILED if the overall fit factor is below 100 for a half facepiece or 500 for a full facepiece.
	<p><i>Note:</i></p> <p><i>If the test has failed, have the employee select another respirator model or size following Table 11 AND repeat this procedure.</i></p>

Table 17 Controlled Negative Pressure (CNP) Test Procedure	
Important:	
	<ul style="list-style-type: none"> This is a quantitative fit-test (QNFT) procedure
	<ul style="list-style-type: none"> This method determines respirator fit by measuring how much the facepiece leaks when it is subject to a slight negative pressure AFTER various premeasurement activities
	<ul style="list-style-type: none"> Measurements occur while employees remain still AND hold their breath for 10 seconds
	<ul style="list-style-type: none"> No test aerosols are used. Respirator cartridges are not needed for this test.
Test Preparations	
1. Make sure the individual conducting the fit test is thoroughly trained to perform this test.	
2. Obtain a CNP test instrument such as a FitTester 3000™. Make sure:	
	<ul style="list-style-type: none"> Defaults are set at: <ul style="list-style-type: none"> -15mm (-0.58 inches) of water test pressure
AND	
	<ul style="list-style-type: none"> A modeled inspiratory flow rate of 53.8 liters per minute
	<ul style="list-style-type: none"> It has an effective audio warning device that signals when employees fail to hold their breath.
	<p><i>Note:</i></p> <ul style="list-style-type: none"> <i>You are not required to obtain test recording and printing equipment such as computers or printers. Hand recording results is acceptable</i> <i>To see default settings, check the instrument's "REDON protocol."</i>

Table 17 Controlled Negative Pressure (CNP) Test Procedure

3. Obtain facepiece adapters appropriate for each test respirator.

Note:

- *Adapters are either a one-piece (for SCBA facepieces), or two-piece (for dual cartridge facepieces) device providing a manifold and breathing valve system. For positive pressure respirators, you will need to obtain an additional fitting, available from the respirator manufacturer, to convert the facepiece to negative pressure*
- *To obtain adapters, contact the CNP instrument's distributor, Occupational Health Dynamics, **OR** the respirator manufacturer.*

Test**Important:**

After the test, you must ask the employee about the comfort of the respirator **AND** if the respirator has become unacceptable, another size or model must be chosen and tested.

4. Explain the test procedure to the employee.

5. Train the employee on how to hold a breath for at least 20 seconds.

6. Prepare the respirator for the fit test as follows:

Table 17 Controlled Negative Pressure (CNP) Test Procedure	
	<ul style="list-style-type: none"> Remove or prop open the inhalation valves. If a breathing tube is present, disconnect it
	<ul style="list-style-type: none"> Replace cartridges, if present, with the manifold and breathing valve adapter <ul style="list-style-type: none"> For positive pressure facepieces, mount the manufacturer's additional fitting followed by the manifold-breathing valve adapter
	<ul style="list-style-type: none"> Connect the respirator to the CNP device according to the CNP instrument manufacturer's directions.
7. Have the employee put on, adjust, and seal check the respirator.	
8. Turn on the instrument AND have the employee stand and perform the fit-test exercises in Table 19.	
9. Interpret the test results:	
	<ul style="list-style-type: none"> The test is PASSED IF the overall fit factor obtained is at least 100 for a half facepiece, or at least 500 for a full facepiece
	<ul style="list-style-type: none"> The test has FAILED IF the fit factor is less than 100 for a half facepiece; 500 for a full facepiece <ul style="list-style-type: none"> If the test has FAILED you must have the employee select another respirator model or size following the steps in Table 11 AND repeat this procedure, starting at Step 6.

Table 18 Generated Aerosol Test Procedure	
Important:	
<ul style="list-style-type: none"> • This is a quantitative (QNFT) fit-test procedure 	
<ul style="list-style-type: none"> • In this method, a test aerosol is used to challenge the facepiece seal while aerosol concentrations inside and outside the facepiece are measured during test exercises 	
<ul style="list-style-type: none"> • Special equipment is needed to generate, disperse, detect, and measure test aerosols. 	
Test Preparations	
1. Test aerosol.	
<ul style="list-style-type: none"> • Use a particulate, for example, corn oil, polyethylene glycol 400, di-2-ethyl hexyl sebacate, or sodium chloride. 	
2. Instrumentation.	
<ul style="list-style-type: none"> • Do ALL the following: <ul style="list-style-type: none"> – Obtain and use aerosol generation, dilution, and measurement systems appropriate for particulates – Use an aerosol-generating instrument that will maintain test concentrations within a 10% variation – Select a sampling instrument that allows for a computer record or strip chart record to be created ◆ The record must show the rise and fall of test agent concentration during each inhalation and exhalation at fit factors of at least 2000. 	
<p><i>Note: Integrators, or computers that integrate the amount of test agent penetration leakage into the respirator for each exercise, may be used if a record of the readings is made.</i></p>	
<ul style="list-style-type: none"> – Minimize the time interval between the activity and the recording of the activity so you can clearly connect what you see to what is being recorded. For example, use a small diameter and length of sampling line. 	
3. Test enclosure.	
<ul style="list-style-type: none"> • Do ALL the following: <ul style="list-style-type: none"> – Make sure the enclosure is equipped and constructed to effectively: 	

Table 18 Generated Aerosol Test Procedure	
	<ul style="list-style-type: none"> ◆ Maintain a uniform concentration of the test agent inside the enclosure. For example, the enclosure must be large enough to allow ALL employees freedom of movement during testing WITHOUT disturbing the test concentration or measurement instrument
	<ul style="list-style-type: none"> ◆ Keep the test agent from contaminating the air outside the enclosure. For example, use a HEPA filter to purify exhausted air
	<ul style="list-style-type: none"> ◆ Allow the individual conducting the fit test to view the employee during the test
	<ul style="list-style-type: none"> – Make sure the tubing used to collect samples from the enclosure AND respirator is the same material, diameter, AND length. This makes the effect of aerosol loss caused by deposition in each sample line equal
	<ul style="list-style-type: none"> – If sodium chloride is used, relative humidity inside the enclosure must be kept below 50%.
4. Prepare test respirators.	
	<ul style="list-style-type: none"> • Do ALL the following: <ul style="list-style-type: none"> – Inspect test respirators regularly for missing parts and damage – Keep test respirators in proper working order – Make sure in-mask sampling probes are: <ul style="list-style-type: none"> ◆ Designed and installed so the air sample will be drawn from the employee's breathing zone; midway between the nose and mouth
	AND
	<ul style="list-style-type: none"> ◆ The probe extends inside the facepiece at least 1/4 inch
	<ul style="list-style-type: none"> – Make sure sampling ports such as probes, or adapters on respirators are constructed and installed so they do NOT: <ul style="list-style-type: none"> ◆ Block air flow into the sampling line ◆ Leak ◆ Interfere with the respirator's fit or performance
	<ul style="list-style-type: none"> • Have high efficiency particulate air (HEPA) filters OR P100 series filter available <ul style="list-style-type: none"> – Replace filters when increased breathing resistance is detected OR when the test agent has altered the filter material's integrity.
Test	
Important:	

Table 18 Generated Aerosol Test Procedure	
<ul style="list-style-type: none"> • Throughout the test, maintain the employee's exposure to any test agent below the established exposure limit. Exposures allowed must be based on exposure time and exposure limit duration 	
<ul style="list-style-type: none"> • If a single peak penetration exceeds 5% for half facepieces or 1% for full facepieces: 	
<ul style="list-style-type: none"> – STOP the test 	
AND	
<ul style="list-style-type: none"> – Have the employee select another respirator for testing. 	
5. Have the employee attach filters, put on, adjust, and seal check the respirator.	
<ul style="list-style-type: none"> • Be sure to crimp the sampling line to avoid pressure leaks during the seal check 	
AND	
<ul style="list-style-type: none"> • Have the employee adjust the respirator straps, without assistance, so the fit is comfortable. Do NOT over tighten. 	
6. OPTIONAL Step. To save time conduct a screening test to quickly identify poorly fitting respirators.	
<i>Note: You may use a qualitative screening test OR an ambient aerosol condensation nuclei counter instrument in the count mode.</i>	
7. Make sure test aerosol concentration is reasonably stable.	
<ul style="list-style-type: none"> • If a canopy or shower curtain enclosure is used, determine stability of the test aerosol concentration AFTER the employee enters the enclosure. 	
8. Have the employee enter the test enclosure and connect the respirator to the sample lines.	
9. Immediately after entering the enclosure measure test aerosol concentration inside the respirator.	
<ul style="list-style-type: none"> • Make sure the peak penetration does NOT exceed 5% for half facepieces, OR 1% for full facepieces. 	
10. Have employee perform the appropriate fit-test exercises in Table 19.	
<ul style="list-style-type: none"> • Do NOT adjust the respirator once exercises begin. 	
11. Calculate the overall fit factor as specified in Steps 12-13. The fit test is:	
<ul style="list-style-type: none"> • PASSED IF the minimum fit factor of 100 for half facepieces OR 500 for full facepieces is obtained 	
OR	

Table 18 Generated Aerosol Test Procedure	
<ul style="list-style-type: none"> • IF a passing fit factor is NOT obtained, the test has FAILED and you must have the employee select and test another respirator. 	
Calculations	
Important:	
<ul style="list-style-type: none"> • Do NOT count the grimace exercise measurements during these calculations • Take into account the limitations of instrument detection when determining fit factors. 	
12. Calculate individual fit factors for EACH exercise by applying the following:	
Exercise fit factor (ffe) = Average test enclosure concentration	
Test aerosol concentration inside the respirator	
<ul style="list-style-type: none"> • To determine the average test enclosure concentration use one of the following methods: <ul style="list-style-type: none"> – Arithmetic average of the concentration before and after each TEST (an average of two values per entire test) – Arithmetic average of concentration before and after each EXERCISE (an average of two values per exercise) – True average measured continuously during the respirator sample • Determine the test aerosol concentration inside the respirator in one of the following ways: <ul style="list-style-type: none"> – Average peak penetration values. Determine aerosol penetration for each exercise by: <ul style="list-style-type: none"> ◆ Using integrators or computers that calculate the actual test agent penetration 	
OR	
<ul style="list-style-type: none"> ◆ Average the peak heights shown on the strip chart recording, graph, or by computer integration 	
	<ul style="list-style-type: none"> – Maximum peak penetration. Use strip chart recordings to determine the highest peak penetration for each exercise and use this value

Table 18 Generated Aerosol Test Procedure			
		– Area under the peaks. Use computerized integration or other appropriate calculations to integrate the area under individual peaks for each exercise.	
13. Using individual exercise fit factors (ffE) calculate the overall fit factor by doing ALL of the following:			
	• Convert each exercise fit factor to a penetration value		
	• Determine the average penetration value		
	• Convert the average penetration value back to a fit factor		
	OR		
	• Use this equation to calculate the overall fit factor:		
	Overall fit factor . =	N	
			$1/ffE1 .+ 1/ffE2 .+ 1/ffE3+ 1/ffEn$

Table 19 Fit-Test Exercises**Important:**

- This list applies when you use any fit test
- Employees tested must perform all exercises marked with an “X” as described for the fit-test procedure used
 - Once exercises begin, any adjustments made void the test **AND** you must begin again
 - After test exercises are completed, you must ask the employee about the comfort of the respirator. If it has become unacceptable, have the employee choose another one for testing
- When the controlled negative pressure procedure is used, **STOP and repeat** the test if the employee adjusts the respirator or takes a breath and fails to hold it for 10 seconds
- Controlled negative pressure tests conducted according to the method published in 29 CFR 1910.134, Appendix A are an acceptable alternative to the method outlined below.

Description of Required Fit-Test Exercises	Fit-Test Procedures		
	Qualitative Procedures	Quantitative Procedures; except the CNPP	Controlled Negative Pressure Procedure (CNPP)
<ul style="list-style-type: none"> • Normal breathing <ul style="list-style-type: none"> – Breathe normally, while standing for one minute 	X	X	
<ul style="list-style-type: none"> • Deep breathing <ul style="list-style-type: none"> – Breathe slowly and deeply while standing for one minute – Take caution to avoid hyperventilating 	X	X	
<ul style="list-style-type: none"> • Head side to side <ul style="list-style-type: none"> – Slowly turn head from side to side while standing for one minute, pausing at each extreme position to inhale – Be careful to NOT bump the respirator 	X	X	

Table 19 Fit-Test Exercises			
<ul style="list-style-type: none"> • Head up and down <ul style="list-style-type: none"> – Slowly move head up and down while standing for one minute, inhaling in the up position – Be careful to NOT bump the respirator 	X	X	
<ul style="list-style-type: none"> • Talking <ul style="list-style-type: none"> – Talk slowly and loud enough to be heard clearly by the individual conducting fit testing for one minute. Choose ONE of the following: <ul style="list-style-type: none"> ◆ Read from a prepared text such as the Rainbow Passage¹ ◆ Count backward from 100 ◆ Recite a memorized poem or song. 	X	X	
<ul style="list-style-type: none"> • Grimace <ul style="list-style-type: none"> – Smile or frown for fifteen seconds. 		X	
<ul style="list-style-type: none"> • Bending over <ul style="list-style-type: none"> – Bend over to touch toes while standing. Repeat at a comfortable pace for one minute OR – Jog in place for one minute if the test enclosure, such as a hood, does not permit bending over 	X	X	
<ul style="list-style-type: none"> • Normal breathing <ul style="list-style-type: none"> – Breathe normally while standing for one minute 	X	X	
<ul style="list-style-type: none"> • Face forward 			

Table 19 Fit-Test Exercises			
<ul style="list-style-type: none"> – Premeasurement activity: Stand and breath normally, without talking – Measurement position: Face forward while holding breath for 10 seconds 			X
<ul style="list-style-type: none"> • Bending over <ul style="list-style-type: none"> – Premeasurement activity: While standing, bend over to touch toes – Measurement position: Hold the bending position with face parallel to the floor while holding breath for 10 seconds 			X
<ul style="list-style-type: none"> • Head shaking 			
<ul style="list-style-type: none"> – Premeasurement activity: Vigorously shake head from side to side for 3 seconds while shouting or making the sound of “BRRRR” loudly – 			X
<ul style="list-style-type: none"> – Measurement position: Face forward, while holding breath for 10 seconds 			
<ul style="list-style-type: none"> • Redon-1 <ul style="list-style-type: none"> – Premeasurement activity: Remove the respirator completely and put it back on – Measurement position: Face forward while holding breath for 10 seconds 			X
<ul style="list-style-type: none"> • Redon-2 <ul style="list-style-type: none"> – Repeat the premeasurement activity and measurement position described in Redon-1 			X

¹The Rainbow Passage:

“When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond reach, his friends say he is looking for the pot of gold at the end of the rainbow.”

WAC 296-307-62015 Follow procedures established for cleaning and disinfecting respirators.

The employer must follow the procedure in Table 20 for cleaning and disinfecting respirators.

Table 20 Respirator Cleaning Procedure	
Step	Task
1.	<p>Remove filters, cartridges, canisters, speaking diaphragms, demand and pressure valve assemblies, hoses, or any components recommended by the manufacturer.</p> <ul style="list-style-type: none"> • Discard or repair any defective parts.
2.	<p>Wash components in warm (43°C (110°F) maximum) water with a mild detergent or with a cleaner recommended by the manufacturer</p> <ul style="list-style-type: none"> • A stiff bristle (not wire) brush may be used to help remove the dirt • If the detergent or cleaner does not contain a disinfecting agent, respirator components should be immersed for two minutes in one of the following: <ul style="list-style-type: none"> – A bleach solution (concentration of 50 parts per million of chlorine). Make this by adding approximately one milliliter of laundry bleach to one liter of water at 43°C (110°F) – A solution of iodine (50 parts per million iodine). Make this in two steps: <ul style="list-style-type: none"> ◆ First, make a tincture of iodine by adding 6-8 grams of solid ammonium iodide and/or potassium iodide to 100 cc of 45% alcohol approximately ◆ Second, add 0.8 milliliters of the tincture to one liter of water at 43°C (110°F) to get the final solution – Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer.

Table 20 Respirator Cleaning Procedure	
Step	Task
3.	Rinse components thoroughly in clean, warm (43°C (110°F) maximum), preferably, running water. <i>Note: The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on facepieces could cause dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts, if not completely removed.</i>
4.	Drain components.
5.	Air-dry components or hand dry components with a clean, lint-free cloth.
6.	Reassemble the facepiece components. <ul style="list-style-type: none"> • Replace filters, cartridges, and canisters, if necessary (for testing).
7.	Test the respirator to make sure all components work properly.

WAC 296-307-62020 Follow procedures established for seal checking respirators.

Important:

1. User seal checks are **NOT** a substitute for fit tests. See WAC 296-307-62010 for fit test procedures.
2. The employer may use a seal check procedure recommended by the respirator manufacturer **INSTEAD** of the procedure outlined in Table 21 if the employer can demonstrate the procedure is based on a scientific study that, for example, demonstrates the procedure effectively identifies respirators that fit poorly when put on or adjusted.

The employer must make sure employees perform a user seal check as outlined in Table 21, **EACH TIME** the respirator is worn, to make sure the seal is adequate.

Table 21 User Seal Check Procedure
Important information for employees:
<ul style="list-style-type: none"> • You need to conduct a seal check each time you put your respirator on BEFORE you enter the respirator use area. The purpose of a seal check is to make sure your respirator (which has been previously fit tested by your employer) is properly positioned on your face to prevent leakage during use and to detect functional problems

Table 21 User Seal Check Procedure	
	<ul style="list-style-type: none"> The procedure below has two parts; a positive pressure check and a negative pressure check. You must complete both parts each time. It should only take a few seconds to perform, once you learn it
	<ul style="list-style-type: none"> If you cannot pass both parts, your respirator is NOT functioning properly, see your supervisor for further instruction.
Positive pressure check:	
1. Remove exhalation valve cover, if removable.	
2. Cover the exhalation valve completely with the palm of your hand WHILE exhaling gently to inflate the facepiece slightly.	
3. The respirator facepiece should remain inflated (indicating a build-up of positive pressure and no outward leakage).	
	<ul style="list-style-type: none"> If you detect NO leakage, replace the exhalation valve cover (if removed), and proceed to conduct the negative pressure check
	<ul style="list-style-type: none"> If you detect evidence of leakage, reposition the respirator (after removing and inspecting it), and try the positive pressure check again.
Negative pressure check:	
4. Completely cover the inhalation opening(s) on the cartridges or canister with the palm(s) of your hands WHILE inhaling gently to collapse the facepiece slightly.	
	<ul style="list-style-type: none"> If you cannot use the palm(s) of your hands to effectively cover the inhalation openings on cartridges or canisters, you may use: <ul style="list-style-type: none"> Filter seal(s) (if available)
OR	
	<ul style="list-style-type: none"> Thin rubber gloves.

Table 21 User Seal Check Procedure	
5. Once the facepiece is collapsed, hold your breath for 10 seconds WHILE keeping the inhalation openings covered.	
6. The facepiece should remain slightly collapsed (indicating negative pressure and NO inward leakage).	
	<ul style="list-style-type: none"> If you detect NO evidence of leakage, the tightness of the facepiece is considered adequate, the procedure is completed, and you may now use the respirator
	<ul style="list-style-type: none"> If you detect leakage, reposition the respirator (after removing and inspecting it) and repeat BOTH the positive and negative fit checks.

WAC 296-307-622 Definitions.

Air-purifying respirator (APR). A respirator equipped with an air-purifying element such as a filter, cartridge, or canister, **OR** having a filtering facepiece, for example, a dust mask.

The element or filtering facepiece is designed to remove specific contaminants, such as particles, vapors, or gases, from air that passes through it.

Air-line respirator. An atmosphere-supplying respirator for which breathing air is drawn from a source separate from and not worn by the user, such as:

- (a) A cylinder or a tank;
- (b) A compressor;
- (c) An uncontaminated environment.

Air supplied respirator (see air-line respirator).

Assigned protection factor (APF). Indicates the expected level of workplace respiratory protection **WHEN** the respirator is:

- (a) Functioning properly; and;
- (b) Fitted to the user; and
- (c) Worn by trained individuals; and
- (d) Used with the limitations specified on the NIOSH approval label.

Atmosphere-supplying respirator. A respirator that supplies the user with breathing air from sources, such as:

- (a) A cylinder or a tank
- (b) A compressor
- (c) An uncontaminated environment.

Breathing air. Air supplied to an atmosphere-supplying respirator. This air meets the specifications found in WAC 296-307-616.

Canister or cartridge (air-purifying). Part of an air-purifying respirator that consists of a container holding materials such as fiber, treated charcoal, or a combination of the two, that removes contaminants from the air passing through the cartridge or canister.

Cartridge respirator (see also air-purifying respirator). An air-purifying respirator equipped with one or more cartridges. These respirators have a facepiece made from silicone, rubber **OR** other plastic-like materials.

Demand respirator. An atmosphere-supplying respirator that sends breathing air to the facepiece only when suction (negative pressure) is created inside the facepiece by inhalation. Demand respirators are “**negative pressure**” respirators.

Dust mask. A name used to refer to filtering-facepiece respirators. Dust masks may or may not be NIOSH certified. See filtering facepiece.

Emergency respirator. Respirators suitable for rescue, escape, or other activities during emergency situations.

Emergency situation. Any occurrence that could **OR** does result in a significant uncontrolled release of an airborne contaminant. Causes of emergency situations include, but are not limited to, equipment failure, rupture of containers, or failure of control equipment.

End-of-service-life indicator (ESLI). A system that warns the air-purifying respirator user that cartridges or canisters must be changed. An example of an ESLI is a dot on the respirator cartridge that changes color.

Escape-only respirator. A respirator that can only be used to exit during emergencies. Look for this use limitation on the respirator's NIOSH approval label.

Exposed, or exposure. The contact an employee has with a toxic substance, harmful physical agent, or oxygen deficient condition. Exposure can occur through various routes of entry, such as inhalation, ingestion, skin contact, or skin absorption.

Filter. Fibrous material that removes dust, spray, mist, fume, fog, smoke particles, **OR** other aerosols from the air.

Filtering-facepiece respirator. A tight-fitting, half-facepiece, negative-pressure, particulate air-purifying respirator with the facepiece **MAINLY** composed of filter material. These respirators do not use cartridges or canisters and may have sealing surfaces composed of rubber, silicone or other plastic-like materials. They are sometimes referred to as “dust masks.”

Fit factor. A number providing an estimate of fit for a particular respiratory inlet covering to a specific individual during quantitative fit testing.

Fit test (see also qualitative fit test and quantitative fit test). Fit testing is an activity where the facepiece seal of a respirator is challenged, using a WISHA accepted procedure, to determine if the respirator provides an adequate seal.

Full-facepiece respirator. A tight-fitting respirator that covers the wearer's nose, mouth, and eyes.

Gas mask. An air-purifying respirator equipped with one or more canisters. These respirators have a facepiece made from silicone, rubber **OR** other plastic-like materials.

Half-facepiece respirator. A tight-fitting respirator that only covers the wearer's nose and mouth.

Helmet. The rigid part of a respirator that covers the wearer's head **AND** also provides head protection against impact or penetration.

High-efficiency particulate air filter (HEPA). A powered air purifying respirator (PAPR) filter that removes at least 99.97% of monodisperse dioctyl phthalate (DOP) particles with a mean particle diameter of 0.3 micrometer from contaminated air.

Note: Filters designated, under 42 CFR Part 84, as an "N100," "R100," or "P100" provide the same filter efficiency (99.97%) as HEPA filters.

Hood. The part of a respirator that completely covers the wearer's head and neck and may also cover some or all of the shoulders and torso.

Immediately dangerous to life or health (IDLH). An atmospheric condition that would:

- (a) Cause an immediate threat to life; or
- (b) Cause permanent or delayed adverse health effects; or
- (c) Interfere with an employee's ability to escape.

Licensed healthcare professional (LHCP). An individual whose legally permitted scope of medical practice allows him or her to provide **SOME OR ALL** of the healthcare services required for respirator users' medical evaluations.

Loose-fitting facepiece. A respiratory inlet covering that is designed to form a partial seal with the face.

Negative-pressure respirator. Any tight-fitting respirator in which the air pressure inside the facepiece is less than the air pressure outside the respirator during inhalation.

NIOSH. The National Institute for Occupational Safety and Health. NIOSH is the federal agency that certifies respirators for occupational use.

Oxygen deficient. An atmosphere with an oxygen content below 19.5% by volume.

Permissible exposure limit (PEL). Permissible exposure limits (PELs) are employee exposures to toxic substances or harmful agents that must not be exceeded. PELs are specified in applicable WISHA chapters.

Positive-pressure respirator. A respirator in which the air pressure inside the respiratory-inlet covering is greater than the air pressure outside the respirator.

Powered air-purifying respirators (PAPRs). An air-purifying respirator equipped with a blower that draws ambient air through cartridges or canisters. These respirators, as a group, are **NOT** classified as positive pressure respirators and must not be used as such.

Pressure-demand respirator. A positive-pressure atmosphere-supplying respirator that sends breathing air to the respiratory inlet covering when the positive pressure is reduced inside the facepiece by inhalation or leakage.

Qualitative fit test (QLFT), A test that determines the adequacy of respirator fit for an individual. The test relies on the employee's ability to detect a test substance. Test results are either "pass" or "fail."

Quantitative fit test (QNFT). A test that determines the adequacy of respirator fit for an individual. The test relies on specialized equipment that performs numeric measurements of leakage into the respiratory inlet covering. Test results are used to calculate a "fit factor."

Respiratory hazard. Harmful airborne hazards and oxygen deficiency that are addressed in WAC 296-307-624, Identifying and controlling airborne hazards and oxygen deficiency.

Required use. Respirator use:

- (a) That is necessary to protect employees from respiratory hazards; or
- (b) That the employer decides to require for his or her own reasons. For example, the employer decides to follow more rigorous exposure limits
- (c) The employer for his or her own reasons. For example, the employer decides to follow more rigorous exposure limits, or the employer is required to follow a medical recommendation.

Respirator. A type of personal protective equipment designed to protect the wearer from harmful airborne hazards, oxygen deficiency, or both.

Respiratory inlet covering. The part of a respirator that forms the protective barrier between the user's respiratory tract and an air-purifying device or breathing air source or both. The respiratory inlet covering may be a facepiece, helmet, hood, suit, or mouthpiece respirator with nose clamp.

Seal check. Actions conducted by the respirator user each time the respirator is put on, to determine if the respirator is properly seated on the face.

Self-contained breathing apparatus (SCBA). An atmosphere-supplying respirator designed for the breathing air source, to be carried by the user.

Service-life. The period of time that a respirator, filter or sorbent, or other respiratory equipment provides adequate protection to the wearer. For example, the period of time that sorbent cartridge is effective for removing a harmful substance from the air.

Sorbent. Rigid, porous material, such as charcoal, used to remove vapor or gas from the air.

Supplied-air respirator (see air-line respirator).

Tight-fitting facepiece. A respiratory inlet covering forming a complete seal with the face **OR** neck. Mouthpiece respirators are not tight-fitting facepieces.

Voluntary use. Respirator use that is requested by the employee **AND** permitted by the employer when **NO** respiratory hazard exists.

**Resource Section
Respirators**

	Page
Information About Respirator Selection and Classification.....	R-1
Key Information About NIOSH Certified Respirators.....	R-4
Planning for Medical Evaluations.....	R-7
Using Assigned Protection Factors (APFs) for Respirator Selection	R-9

Information About Respirator Selection and Classification

Use with Chapter 296-307 WAC, Part Y-5, Respirators

This tool provides guidance about respirator selection and classification for users who are not familiar with these topics.

When do respiratory hazards occur?

Respiratory hazards that require use of respirators can occur during:

- Routine tasks
- Tasks that occur infrequently such as monthly cleaning of a reactor vessel or chemical storage tank
- Emergencies such as rescue, response to a chemical spill, or circumstances where employees must escape from toxic atmospheres.

Am I qualified to select respirators?

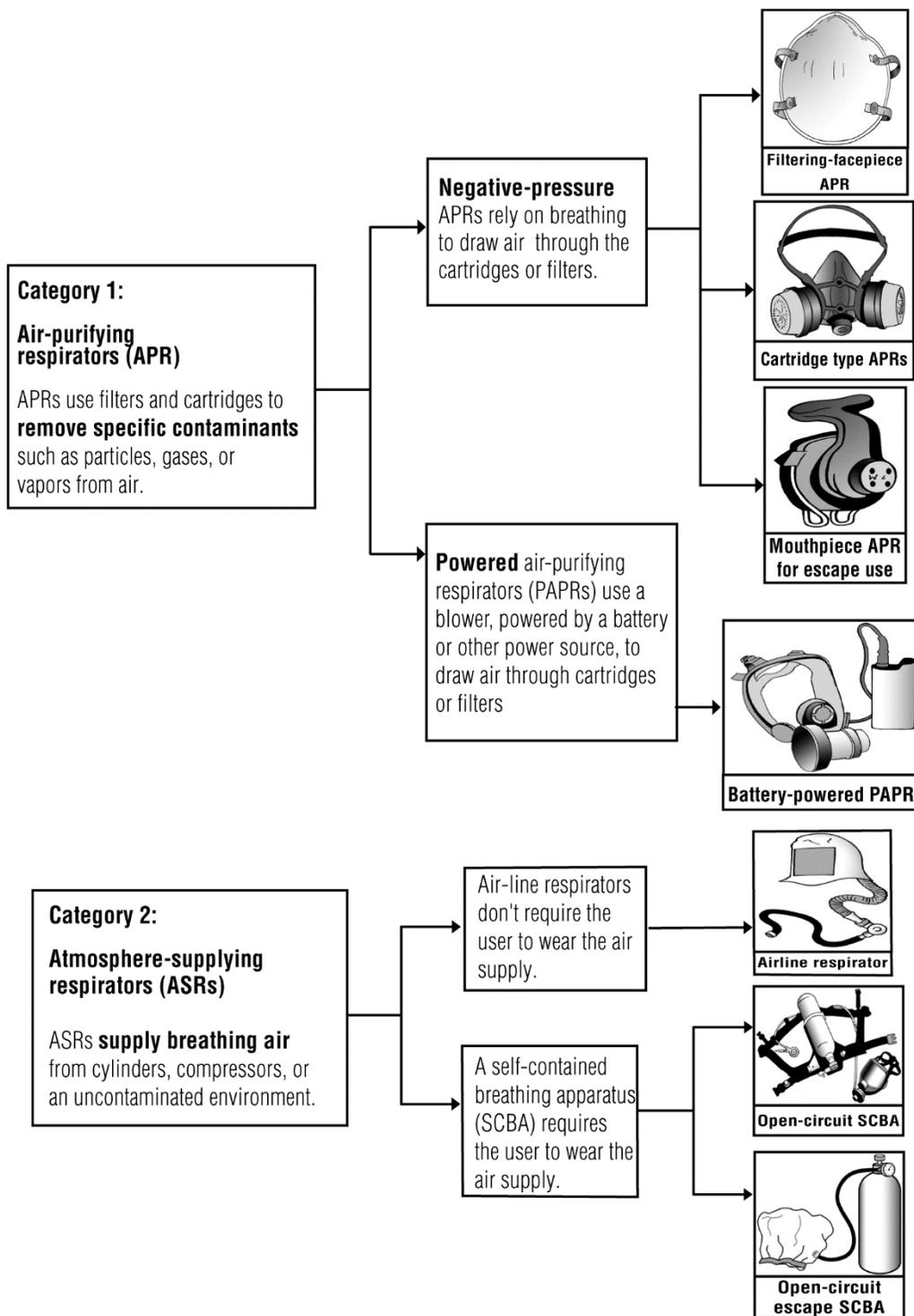
To determine this, you will need to consider:

- The complexity of your employees' exposures to respiratory hazards and respirator use circumstances.
- If you have a suitable level of technical knowledge and experience with respirators to address respiratory hazards and use circumstances.

For example, individuals selecting respirators solely for wood dust exposure would not need as high a level of knowledge and experience as individuals selecting respirators for multiple contaminants or for highly hazardous circumstances such as emergencies.

What types of respirators are available?

All respirator types can be sorted into 2 main categories as shown. Some respirator models that combine features from both categories are also available, but are not shown here.



Where can I find more information about respirators and selection?

Resources include:

- OSHA's Respiratory Protection Advisor – Visit www.osha.gov.
- NIOSH's 1987 Decision Logic – Visit www.cdc.gov/niosh.
- The Center for Disease Control and Prevention (CDC) – Visit www.cdc.gov to find information on biological agents such as TB, hanta virus, psittacosis and anthrax.
- Respirator manufacturers' on-line selection guides and other information – Visit www.lni.wa.gov/wisha and select the Respiratory Protection topic page to find a list of respirator manufacturers and website links.
- The American National Standard for Respiratory Protection, ANSI Z88.2-1992, or most recent edition – Visit www.ansi.org to find out how to obtain a copy or contact your local librarian for access.
- WISHA. Visit www.lni.wa.gov/wisha/consultation for a list of WISHA consultants available for assistance.
- Experienced respirator distributors, and private industrial hygiene consulting services listed in your local phone book.

Key Information About NIOSH Certified Respirators

Use with Chapter 296-307 WAC, Part Y-5, Respirators

This tool will help you understand how to find and use NIOSH certification information.

Why is NIOSH certification important?

NIOSH certified respirators are rigorously checked and tested to make sure they can perform well and are suitable for workplace use. These assurances do not extend to respirators that are not NIOSH certified.

How do I know if a respirator has been NIOSH certified?

You cannot always tell by examining the respirator. If it is NIOSH certified, it will have an approval label somewhere on the product box or on printed materials contained in the box.

The label will include “TC” numbers along with important caution and limitation information about the respirator’s use.

How do I use TC numbers?

These numbers help you know which parts are acceptable to use on each respirator assembly.

When making repairs, make sure replacement parts used are listed under the TC number for the assembly chosen, otherwise, you will create a non-certified respirator assembly.

Each respirator assembly has one TC number. If more than one TC number is listed on the approval label, this means more than one NIOSH-certified assembly is available.

Does NIOSH certification expire?

No. However, NIOSH certification is voided when:

- Users do not follow the approval label’s use specifications, including listed cautions and limitations
- Respirator parts used are not listed under the respirator assembly’s TC number

NIOSH occasionally withdraws certification for a respirator assembly. When this happens, a user notice is posted on their website at www.cdc.gov/niosh/respnotices.html

What are N, R, and P series respirators?

N, R, and P are NIOSH certification categories that apply to negative-pressure air-purifying respirators that protect against hazardous particles. They do not apply to powered air purifying respirators (PAPRs).

N, R, and P respirators are also called particulate respirators because they use filter material to protect users from airborne dusts, sprays, mists, fumes, and other solid or liquid particle contaminants.

What do the designations N, R, and P mean?

These designations refer to the use restrictions for respirator categories shown in **Table HT-1**.

Table HT-1 Use Restrictions for N, R, and P Respirator Categories	
Use	When
N	No oil is present in the air
R	Oil is present, but only for a single shift or 8 hours of continuous or intermittent use. <i>Note: Reuse beyond a single shift or 8 hours is NOT recommended.</i>
P	Oil is present, but follow the manufacturer's time use limitations if you want to reuse these.

For more information about limitations and capabilities of these respirators, see the May 2, 1997 NIOSH Respirator User's Notice, "Letter to All Users of P-Series Particulate Respirators" or visit: <http://www.cdc.gov/niosh>.

What do the designations 100, 99, and 95 mean?

Table HT-2 shows how efficient the respirator's filter capability is expected

to be against particles that are at least 0.3 micrometers. The higher the number, the higher the efficiency expected.

Table HT-2 Efficiency Levels for N, R, and P Respirators	
If the efficiency level is	This means
100	The filter is expected to trap 99.97 particles out of every 100. It is as efficient as a High Efficiency Particulate Air (HEPA) filter.
99	The filter is expected to trap 99 particles out of every 100
95	The filter will trap 95 particles out of every 100. <i>Note: For many exposure situations, this level is adequate</i>

Can I still use particulate respirators certified for “dust” or “dust, fumes and mists”?

These air-purifying particle-removing respirators are no longer easy to find. They were certified under NIOSH’s former standard, 30 CFR Part 11, replaced by 42 CFR Part 84, and can no longer be sold for occupational use.

Also, due to less stringent testing of these respirators, you can only use them when you can prove the particulate contaminants involved are 2 micrometers or **larger** in size.

If you have particle contaminants that are **smaller** than 2 micrometers, you will need to use an N, R, or P series respirator instead.

Where can I find NIOSH certification requirements?

NIOSH certification requirements are in the federal regulation, Title 42 CFR, Part 84, Respiratory Protective Devices. This regulation replaced 30 CFR Part 11 in 1995. You can find this standard, in its entirety by visiting:

<http://www.access.gpo.gov/nara/cfr/index.html>

Planning for Medical Evaluations

Use with Chapter 296-307 WAC, Part Y-5, Respirators

This information can help you prepare for employee medical evaluations required by Chapter 296-307 WAC, Part Y-5, Respirators. This information does not apply to medical evaluation requirements found in other WISHA rules.

Who is allowed to perform medical evaluations?
<p>Only licensed health care professionals (LHCPs) are allowed to perform these evaluations. You may use:</p> <ul style="list-style-type: none"> • On-site medical staff ; or • Medical staff from outside services <p>In Washington state LHCPs include:</p> <ul style="list-style-type: none"> • Physicians • Physician Assistants (PAs) • Advanced Registered Nurse Practitioners (ARNPs) • Registered Nurses
What medical questionnaire is required?
<p>Use any of the following:</p> <ul style="list-style-type: none"> • The WISHA Medical Evaluation Questionnaire provided in WAC 296-307-620, Required Procedures for Respiratory Protection Program. • The OSHA Respirator Medical Evaluation Questionnaire found in Appendix C of 29 Code of Federal Regulations (CFR), Part 1910.134, Respiratory Protection. • Questionnaires developed by other parties, such as on-line services, if these questionnaires include the same questions found in Parts 1-3 of the WISHA Medical Evaluation Questionnaire. <ul style="list-style-type: none"> - A LHCP may add questions or change the order of required questions. - In some cases, questions added by the LHCP before administering the questionnaire can minimize the need for LHCP follow-up.

Is there an alternative to using a questionnaire for employee evaluations?

Yes. You can choose to have medical exams conducted instead of using the questionnaire, as long as you make sure the exam obtains the same information as found in the questionnaire.

Why is confidentiality important?

Aside from legal considerations, confidentiality encourages employees to provide complete and correct health information for the LHCP's evaluation. This helps make sure reliable medical evaluations are provided.

How do I maintain confidentiality during questionnaire administration?

Here are some strategies to consider when planning for evaluations:

- Make arrangements to have a LHCP administer the questionnaire at the workplace.
- Allow the employee to self-administer the questionnaire and mail it, postage paid, to the LHCP.
 - Since employees may have questions about medical issues, arrange for an LHCP to be available by telephone or e-mail during the time the questionnaire is being administered.
- If you decide to have an individual administer the questionnaire who is not a LHCP:
 - Instruct the individual **NOT** to look at the employee's questionnaire at any time
 - Provide pre-addressed, stamped envelopes for completed questionnaires
 - Instruct employees to place their completed questionnaires in the envelope, seal it, and mail or forward it to the LHCP
- Have the employee use an on-line questionnaire service that meets the requirements in WAC 296-307-60405, Provide Medical Evaluations.

What if my employee cannot read the questionnaire?

Find out if language translation services are needed, or if employees need help with reading.

- If language translation services are needed you can use:
 - An interpreter. It is not necessary to provide a professional interpreter. Interpreters can be an individual trusted by the employee such as a co-worker, friend, family member, or the LHCP.
 - A translated version of the questionnaire when available. For a Spanish-language version visit <http://www.lni.wa.gov/WISHA>
 - If reading assistance is needed, make arrangements ahead of time to use an individual trusted by the employee to assist them while filling out the questionnaire.
- While making these arrangements remember to address any possible confidentiality issues that could arise.

Using Assigned Protection Factors (APFs) for Respirator Selection

Use with Chapter 296-307 WAC, Part Y-5, Respirators

Important!

Use this tool if you need help using the APFs in Table 5 of Chapter 296-307 WAC, Part Y-5, Respirators.

- This tool is designed to compare hazard ratios (these are values that rate the level of employee protection needed) to APFs (these are values that rate the expected level of protection provided by different types of respirators under ideal conditions) to determine which respirator types are acceptable pending further selection criteria in Chapter 296-307 WAC, Part Y-5, Respirators.

If exposure circumstances in your workplace are not addressed by this tool, contact your local WISHA consultant. See www.lni.wa.gov/wisha/consultation for a list of consultants to assist you.

Step 1: Make sure you start by having this information available:

- Estimated or measured employee exposure concentration values for each respiratory hazard identified during your exposure evaluation.

Reference: See Chapter 296-307 WAC, Part Y-6, Respiratory Hazards, if you have not completed an exposure evaluation.

- WISHA's permissible exposure limit (PEL) value.
 - There are 3 types of PEL values:
 - 8-hour, time-weighted (TWA₈) value
 - Short-term exposure limit (STEL) value
 - Ceiling (C) limit value
 - You only need the PEL values that exposure evaluation results show are exceeded. For example, if employee exposure concentrations exceed the TWA₈, but **not** the STEL or Ceiling limit, you will only need the TWA₈ value.

Step 2 Calculate hazard ratio values for **each** substance using this formula:

$$\text{Hazard ratio} = \frac{\text{Concentration in ppm (or mg/ M}^3\text{)}}{\text{PEL in ppm (or mg/ M}^3\text{)}}$$

Use Table HT-1 to define the terms in the formula.

Table HT-1 Key to Formula symbols	
The term	Is the
Concentration	Estimated or measured concentration of the respiratory hazard during an 8-hour or a short-term exposure period, determined during your hazard evaluation.
PEL	WISHA Permissible Exposure Limit (PEL) established for the substance.
ppm	Concentration units in parts per million
mg/ M ³	Concentration units in milligrams per cubic meter
*Concentration units (ppm or mg/M ³) used in the formula for “Concentration” and “PEL” must be the same. If they are different, contact your local WISHA consultant or your laboratory to get help with converting your “Concentration” value.	

- Calculate the hazard ratio, using the formula, for 8-hour exposure periods when exposures exceed the WISHA TWA₈ value.
- Calculate the hazard ratio, using the formula, for short-term exposure periods when exposures exceed the WISHA STEL value.
- If you are uncertain about this step, review this example:

Example 1:

Your employees are exposed to a **single** airborne substance. Calculate hazard ratios based on the information in **Table HT-2**.

Table HT-2 Example 1: Exposure valuation Information	
<ul style="list-style-type: none">• WISHA’s PELs for the substance are:<ul style="list-style-type: none">– 50 mg/M³ = TWA₈– 150 mg/M³ = STEL• Your hazard evaluation results show employees are exposed to the substance at concentrations above WISHA’s TWA₈ and STEL. These results are reported as:<ul style="list-style-type: none">– 300 mg/M³ averaged over an 8-hour exposure period– 600 mg/M³ averaged over a 15-minute (short-term) exposure period	

You will need to calculate 2 hazard ratio values since evaluation results show employees are exposed above WISHA’s TWA₈ and STEL.

Put the 8-hour values for “PEL” and “Concentration” into the formula and calculate the hazard ratio

$$\frac{\text{Concentration}}{\text{PEL}} = \frac{300\text{mg} / \text{M}^3}{50\text{mg} / \text{M}^3} =$$

A hazard ratio of 6 for the 8-hour exposure period

Put the short-term values for “PEL” and “Concentration” into the formula and calculate the hazard ratio

$$\frac{\text{Concentration}}{\text{PEL}} = \frac{600\text{mg} / \text{M}^3}{150\text{mg} / \text{M}^3} =$$

A hazard ratio of 4 for the short-term exposure period

Step 3: If the respiratory hazard is a **single** substance, select the highest hazard ratio value and skip to Step 6.

If the respiratory hazard is a **mixture** of substances, you will need to determine if substances in the mixture have additive health effects. After this determination, go to Step 4.

Reference: If you have not evaluated the substances to find out if they have additive health effects, follow the guidance in Steps 1 & 2 of the Mixtures of Substances Helpful tool, located in the Resources section of this part.

Step 4: If substances in the mixture do not have additive health effects, select the highest hazard ratio value and skip to Step 6.

Step 5: When substances in the mixture have additive health effects, add up the hazard ratio values of exposure periods to get a total value for each exposure period. Select the highest hazard ratio total.

Example 2:

- Employees are exposed to a mixture of 2 substances with additive health effects. Select the highest hazard ratio total.
- Hazard ratios for each substance and totals for each exposure are shown in **Table HT-3**.

Table HT-3 Example 2: Hazard Ratios and Totals		
Identity of the substance	Hazard Ratios for the 8-hour exposure period	Hazard ratios for the short-term exposure period
Substance 1	10	4
Substance 2	5	1
	Total = 15	Total = 5

- The highest ratio total is 15.

Step 6: Compare your hazard ratio value to the APF values in Table 5 of Chapter 296-307 WAC, Part Y-5, Respirators; and

Note any respirator types in Table 5 with an APF **equal or more than** your hazard ratio.

- These respirator types are capable of providing a sufficient protection level for your workplace exposure concentrations; **however**, other selection requirements found in WAC 296-307-60205, Select and Provide Appropriate Respirators, must be followed to determine your final respirator selection outcome.

Example 3:

- A hazard ratio of 3 has been determined.
- Which respirator types are acceptable for further selection consideration?
 - All APFs shown in Table 5 of Chapter 296-307 WAC, Part Y-5, Respirators, have an APF that is more than 3, so all types of respirators are acceptable for further selection consideration.

Example 4:

- A hazard ratio of 12 has been determined.
- Which respirator types are acceptable for further selection consideration?

Respirator types shown in Table 5 of Chapter 296-307, Part Y-5, Respirators, with an APF of 25 or more, are acceptable for further selection consideration. In this case, all other respirators must be excluded from your selection process.

PART Y-6
RESPIRATORY HAZARDS

WAC		Page
296-307-624	Scope	1
296-307-626	Evaluate and control employee exposures	3
296-307-62605	Identify and evaluate respiratory hazards.....	3
296-307-62610	Control employee exposures.....	4
296-307-62615	Use respirators.....	6
296-307-62620	Notify employees.....	6
296-307-62625	Permissible exposure limits of air contaminants.....	7
296-307-628	Definitions	46

WAC 296-307-624 Scope.

- (1) This part applies **only** if employees:
 - (a) Are exposed to a respiratory hazard; or
 - (b) Could be exposed to one of the specific hazards listed below.
- (2) This part applies to any workplace with potential or actual employee exposure to respiratory hazards. It requires the employer to protect employees from respiratory hazards by applying this protection strategy:
 - (a) Evaluate employee exposures to determine if controls are needed
 - (b) Use feasible controls. For example, enclose or confine the operation, use ventilation systems, or substitute with less toxic material
 - (c) Use respirators if controls are not feasible or if they cannot completely remove the hazard.

Definition.

Exposed or exposure. The contact an employee has with a toxic substance, harmful physical agent or oxygen deficient condition, whether or not protection is provided by respirators or other personal protective equipment (PPE). Exposure can occur through various routes of entry, such as inhalation, ingestion, skin contact, or skin absorption.

Note: Examples of substances that may be respiratory hazards when airborne include:

1. Chemicals listed in Table 3.
2. Any substance:
 - a. Listed in the latest edition of the NIOSH Registry of Toxic Effects of Chemical Substances;
 - b. For which positive evidence of an acute or chronic health hazard exists through tests conducted by, or known to, the employer;
 - c. That may pose a hazard to human health as stated on a material safety data sheet kept by, or known to, the employer.
 - d. The employer may choose to send the questionnaire to the LCHP ahead of time, giving time to review it and add any necessary questions.

The LCHP determines what questions to add to the questionnaire, if any; however, questions in Parts 1-3 may not be deleted or substantially altered.

These substances can be airborne as dusts, fibers, fogs, fumes, mists, gases, smoke, sprays, vapors, or aerosols.

Reference:

1. Substances in Table 3 that are marked with an X in the “skin” column may require personal protective equipment (PPE). See WAC 296-307-100, Personal protective equipment, for additional information and requirements.
2. If any of the following hazards are present in the workplace, the employer will need both this part and any of the following specific rules that apply:

Hazard
a. Acrylonitrile;
b. Arsenic (inorganic);
c. Asbestos;
d. Benzene;
e. Butadiene;
f. Cadmium;
g. Carcinogens;
h. Coke ovens;
i. Cotton dust;
j. 1,2-Dibromo-3-Chloropropane;
k. Ethylene oxide;
l. Formaldehyde;
m. Lead;
n. Methylene chloride;
o. Methylenedianiline;
p. Thiram;
q. Vinyl chloride.

WAC 296-307-626 Evaluate and control employee exposures.

Employer responsibility:

To protect employees from exposure to respiratory hazards in the workplace by identifying and controlling the hazards.

<i>The employer must meet the requirements...</i>	<i>in this section:</i>
Identify and evaluate employee exposures.	WAC 296-307-62605
Control employee exposures.	WAC 296-307-62610
Use respirators.	WAC 296-307-62615
Notify employees.	WAC 296-307-62620
Permissible exposure limits of air contaminants.	WAC 296-307-62625

WAC 296-307-62605 Identify and evaluate respiratory hazards.

- (1) The employer must make sure employees are protected from potentially hazardous exposure while the employer performs your evaluation.
- (2) The employer must perform the evaluation without considering the protection provided to employees by a respirator
- (3) The employer must determine the form of the hazard, such as dust, mist, gas, oxygen deficiency, or biological agent.
- (4) The employer must make sure to consider:
 - (a) Potential emergency and rescue situations that may occur, such as equipment or power failures, uncontrolled chemical reactions, fire, explosion, or human error;
 - (b) Workplace conditions such as work processes, types of material, control methods, work practices and environmental conditions.
- (5) The employer must determine or reasonably estimate whether any employee is or could be exposed to any of the following:
 - (a) Any airborne substance above a permissible exposure limit (PEL) listed in Table 3;
 - (b) A substance at or above the action level (AL) specified in the rule for that substance;
 - (c) Any other respiratory hazard.
- (6) The employer must use **any** of the following to determine employee exposure:

- (a) Information that would allow an estimate of the level of employee exposure, such as MSDSs or pesticide labels, observations, measurements or calculations;
- (b) Data demonstrating that a particular product, material or activity cannot result in employee exposure at or above the AL or PEL;
- (c) Personal air samples that represent an employee's usual or worst case exposure for the entire shift.

Notes:

1. Rules for specific substances may contain additional requirements for determining employee exposure.
2. Use methods of sampling and analysis that have been validated by the laboratory performing the analysis.
3. Samples from a representative group of employees may be used for other employees performing the same work activities when the duration and level of exposure are similar.

- (7) The employer must consider the atmosphere to be immediately dangerous to life or health (IDLH) when the employer cannot determine or reasonably estimate employee exposure
- (8) The employer must make sure employee exposure, to 2 or more substances with additive health effects, is evaluated using this formula:

$$E_{\text{mix}} = \frac{C_1}{L_1} + \frac{C_2}{L_2} + \dots + \frac{C_N}{L_N}$$

The symbol	Is the . . .
E	Equivalent exposure for the mixture. When the value of E is greater than 1, a respiratory hazard is present.
C	Concentration of a particular substance.
L	TWA, STEL, or ceiling for that substance from Table 3.

WAC 296-307-62610 Control employee exposures.

The employer must use feasible controls to protect employees from exposure to respiratory hazards by:

- (1) Reducing employee exposure to a level that removes the respiratory hazard, such as to a level below the permissible exposure limit (PEL) in Table 3; or
- (2) Reducing the exposure to the lowest achievable level, when the respiratory hazard cannot be removed.

Note: The following table gives examples of control methods.

Table 1 Examples of Possible Controls	
Control:	For example:
Using a different chemical (substitution)	<ul style="list-style-type: none"> • Choose a chemical with a lower evaporation rate or vapor pressure. • Choose a chemical without hazardous ingredients.
Changing a process to lessen emissions	<ul style="list-style-type: none"> • Use hand rolling or paint dipping instead of paint spraying. • Bolt items instead of welding them.
Separating employees from emissions areas and sources	<ul style="list-style-type: none"> • Use control rooms. • Build an enclosure around process machinery or other emissions sources. • Automate a process.
Removing emissions at or near the source (local exhaust ventilation)	<ul style="list-style-type: none"> • Install exhaust hoods or slots to capture emissions. • Use an exhausted enclosure (like a blasting cabinet or laboratory hood).
Diluting and removing emissions in the work area (general exhaust ventilation)	<ul style="list-style-type: none"> • Allow natural air movement to create an adequate airflow through an area. • Use mechanical fans

Table 1 Examples of Possible Controls	
Control:	For example:
Modify work practices	<ul style="list-style-type: none"> • Change the position of the worker relative to the work so fumes, vapors, or smoke do not go into their face.
Rotate employees – Some specific rules prohibit the use of this control method	<ul style="list-style-type: none"> • Move employees to another job that is without exposure, on a schedule to keep their total exposure below the permissible exposure limit.

WAC 296-307-62615 Use respirators.

The employer must require employees to use respiratory protection when respiratory hazards have not been removed using feasible controls. For example, use respirators at any of the following times:

- (1) While controls are being evaluated or put in place;
- (2) When the respiratory hazard is not completely removed;
- (3) When controls are not feasible.

<p>Reference: See WAC 296-307-594, Respirators, for respirator program requirements.</p>

WAC 296-307-62620 Notify employees.

The employer must notify employees who are or may be exposed to respiratory hazards, as specified in Table 2.

<p>Note:</p>

<p>The notification may be provided either individually, to a group, or by posting of results in an appropriate location that is accessible to affected employees.</p>
--

Table 2 Notification Requirements	
Notify employees of:	As follows:
Any exposure result above a permissible exposure limit (PEL)	Within five business days, after the employee's exposure result is known to the employer
The corrective action being taken to reduce employee exposure to or below the PEL	Within fifteen business days, after the employee's exposure result is known to the employer
AND	
The schedule for completion of the corrective action and any reasons why exposures cannot be lowered to below the PEL	
An exposure to these substances:	In writing, as specified in the rule specific to the substance
• Acrylonitrile	
• Arsenic (inorganic)	
• Asbestos	
• Benzene	
• Butadiene	
• Cadmium	
• Coke oven emissions	
• Cotton dust	
• 1,2-Dibromo-3-chloropropane	
• Ethylene oxide	
• Formaldehyde	
• Lead	
• Methylene chloride	
• Methylenedianiline	
• Vinyl chloride	

WAC 296-307-62625 Permissible exposure limits of air contaminants.**Important:**

The following information applies to Table 3, Permissible Exposure Limits for Air Contaminants.

1. Exposure needs to be determined from personal air samples taken in the breathing zone or from monitoring representative of the employee's breathing zone.
2. Ppm refers to parts of vapor or gas per million parts of air by volume, at 25 degrees C and 760 mm Hg pressure.
3. Mg/m³ refers to milligrams of substance per cubic meter of air.
4. For a metal that is measured as the metal itself, only the CAS number for the metal is given. The CAS numbers for individual compounds of the metal are not provided. For more information about CAS registry numbers see the website: <https://www.cas.org>.
5. Time weighted averages (TWA₈) represent the maximum allowed average exposure for any 8-hour time period. For work periods longer than 8 hours the TWA₈ needs to be determined using the 8 continuous hours with the highest average concentration.
6. Short-term exposure limits (STEL) represent maximum allowed average exposure for any fifteen-minute period, unless another time period is noted in Table 3.
7. The ceiling represents the maximum allowed exposure for the shortest time period that can feasibly be measured.
8. An "X" in the "skin" column indicates the substance can be absorbed through the skin, either by airborne or direct contact.
9. Requirements for the use of gloves, coveralls, goggles, and other personal protective equipment can be found in WAC 296-307-100.

The respirable fraction of particulate is measured by sampling with a size-selector having the following characteristics:

Mean aerodynamic diameter in micrometers	Percent passing the selector
1	97
2	91
3	74
4	50
5	30
6	17
7	9
8	5
10	1

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Abate (Temephos)	3383-96-8	----	----	----	----
tal particulate	To ----	10 mg/m ³	20 mg/m ³	----	----
	Re ----	5 mg/m ³	10 mg/m ³	----	----
spirable fraction					
Acetaldehyde	75-07-0	100 ppm	150 ppm	----	----
Acetic acid	64-19-7	10 ppm	20 ppm	----	----
Acetic anhydride	108-24-7	----	----	5 ppm	----
Acetone	67-64-1	750 ppm	1,000 ppm	----	----
Acetonitrile	75-05-8	40 ppm	60 ppm	----	----
2-Acetylaminofluorene	53-96-3	----	----	----	----
Acetylene	74-86-2	Simple asphyxiant	----	----	----
Acetylene dichloride	540-59-0	200 ppm	250 ppm	----	----
(1, 2-Dichloroethylene)					
Acetylene tetrabromide	79-27-6	1 ppm	3 ppm	----	----
Acetylsalicylic acid	50-78-2	5 mg/m ³	10 mg/m ³	----	----
(A spirin)					
Acrolein	107-02-8	0.1 ppm	0.3 ppm	----	----
Acrylamide	79-06-1	0.03 mg/m ³	0.09 mg/m ³	----	X
Acrylic acid	79-10-7	10 ppm	20 ppm	----	X
Acrylonitrile (Vinyl cyanide)	107-13-1	2 ppm	10 ppm	----	----
Aldrin	309-00-2	0.25 mg/m ³	0.75 mg/m ³	----	X
Allyl alcohol	107-18-6	2 ppm	4 ppm	----	X

Table 3 "Permissible Exposure Limits for Air Contaminants"

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Allyl chloride	107-05-1	1 ppm	2 ppm	----	----
Allyl glycidyl ether (AGE)	106-92-3	5 ppm	10 ppm	----	----
Allyl propyl disulfide	2179-59-1	2 ppm	3 ppm	----	----
alpha-Alumina (Aluminum oxide)	1344-28-1	----	----	----	----
Total particulate respirable fraction	To	10 mg/m ³	20 mg/m ³	----	----
Aluminum (as Al)	7429-90-5	----	----	----	----
Total particulate respirable fraction	To	10 mg/m ³	20 mg/m ³	----	----
Flour dusts	Re	5 mg/m ³	10 mg/m ³	----	----
Welding fumes	Py	5 mg/m ³	10 mg/m ³	----	----
Aluminum oxide (Alundum, Alundum)	W	5 mg/m ³	10 mg/m ³	----	----
Total particulate	Sol	2 mg/m ³	4 mg/m ³	----	----
Total particulate	Al	2 mg/m ³	4 mg/m ³	----	----
Total particulate	Al	----	----	----	----
Total particulate	Co	----	----	----	----
Total particulate	To	10 mg/m ³	20 mg/m ³	----	----

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
spirable fraction	Re ----	5 mg/m ³	10 mg/m ³	----	----
4-Aminodiphenyl	92-67-1	----	----	----	----
2-Aminoethanol (Et hanolamine)	141-43-5	3 ppm	6 ppm	----	----
2-Aminopyridine	504-29-0	0.5 ppm	1.5 ppm	----	----
Amitrole	61-82-5	0.2 mg/m ³	0.6 mg/m ³	----	----
Ammonia	7664-41-7	25 ppm	35 ppm	----	----
Ammonium chloride, fume	12125-02-9	10 mg/m ³	20 mg/m ³	----	----
Ammonium sulfamate (Ammate)	7773-06-0	----	----	----	----
tal particulate	To ----	10 mg/m ³	20 mg/m ³	----	----
spirable fraction	Re ----	5.0 mg/m ³	10 mg/m ³	----	----
n-Amyl acetate	628-63-7	100 ppm	150 ppm	----	----
sec-Amyl acetate	626-38-0	125 ppm	156 ppm	----	----
Aniline and homologues	62-53-3	2 ppm	4 ppm	----	X
Anisidine (o, p-isomers)	29191-52-4	0.1 ppm	0.3 ppm	----	X
Antimony and compounds (as Sb)	7440-36-0	0.5 mg/m ³	1.5 mg/m ³	----	----
ANTU (alpha Naphthyl thiourea)	86-88-4	0.3 mg/m ³	0.9 mg/m ³	----	----
Argon	7440-37-1	Simple asphyxiant	----	----	----

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Arsenic, organic compounds (as As)	7440-38-2	0.2 mg/m ³	0.6 mg/m ³	----	----
Arsenic, inorganic compounds (as As) (when use is covered by WAC 296-62-07347)	7440-38-2	0.01 mg/m ³	----	----	----
Arsenic, inorganic compounds (as As) (when use is not covered by WAC 296-62-07347)	7440-38-2	0.2 mg/m ³	0.6 mg/m ³	----	----
Arsine	7784-42-1	0.05 ppm	0.15 ppm	----	----
Asbestos	----	----	----	----	----
Asphalt (Petroleum fumes)	8052-42-4	5 mg/m ³	10 mg/m ³	----	----
Atrazine	1912-24-9	5 mg/m ³	10 mg/m ³	----	----
Azinphos methyl (Guthion)	86-50-0	0.2 mg/m ³	0.6 mg/m ³	----	X
Azodrin (Monocrotophos)	6923-22-4	0.25 mg/m ³	0.75 mg/m ³	----	----
Barium, soluble compounds (as Ba)	7440-39-3	0.5 mg/m ³	1.5 mg/m ³	----	----
Barium sulfate	7727-43-7	----	----	----	----
Total particulate	To ----	10 mg/m ³	20 mg/m ³	----	----

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Respirable fraction	Re ----	5 mg/m ³	10 mg/m ³	----	----
Baygon (Propoxur)	114-26-1	0.5 mg/m ³	1.5 mg/m ³	----	----
Benomyl	17804-35-2	----	----	----	----
Total particulate	To ----	10 mg/m ³	20 mg/m ³	----	----
Respirable fraction	----	5 mg/m ³	10 mg/m ³	----	----
Benzene	71-43-2	1 ppm	5 ppm	----	----
Benzydine	92-87-5	----	----	----	----
p-Benzoquinone	106-51-4	0.1 ppm	0.3 ppm	----	----
Quinone)	(Q				
Benzo(a) pyrene (Coal tar pitch volatiles)	65996-93-2	0.2 mg/m ³	0.6 mg/m ³	----	----
Benzoyl peroxide	94-36-0	5 mg/m ³	10 mg/m ³	----	----
Benzyl chloride	100-44-7	1ppm	3 ppm	----	----
Beryllium and beryllium compounds (as Be) (see chapter 296-850 WAC)	7440-41-7	0.0002 mg/m ³	0.002 mg/m ³	----	----
Biphenyl (Diphenyl)	92-52-4	0.2 ppm	0.6 ppm	----	----
Bismuth telluride, undoped	1304-82-1	----	----	----	----
Total particulate	To ----	10 mg/m ³	20 mg/m ³	----	----

Table 3 "Permissible Exposure Limits for Air Contaminants"

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
spirable fraction	Re ----	5 mg/m ³	10 mg/m ³	----	----
Bismuth telluride, Se-doped	----	5 mg/m ³	10 mg/m ³	----	----
Borates, tetra, sodium salts	----	----	----	----	----
hydrous	An 1330-43-4	1 mg/m ³	3 mg/m ³	----	----
cahydrate	De 1303-96-4	5 mg/m ³	10 mg/m ³	----	----
ntahydrate	Pe 12179-04-3	1 mg/m ³	3 mg/m ³	----	----
Boron oxide	1303-86-2	----	----	----	----
tal particulate	To ----	10 mg/m ³	20 mg/m ³	----	----
Boron tribromide	10294-33-4	----	----	1 ppm	----
Boron trifluoride	6737-07-2	----	----	1 ppm	----
Bromacil	314-40-9	1 ppm	3 ppm	----	----
Bromine	7726-95-6	0.1 ppm	0.3 ppm	----	----
Bromine pentafluoride	7789-30-2	0.1 ppm	0.3 ppm	----	----
Bromochloromethane	74-97-5	200 ppm	250 ppm	----	----
chlorobromomethane)	(C				
Bromoform	15-25-2	0.5 ppm	1.5 ppm	----	X
Butadiene	106-99-0	1 ppm	5 ppm	----	----
1,3-butadiene)	(1,				
Butane	106-97-8	800 ppm	1,000 ppm	----	----

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Butanethiol	109-79-5	0.5 ppm	1.5 ppm	----	----
(B utyl mercaptan)					
2-Butanone	78-93-3	200 ppm	300 ppm	----	----
(Methyl ethyl ketone)					
2-Butoxy ethanol	111-76-2	25 ppm	38 ppm	----	X
(B utyl cellosolve)					
n-Butyl acetate	123-86-4	150 ppm	200 ppm	----	----
sec-Butyl acetate	105-46-4	200 ppm	250 ppm	----	----
tert-Butyl acetate	540-88-5	200 ppm	250 ppm	----	----
Butyl acrylate	141-32-2	10 ppm	20 ppm	----	----
n-Butyl alcohol	71-36-3	----	----	50 ppm	X
sec-Butyl alcohol	78-92-2	100 ppm	150 ppm	----	----
tert-Butyl alcohol	75-65-0	100 ppm	150 ppm	----	----
Butylamine	109-73-9	----	----	5 ppm	X
Butyl cellosolve (2-Butoxy ethanol)	111-76-2	25 ppm	38 ppm	----	----
tert-Butyl chromate	1189-85-1	----	----	0.1 mg/m ³	X
(as CrOs)					
n-Butyl glycidyl ether (BGE)	2426-08-6	25 ppm	38 ppm	----	----
n-Butyl lactate	138-22-7	5 ppm	10 ppm	---	----
Butyl mercaptan	109-79-5	0.5 ppm	1.5 ppm	----	----
o-sec-Butylphenol	89-72-5	5 ppm	10 ppm	----	X
p-tert-Butyl-toluene	98-51-1	10 ppm	20 ppm	----	----

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Cadmium oxide fume (as Cd)	1306-19-0	0.005 mg/m ³	----	----	----
Cadmium dust and salts (as Cd)	7440-43-9	0.005 mg/m ³	----	----	----
Calcium arsenate	----	0.01 mg/m ³	----	----	----
Calcium carbonate	1317-65-3	----	----	----	----
Total particulate	Tot	10 mg/m ³	20 mg/m ³	----	----
	Res	5 mg/m ³	10 mg/m ³	----	----
Respirable fraction					
Calcium cyanamide	156-62-7	0.5 mg/m ³	1.5 mg/m ³	----	----
Calcium hydroxide	1305-62-05	mg/m ³	10 mg/m ³	----	----
Calcium oxide	1305-78-82	mg/m ³	4 mg/m ³	----	----
Calcium silicate	1344-95-2	----	----	----	----
Total particulate	Tot	10 mg/m ³	20 mg/m ³	----	----
	Res	5 mg/m ³	10 mg/m ³	----	----
Respirable fraction					
Calcium sulfate	7778-18-9	----	----	----	----
Total particulate	Tot	10 mg/m ³	20 mg/m ³	----	----
	Res	5 mg/m ³	10 mg/m ³	----	----
Respirable fraction					
Camphor (synthetic)	76-22-2	2 mg/m ³	4 mg/m ³	----	----
Caprolactam	105-60-2	----	----	----	----
Dust	Dus	1 mg/m ³	3 mg/m ³	----	----

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
or	Vap----	5 ppm	10 ppm	----	----
Captafol	2425-06-10	10.1 mg/m ³	0.3 mg/m ³	----	X
(Dif					
olatan)					
Captan	133-06-2	5 mg/m ³	10 mg/m ³	----	----
Carbaryl (Sevin)	63-25-2	5 mg/m ³	10 mg/m ³	----	----
Carbofuran (Furadon)	1563-66-20	0.1 mg/m ³	0.3 mg/m ³	----	----
Carbon black	1333-86-4	3.5 mg/m ³	7 mg/m ³	----	----
Carbon dioxide	124-38-9	5,000 ppm	30,000 ppm	----	----
Carbon disulfide	75-15-0	4 ppm	12 ppm	----	X
Carbon monoxide	630-08-0	35 ppm	200 ppm (5 min.)	1,500 ppm	----
Carbon tetrabromide	558-13-4	0.1 ppm	0.3 ppm	----	----
Carbon tetrachloride	56-23-5	2 ppm	4 ppm	----	X
(Tet					
rachloromethane)					
Carbonyl chloride	7803-51-20	1 ppm	0.3 ppm	----	----
(Ph					
osgene)					
Carbonyl fluoride	353-50-4	2 ppm	5 ppm	----	----
Catechol (Pyrocatechol)	120-80-9	5 ppm	10 ppm	----	X
Cellosolve acetate	111-15-9	5 ppm	10 ppm	----	X
(2- Ethoxyethylacetate)					
Cellulose (paper fiber)	9004-34-6	----	----	----	----
Tot ----		10 mg/m ³	20 mg/m ³	----	----
al particulate					

Table 3 "Permissible Exposure Limits for Air Contaminants"

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
pirable fraction	Res ----	5 mg/m ³	10 mg/m ³	----	----
Cesium hydroxide	21351-79-2 1	2 mg/m ³	4 mg/m ³	----	----
Chlordane	57-74-9	0.5 mg/m ³	1.5 mg/m ³	----	X
Chlorinated camphene	8001-35-20.5	20.5 mg/m ³	1 mg/m ³	----	X
(To xaphen)					
Chlorinated diphenyl oxide	55720-99-0.5 5	0.5 mg/m ³	1.5 mg/m ³	----	----
Chlorine	7782-50-50.5	50.5 ppm	----	1 ppm	----
Chlorine dioxide	10049-04-0.1 4	0.1 ppm	0.3 ppm	----	----
Chlorine trifluoride	7790-91-2----	----	----	0.1 ppm	----
Chloroacetaldehyde	107-20-0 ----	----	----	1 ppm	----
a-Chloroacetophenone	532-21-4	0.05 ppm	0.15 ppm	----	----
(Ph enacyl chloride)					
Chloroacetyl chloride	79-04-9	0.05 ppm	0.15 ppm	----	----
Chlorobenzene	108-90-7	75 ppm	113 ppm	----	----
(M onochlorobenzene)					
o-Chlorobenzylidene malononitrile (OCBM)	2698-41-1----	----	----	0.05 ppm	X
Chlorobromomethane	74-97-5	200 ppm	250 ppm	----	----
2-Chloro-1, 3-butadiene	126-99-8	10 ppm	20 ppm	----	X
(be ta-Chloroprene)					

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Chlorodifluoromethane	75-45-6	1,000 ppm	1,250 ppm	----	----
Chlorodiphenyl (42% Chlorine) (PCB)	53469-21-1 9	1 mg/m ³	3 mg/m ³	----	X
Polychlorobiphenyls)	(Pol				
Chlorodiphenyl (54 % Chlorine)	11097-69-0 1	0.5 mg/m ³	1.5 mg/m ³	----	X
Polychlorobiphenyls (PC	(Pol				
B))					
1-Chloro-2, 3- epoxypropane	106-89-8	2 ppm	4 ppm	----	X
Epichlorohydrin)	(Epi				
2-Chloroethanol (Ethylene chlorohydrin)	107-07-3	----	----	1 ppm	X
Chloroethylene (vinyl chloride)	75-01-4	1 ppm	5 ppm	----	----
Chloroform (Trichloromethane)	67-66-3	2 ppm	4 ppm	----	----
1-Chloro-1-nitropropane	600-25-9	2 ppm	4 ppm	----	----
bis-Chloromethyl ether	542-88-1	----	----	----	----

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Chloromethyl methyl ether (Methyl chloromethyl ether)	107-30-2	----	----	----	----
Chloropentafluoroethane	76-15-3	1,000 ppm	1,250 ppm	----	----
Chloropicrin (Nitrotrichloromethane)	76-06-2	0.1 ppm	0.3 ppm	----	----
beta-Chloroprene (2-Chloro-1,3-butadiene)	126-99-8	10 ppm	20 ppm	----	X
o-Chlorostyrene	2039-87-4	450 ppm	75 ppm	----	----
o-Chlorotoluene	95-49-8	50 ppm	75 ppm	----	----
2-Chloro-6-trichloromethyl pyridine (Nitrpyrin)	1929-82-4	----	----	----	----
Total particulate	Tot	----	10 mg/m ³	20 mg/m ³	----
Respirable fraction	Res	----	5 mg/m ³	10 mg/m ³	----
Chlorpyrifos	2921-88-2	20.2 mg/m ³	0.6 mg/m ³	----	X
Chromic acid and chromates (as compound)	Varies with	0.1 mg/m ³	0.3 mg/m ³	----	----
Chromium, soluble, chromic and chromous salts (as Cr)	7440-47-3	0.5 mg/m ³	1.5 mg/m ³	----	----

Table 3 "Permissible Exposure Limits for Air Contaminants"

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Chromium (VI) compounds (as Cr)	---	0.05 mg/m ³	0.15 mg/m ³	---	---
Chromium metal and insoluble salts	7440-47-3	0.5 mg/m ³	1.5 mg/m ³	---	---
Chromyl chloride	14977-61-8	0.025 ppm	0.075 ppm	---	---
Chrysene (Coal tar pitch volatiles)	65996-93-2	0.2 mg/m ³	0.6 mg/m ³	---	---
Clopidol	2971-90-6	---	---	---	---
Total particulate	To	10 mg/m ³	20 mg/m ³	---	---
Respirable fraction	Re	5 mg/m ³	10 mg/m ³	---	---
Coal dust (less than 5% SiO ₂)	---	---	---	---	---
Respirable fraction	Re	2 mg/m ³	4 mg/m ³	---	---
Coal dust (greater than or equal to 5% SiO ₂)	---	---	---	---	---
Respirable fraction	Re	0.1 mg/m ³	0.3 mg/m ³	---	---
Coal tar pitch volatiles (benzene soluble fraction) (Particulate polycyclic aromatic hydrocarbons)	65996-93-2	0.2 mg/m ³	0.6 mg/m ³	---	---

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Cobalt, metal fume & dust (as Co)	7440-48-4	0.05 mg/m ³	0.15 mg/m ³	----	----
Cobalt carbonyl (as Co)	10210-68-1	0.1 mg/m ³	0.3 mg/m ³	----	----
Cobalt hydrocarbonyl (as Co)	16842-03-8	0.1 mg/m ³	0.3 mg/m ³	----	----
Coke oven emissions	----	0.15 mg/m ³	----	----	----
Copper (as Cu)	7440-50-8	----	----	----	----
me	Fu	0.1 mg/m ³	0.3 mg/m ³	----	----
Dusts and mists	----	1 mg/m ³	3 mg/m ³	----	----
Cotton dust (raw) (waste sorting, blending, cleaning, willowing and garetting) (see WAC 296-62-14533)	----	1 mg/m ³	----	----	----
Corundum (Aluminum oxide)	7429-90-5	----	----	----	----
tal particulate	To	10 mg/m ³	20 mg/m ³	----	----
spirable fraction	Re	5 mg/m ³	10 mg/m ³	----	----
Crag herbicide (Sesone, Sodium-2, 4-dichloro-phenoxyethyl)	136-78-7	----	----	----	----
fate)	sul				
tal particulate	To	10 mg/m ³	20 mg/m ³	----	----

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
spirable fraction	Re ----	5 mg/m ³	10 mg/m ³	----	----
Cresol (all isomers)	1319-77-3	5 ppm	10 ppm	----	X
Crotonaldehyde	123-73-9; 4170-30-3	2 ppm	4 ppm	----	----
Cruformate	299-86-5	5 mg/m ³	10 mg/m ³	----	----
Cumene	98-82-8	50 ppm	75 ppm	----	X
Cyanamide	420-04-2	2 mg/m ³	4 mg/m ³	----	----
Cyanide (as CN compound)	Varies with	5 mg/m ³	10 mg/m ³	----	X
Cyanogen	460-19-5	10 ppm	20 ppm	----	----
Cyanogen chloride	506-77-4	----	----	0.3 ppm	----
Cyclohexane	110-82-7	300 ppm	375 ppm	----	----
Cyclohexanol	108-93-0	50 ppm	75 ppm	----	X
Cyclohexanone	108-94-1	25 ppm	38 ppm	----	X
Cyclohexene	110-83-8	300 ppm	375 ppm	----	----
Cyclohexylamine	108-91-8	10 ppm	20 ppm	----	----
Cyclonite (RDX)	121-82-4	1.5 mg/m ³	3.0 mg/m ³	----	X
Cyclopentadiene	542-92-7	75 ppm	113 ppm	----	----
Cyclopentane	287-92-3	600 ppm	750 ppm	----	----
Cyhexatin (Tricyclohexyltin hydroxide)	13121-70-5	5 mg/m ³	10 mg/m ³	----	----
2,4-D (Dichlorophenoxyacetic acid)	94-75-7	10 mg/m ³	20 mg/m ³	----	----

Table 3 "Permissible Exposure Limits for Air Contaminants"

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
DBCP (1,2-Dibromo-3-chloropropane)	96-12-8	0.001 ppm	----	0.005 ppm	----
DDT (Dichlorodiphenyltri-chloroethane)	50-29-3	1 mg/m ³	3 mg/m ³	----	X
DDVP, (Dichlorvos)	62-73-7	0.1 ppm	0.3 ppm	----	X
Dasanit (Fensulfothion)	115-90-2	0.1 mg/m ³	0.3 mg/m ³	----	----
Decaborane	17702-41-9	0.05 ppm	0.15 ppm	----	X
Demeton	8065-48-3	0.01 ppm	0.03 ppm	----	X
Diacetone alcohol (4-hydroxy-4-methyl-2-pentanone)	123-42-2	50 ppm	75 ppm	----	----
1, 2-Diaminoethane (Ethylenediamine)	107-15-3	10 ppm	20 ppm	----	----
Diazinon	333-41-5	0.1 mg/m ³	0.3 mg/m ³	----	X
Diazomethane	334-88-3	0.2 ppm	0.6 ppm	----	----
Diborane	19287-45-7	0.1 ppm	0.3 ppm	----	----
Dibrom (see Naled)	300-76-5	3 mg/m ³	6 mg/m ³	----	X
1, 2-Dibromo-3-chloropropane (DBCP)	96-12-8	0.001 ppm	----	0.005 ppm	----

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
2-N-Dibutylamino ethanol	102-81-8	2 ppm	4 ppm	----	X
Dibutyl phosphate	107-66-4	1 ppm	2 ppm	----	----
Dibutyl phthalate	84-74-2	5 mg/m ³	10 mg/m ³	----	----
Dichloroacetylene	7572-29-4	----	----	0.1 ppm	----
o-Dichlorobenzene	95-50-1	----	----	50 ppm	----
p-Dichlorobenzene	106-46-7	75 ppm	110 ppm	----	----
3, 3'-Dichlorobenzidine	91-94-1	----	----	----	----
Dichlorodiphenyltri- chl oroethane (DDT)	50-29-3	1 mg/m ³	3 mg/m ³	----	X
Dichlorodifluoromethane	75-71-8	1,000 ppm	1,250 ppm	----	----
1, 3-Dichloro-5, 5-dimethyl Hy dantoin	118-52-5	0.2 mg/m ³	0.4 mg/m ³	----	----
1, 1-Dichloroethane (Et hylidine chloride)	75-34-3	100 ppm	150 ppm	----	----
1, 2-Dichloroethane (Et hylene dichloride)	107-06-2	1 ppm	2 ppm	----	----
1, 1-Dichloroethylene (Vinylidene chloride)	75-35-4	1 ppm	3 ppm	----	----
1, 2-Dichloroethylene (Acetylene dic hloride)	540-59-0	200 ppm	250 ppm	----	----
Dichloroethyl ether	111-44-4	5 ppm	10 ppm	----	X

Table 3 "Permissible Exposure Limits for Air Contaminants"

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Dichlorofluoromethane	75-43-4	10 ppm	20 ppm	----	----
Dichloromethane	75-09-2	25 ppm	125 ppm	----	----
(M ethylene chloride)					
1, 1-Dichloro-1-nitroethane	594-72-9	2 ppm	10 ppm	----	----
Dichlorophenoxyacetic acid	94-75-7	10 mg/m ³	20 mg/m ³	----	----
(2, 4-D)					
1, 2-Dichloropropane	78-87-5	75 ppm	110 ppm	----	----
(Propylene dichloride)					
Dichloropropene	542-75-6	1 ppm	3 ppm	----	X
2, 2-Dichloropropionic acid	75-99-0	1 ppm	3 ppm	----	----
Dichlorotetrafluoroethane	76-14-2	1,000 ppm	1,250 ppm	----	----
Dichlorvos (DDVP)	62-73-7	0.1 ppm	0.3 ppm	----	X
Dicrotophos	141-66-2	0.25 mg/m ³	0.75 mg/m ³	----	X
Dicyclopentadiene	77-73-6	5 ppm	10 ppm	----	----
Dicyclopentadienyl iron	102-54-5	----	----	----	----
To tal particulate	----	10 mg/m ³	20 mg/m ³	----	----
Re spirable fraction	----	5 mg/m ³	10 mg/m ³	----	----
Dieldrin	60-57-1	0.25 mg/m ³	0.75 mg/m ³	----	X
Diethanolamine	111-42-2	3 ppm	6 ppm	----	----
Diethylamine	109-89-7	10 ppm	25 ppm	----	----

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
2-Diethylaminoethanol	100-37-8	10 ppm	20 ppm	----	X
Diethylene triamine	111-40-0	1 ppm	3 ppm	----	X
Diethyl ether (Ethyl ether)	60-29-7	400 ppm	500 ppm	----	----
Diethyl ketone	96-22-0	200 ppm	250 ppm	----	----
Diethyl phthalate	84-66-2	5 mg/m ³	10 mg/m ³	----	----
Difluorodibromomethane	75-61-6	100 ppm	150 ppm	----	----
Difolatan (Captafol)	2425-06-1	0.1 mg/m ³	0.3 mg/m ³	----	X
Diglycidyl ether (DGE)	2238-07-5	0.1 ppm	0.3 ppm	----	----
Dihydroxybenzene	123-31-9	2 mg/m ³	4 mg/m ³	----	----
(H ydroquinone)					
Diisobutyl ketone (2, 6- Di methylheptanone)	108-83-8	25 ppm	38 ppm	----	----
Diisopropylamine	108-18-9	5 ppm	10 ppm	----	X
Dimethoxymethane (Methylal)	109-87-5	1,000 ppm	1,250 ppm	----	----
Dimethyl acetamide	127-19-5	10 ppm	20 ppm	----	X
Dimethylamine	124-40-3	10 ppm	20 ppm	----	----
4-Dimethylaminoazo benzene	60-11-7	----	----	----	----
Dimethylaminobenzene (X ylidene)	1300-73-8	2 ppm	4 ppm	----	X
Dimethylaniline (N, N- Dimethylaniline)	121-69-7	5 ppm	10 ppm	----	X
Dimethylbenzene (Xylene)	1300-73-8	100 ppm	150 ppm	----	----

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Dimethyl-1, 2-dibromo-2, 2-dichloroethyl phosphate (Naled)	300-76-5	3 mg/m ³	6 mg/m ³	----	X
Dimethylformamide	68-12-2	10 ppm	20 ppm	----	X
2, 6-Dimethylheptanone (Diisobutyl ketone)	108-83-8	25 ppm	38 ppm	----	----
1, 1-Dimethylhydrazine	57-14-7	0.5 ppm	1.5 ppm	----	X
Dimethyl phthalate	131-11-3	5 mg/m ³	10 mg/m ³	----	----
Dimethyl sulfate	77-78-1	0.1 ppm	0.3 ppm	----	X
Dinitolmide (3, 5-Dinitro-o-toluamide)	148-01-6	5 mg/m ³	10 mg/m ³	----	----
Dinitrobenzene (all isomers - alpha, meta and para)	528-29-0; 99-65-0; 100-25-4	0.15 ppm	0.45 ppm	----	X
Dinitro-o-cresol	534-52-1	0.2 mg/m ³	0.6 mg/m ³	----	X
3, 5-Dinitro-o-toluamide (Dinitolmide)	148-01-6	5 mg/m ³	10 mg/m ³	----	----
Dinitrotoluene	25321-14-6	1.5 mg/m ³	3 mg/m ³	----	X
Dioxane (Diethylene dioxide)	123-91-1	25 ppm	38 ppm	----	X
Dioxathion	78-34-2	0.2 mg/m ³	0.6 mg/m ³	----	X
Diphenyl (Biphenyl)	92-52-4	0.2 ppm	0.6 ppm	----	----

Table 3 "Permissible Exposure Limits for Air Contaminants"

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Diphenylamine	122-39-4	10 mg/m ³	20 mg/m ³	----	----
Diphenylmethane diisocyanate (Methylene bisphenyl isocyanate (MDI))	101-68-8	----	----	0.02 ppm	----
Dipropylene glycol methyl ether	34590-94-8	100 ppm	150 ppm	----	X
Dipropyl ketone	123-19-3	50 ppm	75 ppm	----	----
Diquat	85-00-7	0.5 mg/m ³	1.5 mg/m ³	----	----
Di-sec, Octyl phthalate (Di-2-ethylhexylphthalate)	117-81-7	5 mg/m ³	10 mg/m ³	----	----
Disulfram	97-77-8	2 mg/m ³	4 mg/m ³	----	----
Disulfoton	298-04-4	0.1 mg/m ³	0.3 mg/m ³	----	X
2, 6-Di-tert-butyl-p-cresol	128-37-0	10 mg/m ³	20 mg/m ³	----	----
Diuron	330-54-1	10 mg/m ³	20 mg/m ³	----	----
Divinyl benzene	1321-74-0	10 ppm	20 ppm	----	----
Emery	12415-34-8	----	----	----	----
tal particulate	To ----	10 mg/m ³	20 mg/m ³	----	----
	Re ----	5 mg/m ³	10 mg/m ³	----	----
spirable fraction					
Endosulfan (Thiodan)	115-29-7	0.1 mg/m ³	0.3 mg/m ³	----	X
Endrin	72-20-8	0.1 mg/m ³	0.3 mg/m ³	----	X

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Epichlorhydrin (1-Chloro-2,3-epoxypropane)	106-89-8	2 ppm	4 ppm	----	X
EPN	2104-64-5	0.5 mg/m ³	1.5 mg/m ³	----	X
1, 2-Epoxypropane (Propylene oxide)	75-56-9	20 ppm	30 ppm	----	----
2, 3-Epoxy-1-propanol (Glycidol)	556-52-5	25 ppm	38 ppm	----	----
Ethane	----	Simple asphyxiant	----	----	----
Ethanethiol (Ethyl mercaptan)	75-08-1	0.5 ppm	1.5 ppm	----	----
Ethanol (Ethyl alcohol)	64-17-5	1,000 ppm	1,250 ppm	----	----
Ethanolamine (2-Aminoethanol)	141-43-5	3 ppm	6 ppm	----	----
Ethion	563-12-2	0.4 mg/m ³	1.2 mg/m ³	----	X
2-Ethoxyethanol (Glycol monoethyl ether)	110-80-5	5 ppm	10 ppm	----	X
2-Ethoxyethyl acetate (Cellosolve acetate)	111-15-9	5 ppm	10 ppm	----	X
Ethyl acetate	141-78-6	400 ppm	500 ppm	----	----
Ethyl acrylate	140-88-5	5 ppm	25 ppm	----	X

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Ethyl alcohol (ethanol)	64-17-5	1,000 ppm	1,250 ppm	----	----
Ethylamine	75-04-07	10 ppm	20 ppm	----	----
Ethyl amyl ketone	541-85-5	25 ppm	38 ppm	----	----
(5-Methyl-3-hepatone)					
Ethyl benzene	100-41-4	100 ppm	125 ppm	----	----
Ethyl bromide	74-96-4	200 ppm	250 ppm	----	----
Ethyl butyl ketone	106-35-4	50 ppm	75 ppm	----	----
(3-Heptanone)					
Ethyl chloride	75-00-3	1,000 ppm	1,250 ppm	----	----
Ethylene	74-85-1	Simple asphyxiant	----	----	----
Ethylene chlorohydrin	107-07-3	----	----	1 ppm	X
(2-Chloroethanol)					
Ethylenediamine (1,2-Di aminoethane)	107-15-3	10 ppm	20 ppm	----	X
Ethylene dibromide	106-93-4	0.1 ppm	0.5 ppm	----	----
Ethylene dichloride	107-06-2	1 ppm	2 ppm	----	----
(1,2-Dichloroethane)					
Ethylene glycol	107-21-1	----	----	50 ppm	----
Ethylene glycol dinitrate	628-96-6	----	0.1 mg/m ³	----	X
Ethylene glycol monomethyl ether acetate (Methyl cellosolve acetate)	----	5 ppm	10 ppm	----	X

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Ethyleneimine	151-56-4	----	----	----	X
Ethylene oxide	75-21-8	1 ppm	5 ppm	----	----
(see e WAC 29 6-62-07359)					
Ethyl ether (Diethyl ether)	60-29-7	400 ppm	500 ppm	----	----
Ethyl formate	109-94-4	100 ppm	125 ppm	----	----
Ethylidene chloride (1, 1-Dichloroethane)	107-06-2	1 ppm	2 ppm	----	----
Ethylidene norbornene	16219-75-3	----	----	5.0 ppm	----
Ethyl mercaptan (Ethanethiol)	75-08-1	0.5 ppm	1.5 ppm	----	----
n-Ethylmorpholine	100-74-3	5 ppm	10 ppm	----	X
Ethyl sec-amyl ketone (5-methyl-3-heptanone)	541-85-5	25 ppm	38 ppm	----	----
Ethyl silicate	78-10-4	10 ppm	20 ppm	----	----
Fenamiphos	22224-92-6	0.1 mg/m ³	0.3 mg/m ³	----	X
Fensulfothion (Dasanit)	115-90-2	0.1 mg/m ³	0.3 mg/m ³	----	----
Fenthion	55-38-9	0.2 mg/m ³	0.6 mg/m ³	----	X
Ferbam	----	----	----	----	----
tal particulate	To 14484-64-1	10 mg/m ³	20 mg/m ³	----	----
Ferrovandium dust	12604-58-9	1 mg/m ³	3 mg/m ³	----	----

Table 3 "Permissible Exposure Limits for Air Contaminants"

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Fluorides (as F)	Varies with compound	2.5 mg/m ³	5 mg/m ³	----	----
Fluorine	7782-41-4	0.1 ppm	0.3 ppm	----	----
Fluorotrichloromethane (see Trichlorofluoro methane)	75-69-4	----	----	1,000 ppm	----
Fonofos	944-22-9	0.1 mg/m ³	0.3 mg/m ³	----	X
Formaldehyde	50-00-0	0.75 ppm	2 ppm	----	----
Formamide	75-12-7	20 ppm	30 ppm	----	----
Formic acid	64-18-6	5 ppm	10 ppm	----	----
Furadon (ca rbofuran)	1563-66-2	0.1 mg/m ³	0.3 mg/m ³	----	----
Furfural	98-01-1	2 ppm	4 ppm	----	X
Furfuryl alcohol	98-00-0	10 ppm	15 ppm	----	X
Gasoline	8006-61-9	300 ppm	500 ppm	----	----
Germanium tetrahydride	7782-65-2	0.2 ppm	0.6 ppm	----	----
Glass, fibrous or dust	----	10 mg/m ³	20 mg/m ³	----	----
Gluteraldehyde	111-30-8	----	----	0.2 ppm	----
Glycerin mist	56-81-5	----	----	----	----
tal particulate	To ----	10 mg/m ³	20 mg/m ³	----	----
spirable fraction	Re ----	5 mg/m ³	10 mg/m ³	----	----
Glycidol (2, 3-Epoxy-1- propanol)	556-52-5	25 ppm	38 ppm	----	----

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Glycol monoethyl ether (2-Ethoxyethanol)	110-80-5	5 ppm	10 ppm	----	X
Grain dust (oat, wheat, barley)	----	10 mg/m ³	20 mg/m ³	----	----
Graphite, natural	7782-42-5	----	----	----	----
Respirable particulate	----	2.5 mg/m ³	5 mg/m ³	----	----
Graphite, synthetic	----	----	----	----	----
Total particulate	To ----	10 mg/m ³	20 mg/m ³	----	----
Respirable fraction	Re ----	5 mg/m ³	10 mg/m ³	----	----
Guthion (Azinphosmethyl)	86-50-0	0.2 mg/m ³	0.6 mg/m ³	----	X
Gypsum	13397-24-5	----	----	----	----
Total particulate	To ----	10 mg/m ³	20 mg/m ³	----	----
Respirable fraction	Re ----	5 mg/m ³	10 mg/m ³	----	----
Hafnium	7440-58-6	0.5 mg/m ³	1.5 mg/m ³	----	----
Helium	----	Simple asphyxiant	----	----	----
Heptachlor	76-44-8	0.5 mg/m ³	1.5 mg/m ³	----	X
Heptane (n-heptane)	142-82-5	400 ppm	500 ppm	----	----
2-Heptanone (Methyl n-amyl ketone)	110-43-0	50 ppm	75 ppm	----	----

Table 3 "Permissible Exposure Limits for Air Contaminants"

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
3-Heptanone	106-35-4	50 ppm	75 ppm	----	----
(Et hyl butyl ketone)					
Hexachlorobutadiene	87-68-3	0.02 ppm	0.06 ppm	----	X
Hexachlorocyclopentadiene	77-47-4	0.01 ppm	0.03 ppm	----	----
Hexachloroethane	67-72-1	1 ppm	3 ppm	----	X
Hexachloronaphthalene	1335-87-1	0.2 mg/m ³	0.6 mg/m ³	----	X
Hexafluoroacetone	684-16-2	0.1 ppm	0.3 ppm	----	X
Hexane	----	----	----	----	----
n-hexane	110-54-3	50 ppm	75 ppm	----	----
Other isomers		Varies with 500 ppm compound	1,000 ppm	----	----
2-Hexanone	591-78-6	5 ppm	10 ppm	----	----
(Methyl-n-butyl ketone)					
Hexone	108-10-1	50 ppm	75 ppm	----	----
(Methyl isobutyl ketone)					
sec-Hexyl acetate	108-84-9	50 ppm	75 ppm	----	----
Hexylene glycol	107-41-5	----	----	25 ppm	----
Hydrazine	302-01-2	0.1 ppm	0.3 ppm	----	X
Hydrogen	----	Simple asphyxiant	----	----	----
Hydrogenated terphenyls	61788-32-7	0.5 ppm	1.5 ppm	----	----
Hydrogen bromide	10035-10-6	----	----	3.0 ppm	----

Table 3 "Permissible Exposure Limits for Air Contaminants"

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Hydrogen chloride	7647-01-0	----	----	5.0 ppm	----
Hydrogen cyanide	74-90-8	----	4.7 ppm	----	X
Hydrogen fluoride	7664-39-3	----	----	3 ppm	----
Hydrogen peroxide	7722-84-1	1 ppm	3 ppm	----	----
Hydrogen selenide (as Se)	7783-07-5	0.05 ppm	0.15 ppm	----	----
Hydrogen sulfide	7783-06-4	10 ppm	15 ppm	----	----
Hydroquinone	123-31-9	2 mg/m ³	4 mg/m ³	----	----
(Di hydroxybenzene)					
4-Hydroxy-4-methyl-2- pentanone	123-42-2	50 ppm	75 ppm	----	----
(Di acetone alcohol)					
2-Hydroxypropyl acrylate	99-61-1	0.5 ppm	1.5 ppm	----	X
Indene	95-13-6	10 ppm	20 ppm	----	----
Indium and compounds (as In)	7440-74-6	0.1 mg/m ³	0.3 mg/m ³	----	----
Iodine	7553-56-2	----	----	0.1 ppm	----
Iodoform	75-47-8	0.6 ppm	1.8 ppm	----	----
Iron oxide dust and fume (as Fe)	1309-37-1	----	----	----	----
To tal particulate	----	5 mg/m ³	10 mg/m ³	----	----
Iron pentacarbonyl (as Fe)	13463-40- 6	0.1 ppm	0.2 ppm	----	----
Iron salts, soluble (as Fe) compound	Varies with compound	1 mg/m ³	3 mg/m ³	----	----
Isoamyl acetate	123-92-2	100 ppm	150 ppm	----	----

Table 3 "Permissible Exposure Limits for Air Contaminants"

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Isoamyl alcohol (primary and secondary)	123-51-3	100 ppm	125 ppm	----	----
Isobutyl acetate	110-19-0	150 ppm	188 ppm	----	----
Isobutyl alcohol	78-83-1	50 ppm	75 ppm	----	----
Isooctyl alcohol	26952-21-6	50 ppm	75 ppm	----	X
Isophorone	78-59-1	4 ppm	----	5 ppm	----
Isophorone diisocyanate	4098-71-9	0.005 ppm	0.02 ppm	----	X
Isopropoxyethanol	109-59-1	25 ppm	38 ppm	----	----
Isopropyl acetate	108-21-4	250 ppm	310 ppm	----	----
Isopropyl alcohol	67-63-0	400 ppm	500 ppm	----	----
Isopropylamine	75-31-0	5 ppm	10 ppm	----	----
N-Isopropylaniline	768-52-5	2 ppm	4 ppm	----	X
Isopropyl ether	108-20-3	250 ppm	313 ppm	----	----
Isopropyl glycidyl ether (IGE)	4016-14-2	50 ppm	75 ppm	----	----
Kaolin	----	----	----	----	----
tal particulate spirable fraction	To	10 mg/m ³	20 mg/m ³	----	----
	Re	5 mg/m ³	10 mg/m ³	----	----
Ketene	463-51-4	0.5 mg/m ³	1.5 mg/m ³	----	----
Lannate (M ⁵ ethomyl)	16752-77-5	2.5 mg/m ³	5 mg/m ³	----	----
Lead, inorganic (as Pb)	7439-92-1	0.05 mg/m ³	----	----	----
Lead arsenate (as Pb)	3687-31-8	0.05 mg/m ³	----	----	----

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Lead chromate (as Pb)	7758-97-6	0.05 mg/m ³	----	----	----
Limestone	1317-65-3	----	----	----	----
Total particulate respirable fraction	To ----	10 mg/m ³	20 mg/m ³	----	----
	Re ----	5 mg/m ³	10 mg/m ³	----	----
Lindane	58-89-9	0.5 mg/m ³	1.5 mg/m ³	----	X
Lithium hydride	7580-67-8	0.025 mg/m ³	0.075 mg/m ³	----	----
L.P.G. (liquified petroleum gas)	68476-85-7	1,000 ppm	1,250 ppm	----	----
Magnesite	546-93-0	----	----	----	----
	To ----	10 mg/m ³	20 mg/m ³	----	----
Total particulate respirable fraction	Re ----	5 mg/m ³	10 mg/m ³	----	----
Magnesium oxide fume	1309-48-4	----	----	----	----
	To ----	10 mg/m ³	20 mg/m ³	----	----
Total particulate					
Malathion	121-75-5	----	----	----	----
	To ----	10 mg/m ³	20 mg/m ³	----	X
Total particulate					
Maleic anhydride	108-31-6	0.25 ppm	0.75 ppm	----	----
Manganese and compounds (as Mn)	7439-96-5	----	----	5 mg/m ³	----
Manganese cyclopentadienyl carbonyl (as Mn)	12079-65-1	0.1 mg/m ³	0.3 mg/m ³	----	X
	tri				

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Manganese tetroxide and fu me (as Mn)	7439-96-5	1 mg/m ³	3 mg/m ³	----	----
Marble	1317-65-3	----	----	----	----
To tal particulate	----	10 mg/m ³	20 mg/m ³	----	----
Re spirable fraction	----	5 mg/m ³	10 mg/m ³	----	----
MBOCA (4, 4'-Methylene bis (2-chloro-aniline))	101-14-4	----	----	----	X
MDA (4, 4-Methylene dianiline)	101-77-9	0.01 ppm	0.1 ppm	----	X
MDI (Methylene bisphenyl iso cyanate) (Di phenylmethane dii socyante)	101-68-8	----	----	0.02 ppm	----
MEK (Methyl ethyl ketone) (2- Butanone)	78-93-3	200 ppm	300 ppm	----	----

Table 3 "Permissible Exposure Limits for Air Contaminants"

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
MEKP (Methyl ethyl ketone peroxide)	1338-23-4	----	----	0.2 ppm	----
Mercury (as Hg)	7439-97-6	----	----	----	----
yl and inorganic	Ar	0.1 mg/m ³	0.3 mg/m ³	----	X
Organ-alkyl compounds	----	0.01 mg/m ³	0.03 mg/m ³	----	X
por	Va	0.05 mg/m ³	0.15 mg/m ³	----	X
Mesityl oxide	141-79-7	15 ppm	25 ppm	----	----
Methacrylic acid	79-41-4	20 ppm	30 ppm	----	X
Methane	----	Simple asphyxiant	----	----	----
Methanethiol (Methyl mercaptan)	74-93-1	0.5 ppm	1.5 ppm	----	----
Methanol (Methyl alcohol)	67-56-1	200 ppm	250 ppm	----	X
Methomyl (lannate)	16752-77-5	2.5 mg/m ³	5 mg/m ³	----	----
Methoxychlor	72-43-5	----	----	----	----
tal particulate	To	10 mg/m ³	20 mg/m ³	----	----
2-Methoxyethanol (Methyl cellosolve)	109-86-4	5 ppm	10 ppm	----	X

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
2-Methoxyethyl acetate (Methyl cellosolve acetate)	110-49-6	5 ppm	10 ppm	----	X
4-Methoxyphenol	150-76-5	5 mg/m ³	10 mg/m ³	----	----
Methyl acetate	79-20-9	200 ppm	250 ppm	----	----
Methyl acetylene (propyne)	74-99-7	1,000 ppm	1,250 ppm	----	----
Methyl acetylene-propadiene mi xture (MAPP)	----	1,000 ppm	1,250 ppm	----	----
Methyl acrylate	96-33-3	10 ppm	20 ppm	----	X
Methylacrylonitrile	126-98-7	1 ppm	3 ppm	----	X
Methylal (Dimethoxymethane)	109-87-5	1,000 ppm	1,250 ppm	----	----
Methyl alcohol (methanol)	67-56-1	200 ppm	250 ppm	----	X
Methylamine	74-89-5	10 ppm	20 ppm	----	----
Methyl amyl alcohol (Methyl isobutyl carbinol)	108-11-2	25 ppm	40 ppm	----	X
Methyl n-amyl ketone (2-Heptanone)	110-43-0	50 ppm	75 ppm	----	----
N-Methyl aniline (Monomethyl aniline)	100-61-8	0.5 ppm	1.5 ppm	----	X
Methyl bromide	74-83-9	5 ppm	10 ppm	----	X

Table 3 "Permissible Exposure Limits for Air Contaminants"

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Methyl-n-butyl ketone	591-78-6	5 ppm	10 ppm	----	----
(2-Hexanone)					
Methyl cellosolve	109-86-4	5 ppm	10 ppm	----	X
(2-Methoxyethanol)					
Methyl cellosolve acetate	110-49-6	5 ppm	10 ppm	----	X
(2-Methoxyethyl acetate)					
Methyl chloride	74-87-3	50 ppm	100 ppm	----	----
Methyl chloroform	71-55-6	350 ppm	450 ppm	----	----
(1, 1, 1-trichlorethane)					
Methyl chloromethyl ether	107-30-2	----	----	----	----
(chloromethyl methyl ether)					
Methyl 2-cyanoacrylate	137-05-3	2 ppm	4 ppm	----	----
Methylcyclohexane	108-87-2	400 ppm	500 ppm	----	----
Methylcyclohexanol	25639-42-3	50 ppm	75 ppm	----	----
Methylcyclohexanone	583-60-8	50 ppm	75 ppm	----	X
Methylcyclopentadienyl manganese tricarbonyl (as Mn)	12108-13-3	0.2 mg/m ³	0.6 mg/m ³	----	X
Methyl demeton	8022-00-0	20.5 mg/m ³	1.5 mg/m ³	----	X

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Methylene bisphenyl isocyanate	101-68-8	----	----	0.02 ppm	----
(M DI)					
(Di phenylmethane diisocyanate)					
4, 4'-Methylene bis (2-chloro-aniline) (MBOCA)	101-14-4	----	----	----	X
Methylene bis (4-cyclohexylisocyanate)	5124-30-1	----	----	0.01 ppm	----
Methylene chloride (Dichloromethane)	75-09-2	25 ppm	125 ppm	----	----
4, 4-Methylene dianiline (MDA)	101-77-9	0.01 ppm	0.1 ppm	----	X
Methyl ethyl ketone (MEK) (2-Butanone)	78-93-3	200 ppm	300 ppm	----	----
Methyl ethyl ketone peroxide (M EKP)	1338-23-4	----	----	0.2 ppm	----
Methyl formate	107-31-3	100 ppm	150 ppm	----	----

Table 3 "Permissible Exposure Limits for Air Contaminants"

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
5-Methyl-3-heptanone (Ethyloamyl ketone)	541-85-5	25 ppm	38 ppm	----	----
Methyl hydrazine (Monomethyl hydrazine)	60-34-4	----	----	0.2 ppm	X
Methyl iodide	74-88-4	2 ppm	4 ppm	----	X
Methyl isoamyl ketone	110-12-3	50 ppm	75 ppm	----	----
Methyl isobutyl carbinol (Methyl amyl alcohol)	108-11-2	25 ppm	40 ppm	----	X
Methyl isobutyl ketone (Hexone)	108-10-1	50 ppm	75 ppm	----	----
Methyl isocyanate	624-83-9	0.02 ppm	0.06 ppm	----	X
Methyl isopropyl ketone	563-80-4	200 ppm	250 ppm	----	----
Methyl mercaptan (Methanethiol)	74-93-1	0.5 ppm	1.5 ppm	----	----
Methyl methacrylate	80-62-6	100 ppm	150 ppm	----	----
Methyl parathion	298-00-0	0.2 mg/m ³	0.6 mg/m ³	----	X
Methyl propyl ketone (2-Pentanone)	107-87-9	200 ppm	250 ppm	----	----
Methyl silicate	684-84-5	1 ppm	3 ppm	----	----
alpha-Methyl styrene	98-83-9	50 ppm	100 ppm	----	----
Mevinphos (Phosdrin)	7786-34-7	0.01 ppm	0.03 ppm	----	X
Metribuzin	21087-64-9	5 mg/m ³	10 mg/m ³	----	----

Table 3 "Permissible Exposure Limits for Air Contaminants"

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Mica (Silicates)	12001-26- ²	3 mg/m ³	6 mg/m ³	----	----
Repirable fraction					
Molybdenum (as Mo)	7439-98-7	----	----	----	----
Soluble compounds		5 mg/m ³	10 mg/m ³	----	----
Insoluble compounds		10 mg/m ³	20 mg/m ³	----	----
Monochlorobenzene	108-90-7	75 ppm	113 ppm	----	----
(C chlorobenzene)					
Monocrotophos (Azodrin)	6923-22-4	0.25 mg/m ³	0.75 mg/m ³	----	----
Monomethyl aniline	100-61-8	0.5 ppm	1.5 ppm	----	X
(N -Methyl aniline)					
Monomethyl hydrazine	----	----	----	0.2 ppm	----
Morpholine	110-91-8	20 ppm	30 ppm	----	X
Naled (Dibrom)	300-76-5	3 mg/m ³	6 mg/m ³	----	X
Naphtha	8030-30-6	100 ppm	150 ppm	----	X
Naphthalene	91-20-3	10 ppm	15 ppm	----	----
alpha-Naphthylamine	134-32-7	----	----	----	----
beta-Naphthylamine	91-59-8	----	----	----	----
Neon	7440-01-9	Simple asphyxiant	----	----	----
Nickel carbonyl (as Ni)	13463-39- ³	0.001 ppm	0.003 ppm	----	----
Nickel (as Ni)	7440-02-0	----	----	----	----

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
etal and insoluble	M ----	1 mg/m ³	3 mg/m ³	----	----
mpounds	Co				
uble compounds	Sol----	0.1 mg/m ³	0.3 mg/m ³	----	----
Nicotine	54-11-5	0.5 mg/m ³	1.5 mg/m ³	----	X
Nitrapyrin	1929-82-4	----	----	----	----
Chloro-6	(2-				
trichloromethyl pyridine)					
tal particulate	To ----	10 mg/m ³	20 mg/m ³	----	----
spirable fraction	Re ----	5 mg/m ³	10 mg/m ³	----	----
Nitric acid	7697-37-2	2 ppm	4 ppm	----	----
Nitric oxide	10102-43-9	25 ppm	38 ppm	----	----
p-Nitroaniline	100-01-6	3 mg/m ³	6 mg/m ³	----	X
Nitrobenzene	98-95-3	1 ppm	3 ppm	----	X
4-Nitrobiphenyl	92-93-3	----	----	----	----
p-Nitrochlorobenzene	100-00-5	0.5 mg/m ³	1.5 mg/m ³	----	X
4-Nitrodiphenyl	----	----	----	----	----
Nitroethane	79-24-3	100 ppm	150 ppm	----	----
Nitrogen	7727-37-9	Simple asphyxiant	----	----	----
Nitrogen dioxide	10102-44-0	----	1 ppm	----	----

Table 3 "Permissible Exposure Limits for Air Contaminants"

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Nitrogen oxide (Ni ² trous oxide)	10024-97- 2	50 ppm	75 ppm	----	----
Nitrogen trifluoride	7783-54-2	10 ppm	20 ppm	----	----
Nitroglycerin	55-63-0	----	0.1 mg/m ³	----	X
Nitromethane	75-52-5	100 ppm	150 ppm	----	----
1-Nitropropane	108-03-2	25 ppm	38 ppm	----	----
2-Nitropropane	79-46-9	10 ppm	20 ppm	----	----
N-Nitrosodimethylamine	62-75-9	----	----	----	----
Nitrotoluene isomer	o- 88-72-2	2 ppm	4 ppm	----	X
isomer	m- 98-08-2	2 ppm	4 ppm	----	X
isomer	p- 99-99-0	2 ppm	4 ppm	----	X
Nitrotrichloromethane (C hloropicrin)	76-06-2	0.1 ppm	0.3 ppm	----	----
Nitrous oxide (Ni ² trogen oxide)	10024-97- 2	50 ppm	75 ppm	----	----
Nonane	111-84-2	200 ppm	250 ppm	----	----
Octachloronaphthalene	2234-13-1	0.1 mg/m ³	0.3 mg/m ³	----	X
Octane	111-65-9	300 ppm	375 ppm	----	----
Oil mist mineral (particulate)	8012-95-1	5 mg/m ³	10 mg/m ³	----	----

Table 3 "Permissible Exposure Limits for Air Contaminants"

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Osmium tetroxide (as Os)	20816-12-0	0.0002 ppm	0.0006 ppm	----	----
Oxalic acid	144-62-7	1 mg/m ³	2 mg/m ³	----	----
Oxygen difluoride	7783-41-7	----	----	0.05 ppm	----
Ozone	10028-15-6	0.1 ppm	0.3 ppm	----	----
Paper fiber	9004-34-6	----	----	----	----
Cellulose) (C					
Total particulate	To ----	10 mg/m ³	20 mg/m ³	----	----
Respirable fraction	Re ----	5 mg/m ³	10 mg/m ³	----	----
Paraffin wax fume	8002-74-2	2 mg/m ³	4 mg/m ³	----	----
Paraquat	----	----	----	----	----
Respirable fraction	Re 4685-14-7	0.1 mg/m ³	0.3 mg/m ³	----	X
	1910-42-5				
	2074-50-2				
Parathion	56-38-2	0.1 mg/m ³	0.3 mg/m ³	----	X
Particulate polycyclic aromatic hydrocarbons (benzene soluble fraction) (coal tar pitch volatiles)	65996-93-2	0.2 mg/m ³	0.6 mg/m ³	----	----
Particulates not otherwise regulated	Re ----	----	----	----	----

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
total particulate	To ----	10 mg/m ³	20 mg/m ³	----	----
	Re ----	5 mg/m ³	10 mg/m ³	----	----
respirable fraction					
Pentaborane	19624-22-7	0.005 ppm	0.015 ppm	----	----
Pentachloronaphthalene	1321-64-8	0.5 mg/m ³	1.5 mg/m ³	----	X
Pentachlorophenol	87-86-5	0.5 mg/m ³	1.5 mg/m ³	----	X
Pentaerythritol	115-77-5	----	----	----	----
total particulate	To ----	10 mg/m ³	20 mg/m ³	----	----
	Re ----	5 mg/m ³	10 mg/m ³	----	----
respirable fraction					
Pentane	109-66-0	600 ppm	750 ppm	----	----
2-Pentanone (methyl propyl ketone)	107-87-9	200 ppm	250 ppm	----	----
Perchloroethylene (tetrachloroethylene)	127-18-4	25 ppm	38 ppm	----	----
Perchloromethyl mercaptan	594-42-3	0.1 ppm	0.3 ppm	----	----
Perchloryl fluoride	7616-94-6	3 ppm	6 ppm	----	----
Perlite	----	----	----	----	----
total particulate	To ----	10 mg/m ³	20 mg/m ³	----	----
	Re ----	5 mg/m ³	10 mg/m ³	----	----
respirable fraction					

Table 3 "Permissible Exposure Limits for Air Contaminants"

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Petroleum distillates (Naphtha, rubber solvent)	----	100 ppm	150 ppm	----	----
Phenacyl chloride (a-Chloroacetophenone)	532-21-4	0.05 ppm	0.15 ppm	----	----
Phenol	108-95-2	5 ppm	10 ppm	----	X
Phenothiazine	92-84-2	5 mg/m ³	10 mg/m ³	----	X
p-Phenylene diamine	106-50-3	0.1 mg/m ³	0.3 mg/m ³	----	X
Phenyl ether (vapor)	101-84-8	1 ppm	3 ppm	----	----
Phenyl ether-diphenyl mixture (vapor)	----	1 ppm	3 ppm	----	----
Phenylethylene (Styrene)	100-42-5	50 ppm	100 ppm	----	----
Phenyl glycidyl ether (PGE)	122-60-1	1 ppm	3 ppm	----	----
Phenylhydrazine	100-63-0	5 ppm	10 ppm	----	X
Phenyl mercaptan	108-98-5	0.5 ppm	1.5 ppm	----	----
Phenylphosphine	638-21-1	----	----	0.05 ppm	----
Phorate	298-02-2	0.05 mg/m ³	0.2 mg/m ³	----	X
Phosdrin (Mevinphos)	7786-34-70.01	ppm	0.03 ppm	----	X
Phosgene (carbonyl chloride)	75-44-5	0.1 ppm	0.3 ppm	----	----
Phosphine	7803-51-20.3	ppm	1 ppm	----	----
Phosphoric acid	7664-38-21	mg/m ³	3 mg/m ³	----	----
Phosphorus (yellow)	7723-14-00.1	mg/m ³	0.3 mg/m ³	----	----
Phosphorous oxychloride	10025-87-0.1	ppm	0.3 ppm	----	----

3

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Phosphorus pentachloride	10026-13-018	0.1 ppm	0.3 ppm	----	----
Phosphorus pentasulfide	1314-80-31	31 mg/m ³	3 mg/m ³	----	----
Phosphorus trichloride	12-2-19	0.2 ppm	0.5 ppm	----	----
Phthalic anhydride	85-44-9	1 ppm	3 ppm	----	----
m-Phthalodinitrile	626-17-5	5 mg/m ³	10 mg/m ³	----	----
Picloram	1918-02-1	----	----	----	----
tal particulate	To ----	10 mg/m ³	20 mg/m ³	----	----
	Re ----	5 mg/m ³	10 mg/m ³	----	----
spirable fraction					
Picric acid (2, 4, 6-nitrophenol)	88-89-1	0.1 mg/m ³	0.3 mg/m ³	----	X
Pindone (2-Pivalyl-1, 3-indandione, al)	83-26-1	0.1 mg/m ³	0.3 mg/m ³	----	----
	Piv				
Piperazine dihydrochloride	142-64-3	5 mg/m ³	10 mg/m ³	----	----
Pival (Pindone)	83-26-1	0.1 mg/m ³	0.3 mg/m ³	----	----
Plaster of Paris	26499-65-0	----	----	----	----
	To ----	10 mg/m ³	20 mg/m ³	----	----
tal particulate					
spirable fraction	Re ----	5 mg/m ³	10 mg/m ³	----	----
Platinum (as Pt)	7440-06-4	----	----	----	----

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
etal	M ----	1 mg/m ³	3 mg/m ³	----	----
uble salts	Sol----	0.002 mg/m ³	0.006 mg/m ³	----	----
Polychlorobiphenyls (C hlorodiphenyls)	----	----	----	----	----
% Chlorine (PCB)	42 53469-21- 9	1 mg/m ³	3 mg/m ³	----	X
% Chlorine (PCB)	54 11097-69- 1	0.5 mg/m ³	1.5 mg/m ³	----	X
Portland cement	65997-15- 1	----	----	----	----
tal particulate	To ----	10 mg/m ³	20 mg/m ³	----	----
spirable fraction	Re ----	5 mg/m ³	10 mg/m ³	----	----
Potassium hydroxide	1310-58-3	----	----	2 mg/m ³	----
Propane	74-98-6	1,000 ppm	1,250 ppm	----	----
Propargyl alcohol	107-19-7	1 ppm	3 ppm	----	X
beta-Propiolactone	57-57-8	----	----	----	----
Propionic acid	79-09-4	10 ppm	20 ppm	----	----
Propoxur (Baygon)	114-26-1	0.5 mg/m ³	1.5 mg/m ³	----	----
n-Propyl acetate	109-60-4	200 ppm	250 ppm	----	----
n-Propyl alcohol	71-23-8	200 ppm	250 ppm	----	X
n-Propyl nitrate	627-13-4	25 ppm	40 ppm	----	----
Propylene	----	Simple asphyxiant	----	----	----

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Propylene dichloride (1, 2-Dichloropropane)	78-87-5	75 ppm	110 ppm	----	----
Propylene glycol dinitrate	6423-43-4	0.05 ppm	0.15 ppm	----	X
Propylene glycol m onomethyl ether	107-98-2	100 ppm	150 ppm	----	----
Propylene imine	75-55-8	2 ppm	4 ppm	----	X
Propylene oxide (1,2- Ep oxypropane)	75-56-9	20 ppm	30 ppm	----	----
Propyne (Methyl acetylene)	74-99-7	1,000 ppm	1,250 ppm	----	----
Pyrethrum	8003-34-7	5 mg/m ³	10 mg/m ³	----	----
Pyridine	110-86-1	5 ppm	10 ppm	----	----
Pyrocatechol (C atechol)	120-80-9	5 ppm	10 ppm	----	X
Quinone (p-Benzoquinone)	106-51-4	0.1 ppm	0.3 ppm	----	----
RDX (Cyclonite)	----	1.5 mg/m ³	3 mg/m ³	----	X
Resorcinol	108-46-3	10 ppm	20 ppm	----	----
Rhodium (as Rh)	7440-16-6	----	----	----	----
Insoluble compounds, metal fumes and dusts	----	0.1 mg/m ³	0.3 mg/m ³	----	----
Soluble compounds, salts	----	0.001 mg/m ³	0.003 mg/m ³	----	----
Ronnel	299-84-3	10 mg/m ³	20 mg/m ³	----	----

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Rosin core solder, pyrolysis products (as formaldehyde)	8050-09-7	0.1 mg/m ³	0.3 mg/m ³	----	----
Rotenone	83-79-4	5 mg/m ³	10 mg/m ³	----	----
Rouge	----	----	----	----	----
Tal particulate	To ----	10 mg/m ³	20 mg/m ³	----	----
Respirable fraction	Re ----	5 mg/m ³	10 mg/m ³	----	----
Rubber solvent (naphtha)	8030-30-6	100 ppm	150 ppm	----	----
Selenium compounds (as Se)	7782-49-2	0.2 mg/m ³	0.6 mg/m ³	----	----
Selenium hexafluoride (as Se)	7783-79-1	0.05 ppm	0.15 ppm	----	----
Sesone (Crag herbicide)	136-78-7	----	----	----	----
Tal particulate	To ----	10 mg/m ³	20 mg/m ³	----	----
Respirable fraction	Re ----	5 mg/m ³	10 mg/m ³	----	----
Sevin (Carbaryl)	63-25-2	5 mg/m ³	10 mg/m ³	----	----
Silane (see Silicon tetrahydride)	7803-62-5	5 ppm	10 ppm	----	----
Silica, amorphous, precipitated	112926-00-8	6 mg/m ³	12 mg/m ³	----	----
Stannic oxide gel	an				

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Silica, amorphous, diatomaceous	61790-53-2	----	----	----	----
earth, containing less than 1% crystalline silica					
total particulate	To ----	6 mg/m ³	12 mg/m ³	----	----
respirable fraction	Re ----	3 mg/m ³	6 mg/m ³	----	----
Silica, crystalline cristobalite	----	----	----	----	----
respirable fraction	Re 14464-46-1	0.05 mg/m ³	0.15 mg/m ³	----	----
Silica, crystalline quartz	----	----	----	----	----
respirable fraction	Re 14808-60-7	0.1 mg/m ³	0.3 mg/m ³	----	----
Silica, crystalline tripoli	----	----	----	----	----
(as quartz)					
respirable fraction	Re 1317-95-9	0.1 mg/m ³	0.3 mg/m ³	----	----
Silica, crystalline tridymite	----	----	----	----	----
respirable fraction	Re 15468-32-3	0.05 mg/m ³	0.15 mg/m ³	----	----
Silica, fused	----	----	----	----	----
respirable fraction	Re 60676-86-0	0.1 mg/m ³	0.3 mg/m ³	----	----
Silicates (less than 1% crystalline silica)	----	----	----	----	----
calcium	Mi ----	----	----	----	----

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Respirable fraction	12001-26-2	3 mg/m ³	6 mg/m ³	----	----
apstone	So	----	----	----	----
tal particulate	To	6 mg/m ³	12 mg/m ³	----	----
spirable fraction	Re	3 mg/m ³	6 mg/m ³	----	----
Talc (containing asbestos)	----	----	----	----	----
c (containing no asbestos)	Tal	----	----	----	----
spirable fraction	Re 14807-96-6	2 mg/m ³	4 mg/m ³	----	----
Tremolite	----	----	----	----	----
Silicon tal particulate	7440-21-3	----	----	----	----
spirable fraction	To	10 mg/m ³	20 mg/m ³	----	----
Silicon carbide	409-21-2	----	----	----	----
tal particulate	To	10 mg/m ³	20 mg/m ³	----	----
spirable fraction	Re	5 mg/m ³	10 mg/m ³	----	----
Silicon tetrahydride (Silane)	7803-62-5	5 ppm	10 ppm	----	----

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Silver, metal dust and soluble compounds (as Ag)	7440-22-4	0.01 mg/m ³	0.03 mg/m ³	----	----
Soapstone	----	----	----	----	----
Total particulate	To ----	6 mg/m ³	12 mg/m ³	----	----
Respirable fraction	Re ----	3 mg/m ³	6 mg/m ³	----	----
Sodium azide (as HN ₃ or NaN ₃)	26628-22-8	----	----	0.1 ppm	X
Sodium bisulfite	7631-90-5	5 mg/m ³	10 mg/m ³	----	----
Sodium-2,4-dichlorophenoxyethyl sulfate (Crag herbicide)	136-78-7	----	----	----	----
Total particulate	To ----	10 mg/m ³	20 mg/m ³	----	----
Respirable fraction	Re ----	5 mg/m ³	10 mg/m ³	----	----
Sodium fluoroacetate	62-74-8	0.05 mg/m ³	0.15 mg/m ³	----	X
Sodium hydroxide	1310-73-2	----	----	2 mg/m ³	----
Sodium metabisulfite	7681-57-4	5 mg/m ³	10 mg/m ³	----	----
Starch	9005-25-8	----	----	----	----

Table 3 "Permissible Exposure Limits for Air Contaminants"

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
tal particulate	To ----	10 mg/m ³	20 mg/m ³	----	----
	Re ----	5 mg/m ³	10 mg/m ³	----	----
spirable fraction					
Stibine	7803-52-3	0.1 ppm	0.3 ppm	----	----
Stoddard solvent	8052-41-3	100 ppm	150 ppm	----	----
Strychnine	57-24-9	0.15 mg/m ³	0.45 mg/m ³	----	----
Styrene (Phenylethylene,	100-42-5	50 ppm	100 ppm	----	----
nyl benzene)	Vi				
Subtilisins	9014-01-1	----	0.00006 mg/m ³ (60 min.)	----	----
Sucrose	57-50-1	----	----	----	----
tal particulate	To ----	10 mg/m ³	20 mg/m ³	----	----
	Re ----	5 mg/m ³	10 mg/m ³	----	----
spirable fraction					
Sulfotep (TEDP)	3689-24-5	0.2 mg/m ³	0.6 mg/m ³	----	X
Sulfur dioxide	7446-09-5	2 ppm	5 ppm	----	----
Sulfur hexafluoride	2551-62-4	1,000 ppm	1,250 ppm	----	----
Sulfuric acid	7664-93-9	1 mg/m ³	3 mg/m ³	----	----
Sulfur monochloride	10025-67-9	----	----	1 ppm	----
Sulfur pentafluoride	5714-22-1	----	----	0.01 ppm	----
Sulfur tetrafluoride	7783-60-0	----	----	0.1 ppm	----
Sulfuryl fluoride	2699-79-8	5 ppm	10 ppm	----	----
Sulprofos	35400-43-2	1 mg/m ³	3 mg/m ³	----	----

Table 3 "Permissible Exposure Limits for Air Contaminants"

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Systox (Demeton)	8065-48-3	0.01 ppm	0.03 ppm	----	X
2, 4, 5-T	93-76-5	10 mg/m ³	20 mg/m ³	----	----
Talc (containing asbestos)	----	----	----	----	----
Talc (containing no asbestos)	----	----	----	----	----
spirable fraction	Re 14807-96-6	2 mg/m ³	4 mg/m ³	----	----
Tantalum	----	----	----	----	----
Metal and oxide dusts	7440-25-7	5 mg/m ³	10 mg/m ³	----	----
TDI (Toluene-2, 4-diisocyanate)	584-84-9	0.005 ppm	0.02 ppm	----	----
TEDP (Sulfotep)	3689-24-5	0.2 mg/m ³	0.6 mg/m ³	----	X
Tellurium and compounds (as Te)	13494-80-9	0.1 mg/m ³	0.3 mg/m ³	----	----
Tellurium hexafluoride (as Te)	7783-80-4	0.02 ppm	0.06 ppm	----	----
Temephos (Abate)	3383-96-8	----	----	----	----
tal particulate	To ----	10 mg/m ³	20 mg/m ³	----	----
spirable fraction	Re ----	5 mg/m ³	10 mg/m ³	----	----
TEPP	107-49-3	0.004 ppm	0.012 ppm	----	X
Terphenyls	26140-60-3	----	----	0.5 ppm	----
1, 1, 1, 2-Tetrachloro-2, 2-difluoroethane	76-11-0	500 ppm	625 ppm	----	----

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
1, 1, 2, 2-Tetrachloro-1, 2-difluoroethane	76-12-0	500 ppm	625 ppm	----	----
1, 1, 2, 2-Tetrachloroethane	79-34-5	1 ppm	3 ppm	----	X
Tetrachloroethylene (P perchloroethylene)	127-18-4	25 ppm	38 ppm	----	----
Tetrachloromethane (Carbon tetrachloride)	56-23-5	2 ppm	4 ppm	----	X
Tetrachloronaphthalene	1335-88-2	2 mg/m ³	4 mg/m ³	----	X
Tetraethyl lead (as Pb)	78-00-2	0.075 mg/m ³	0.225 mg/m ³	----	X
Tetrahydrofuran	109-99-9	200 ppm	250 ppm	----	----
Tetramethyl lead (as Pb)	75-74-1	0.075 mg/m ³	0.225 mg/m ³	----	X
Tetramethyl succinonitrile	3333-52-6	0.5 ppm	1.5 ppm	----	X
Tetranitromethane	509-14-8	1 ppm	3 ppm	----	----
Tetrasodium pyrophosphate	7722-88-5	5 mg/m ³	10 mg/m ³	----	----
Tetryl (2, 4, 6-trinitrophenyl-m ethylnitramine)	479-45-8	1.5 mg/m ³	3 mg/m ³	----	X
Thallium (soluble compounds) (as Tl)	7440-28-0	0.1 mg/m ³	0.3 mg/m ³	----	X

Table 3 "Permissible Exposure Limits for Air Contaminants"

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
4, 4-Thiobis (6-tert-butyl-m-cresol)	96-69-5	----	----	----	----
tal particulate	To ----	10 mg/m ³	20 mg/m ³	----	----
spirable fraction	Re ----	5 mg/m ³	10 mg/m ³	----	----
Thiodan (E ndosulfan)	115-29-7	0.1 mg/m ³	0.3 mg/m ³	----	X
Thioglycolic acid	68-11-1	1 ppm	3 ppm	----	X
Thionyl chloride	7719-09-7	----	----	1 ppm	----
Thiram	137-26-8	5 mg/m ³	10 mg/m ³	----	----
Tin (as Sn)	----	----	----	----	----
Inorganic compounds	7440-31-5	2 mg/m ³	4 mg/m ³	----	----
Tin (as Sn)	----	----	----	----	----
ganic compounds	Or 7440-31-5	0.1 mg/m ³	0.3 mg/m ³	----	X
Tin oxide (as Sn)	21651-19-4	2 mg/m ³	4 mg/m ³	----	----
Titanium dioxide	13463-67-7	----	----	----	----
tal particulate	To ----	10 mg/m ³	20 mg/m ³	----	----
TNT (2, 4, 6-Trinitrotoluene)	118-96-7	0.5 mg/m ³	1.5 mg/m ³	----	X
Toluene	108-88-3	100 ppm	150 ppm	----	----

Table 3 "Permissible Exposure Limits for Air Contaminants"

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Toluene-2, 4-diisocyanate (TDI)	584-84-9	0.005 ppm	0.02 ppm	----	----
m-Toluidine	108-44-1	2 ppm	4 ppm	----	X
o-Toluidine	95-53-4	2 ppm	4 ppm	----	X
p-Toluidine	106-49-0	2.0 ppm	4 ppm	----	X
Toxaphene (Chlorinated camphene)	8001-35-2	0.5 mg/m ³	1 mg/m ³	----	X
Tremolite	----	----	----	----	----
Tributyl phosphate	126-73-8	0.2 ppm	0.6 ppm	----	----
Trichloroacetic acid	76-03-9	1 ppm	3 ppm	----	----
1, 2, 4-Trichlorobenzene	120-82-1	----	----	5 ppm	----
1, 1, 1-Trichloroethane (M ethyl chloroform)	71-55-6	350 ppm	450 ppm	----	----
1, 1, 2-Trichloroethane	79-00-5	10 ppm	20 ppm	----	----
Trichloroethylene	79-01-6	50 ppm	200 ppm	----	----
Trichlorofluoromethane (Fluorotrichloromethane)	75-69-4	----	----	1,000 ppm	----
Trichloromethane (C hloroform)	67-66-3	2 ppm	4 ppm	----	----
Trichloronaphthalene	1321-65-9	5 mg/m ³	10 mg/m ³	----	X
1, 2, 3-Trichloropropane	96-18-4	10 ppm	20 ppm	----	X
1, 1, 2-Trichloro-1, 2, 2-trifluoroethane	76-13-1	1,000 ppm	1,250 ppm	----	----

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Tricyclohexyltin hydroxide (C ⁵ yhexatin)	13121-70-5	5 mg/m ³	10 mg/m ³	----	----
Triethylamine	121-44-8	10 ppm	15 ppm	----	----
Trifluorobromomethane	75-63-8	1,000 ppm	1,250 ppm	----	----
Trimellitic anhydride	552-30-7	0.005 ppm	0.015 ppm	----	----
Trimethylamine	75-50-3	10 ppm	15 ppm	----	----
Trimethyl benzene	25551-13-7	25 ppm	38 ppm	----	----
Trimethyl phosphite	121-45-9	2 ppm	4 ppm	----	----
2, 4, 6-Trinitrophenol (Picric acid)	88-89-1	0.1 mg/m ³	0.3 mg/m ³	----	X
2, 4, 6-Trinitrophenyl- methyl ethylnitramine (Tetryl)	479-45-8	1.5 mg/m ³	3 mg/m ³	-----	X
2, 4, 6-Trinitrotoluene (TNT)	118-96-7	0.5 mg/m ³	1.5 mg/m ³	----	X
Triorthocresyl phosphate	78-30-8	0.1 mg/m ³	0.3 mg/m ³	----	X
Triphenyl amine	603-34-9	5 mg/m ³	10 mg/m ³	----	----
Triphenyl phosphate	115-86-6	3 mg/m ³	6 mg/m ³	----	----
Tungsten (as W)	7440-33-7	----	----	----	----
Insoluble compounds	Sol----	1 mg/m ³	3 mg/m ³	----	----
Soluble compounds	Ins----	5 mg/m ³	10 mg/m ³	----	----

Table 3 "Permissible Exposure Limits for Air Contaminants"

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Turpentine	8006-64-2	100 ppm	150 ppm	----	----
Uranium (as U)	7440-61-1	----	----	----	----
Soluble compounds	Sol----	0.05 mg/m ³	0.15 mg/m ³	----	----
	Ins----	0.2 mg/m ³	0.6 mg/m ³	----	----
Insoluble compounds					
n-Valeraldehyde	110-62-3	50 ppm	75 ppm	----	----
Vanadium (as V ₂ O ₅)	----	----	----	----	----
Respirable fraction	Re 1314-62-1	0.05 mg/m ³	0.15 mg/m ³	----	----
Vegetable oil mist	----	----	----	----	----
Total particulate	To ----	10 mg/m ³	20 mg/m ³	----	----
	Re ----	5 mg/m ³	10 mg/m ³	----	----
Vinyl acetate	108-05-1	10 ppm	20 ppm	----	----
Vinyl benzene (Styrene)	100-42-5	50 ppm	100 ppm	----	----
Vinyl bromide	593-60-2	5 ppm	10 ppm	----	----
Vinyl chloride (Chloroethylene)	75-01-4	1 ppm	5 ppm	----	----
Vinyl cyanide (Acrylonitrile)	107-13-1	2 ppm	10 ppm	----	----
Vinyl cyclohexene dioxide	106-87-6	10 ppm	20 ppm	----	X
Vinyl toluene	25013-15-4	50 ppm	75 ppm	----	----
Vinylidene chloride (1, 1-Dichloroethylene)	75-35-4	1 ppm	3 ppm	----	----
VM & P Naphtha	8032-32-4	300 ppm	400 ppm	----	----

Table 3 “Permissible Exposure Limits for Air Contaminants”

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
Warfarin	81-81-2	0.1 mg/m ³	0.3 mg/m ³	----	----
Welding fumes (to tal particulate)	----	5 mg/m ³	10 mg/m ³	----	----
Wood dust	----	----	----	----	----
nallergenic; l woods except ergenics)	No---- (Al all	5 mg/m ³	10 mg/m ³	----	----
Allergens (e.g. cedar, mahogany and teak)	----	2.5 mg/m ³	5 mg/m ³	----	----
Xylenes (ortho, meta, and para isomers) (Dimethylbenzene)	1330-20-7	100 ppm	150 ppm	----	----
m-Xylene alpha, alpha- diamine	1477-55-0	----	----	0.1 mg/m ³	X
Xylidine (Dimethylaminobenzene)	1300-73-8	2 ppm	4 ppm	----	X
Yttrium	7440-65-5	1 mg/m ³	3 mg/m ³	----	----
Zinc chloride fume	7646-85-7	1 mg/m ³	2 mg/m ³	----	----
Zinc chromate (as CrO ₃) compound	Varies with	0.05 mg/m ³	----	0.1 mg/m ³	----
Zinc oxide	1314-13-2	----	----	----	----

Table 3 "Permissible Exposure Limits for Air Contaminants"

Substance	CAS	TWA ₈	STEL	Ceiling	Skin
total particulate	To ----	10 mg/m ³	20 mg/m ³	----	----
respirable fraction	Re ----	5 mg/m ³	10 mg/m ³	----	----
Zinc oxide fume	1314-13-2	5 mg/g ³	10 mg/m ³	----	----
Zinc stearate	557-05-1	----	----	----	----
total particulate	To ----	10 mg/m ³	20 mg/m ³	----	----
respirable fraction	Re ----	5 mg/m ³	10 mg/m ³	----	----
Zirconium compounds (as Zr)	7440-67-2	5 mg/m ³	10 mg/m ³	----	----

WAC 296-307-628 Definitions.

Ceiling. An exposure limit, measured over the shortest time period feasible, that must not be exceeded during any part of the employee's workday.

Dust. Solid particles suspended in air. Dusts are generated by handling, drilling, crushing, grinding, rapid impact, detonation, or decrepitation of organic or inorganic materials such as rock, ore, metal, coal, wood, grain, etc.

Exposed or exposure. The contact an employee has with a toxic substance, harmful physical agent or oxygen deficient condition. Exposure can occur through various routes of entry, such as inhalation, ingestion, skin contact, or skin absorption.

Fume. Solid particles suspended in air, generated by condensation from the gaseous state, generally after volatilization from molten metals, etc.

Gas. A normally formless fluid which can be changed to the liquid or solid state by the effect of increased pressure or decreased temperature or both.

Mist. Liquid droplets suspended in air, generated by condensation from the gaseous to the liquid state or by breaking up a liquid into a dispersed state, such as by splashing, foaming, spraying or atomizing.

Oxygen deficient. An atmosphere with an oxygen content below 19.5% by volume.

Permissible exposure limits (PEL). Permissible exposure limits (PELs) are employee exposures to toxic substances or harmful agents that must not be exceeded. PELs are specified in applicable WISHA rules.

Short-term exposure limit (STEL). An exposure limit averaged over a short time period (usually measured for 15 minutes) that must not be exceeded during any part of an employee's workday.

Time weighted average (TWA₈). An exposure limit averaged over 8 hours that must not be exceeded during an employee's workday.

Toxic substance. Any chemical substance or biological agent, such as bacteria, virus, and fungus, which is any of the following:

- (a) Listed in the latest edition of the National Institute for Occupational Safety and Health (NIOSH) Registry of Toxic Effects of Chemical Substances (RTECS);
- (b) Shows positive evidence of an acute or chronic health hazard in testing conducted by, or known to, the employer.

The subject of a material safety data sheet kept by or known to the employer showing the material may pose a hazard to human health.

Vapor. The gaseous form of a substance that is normally in the solid or liquid state.

Table HT-1

Health Effects of Substances

SUBSTANCE	PEL BASIS (Health Effects)
Abate (Temephos)	
Total particulate Respirable fraction	Cholinergic
Acetaldehyde	Irritation
Acetic acid	Irritation
Acetic anhydride	Irritation
Acetone	Irritation
Acetonitrile	Lung
2-Acetylaminofluorene (see WAC 296-62-073)	Cancer
Acetylene	
Acetylene dichloride (1,2-Dichloroethylene)	Liver
Acetylene tetrabromide	Irritation; liver
Acetylsalicylic acid (Aspirin)	Blood
Acrolein	Irritation; pulmonary edema
Acrylamide	CNS; dermatitis
Acrylic acid	Irritation; reproductive
Acrylonitrile (see WAC 296-62-07336)	Cancer
Aldrin	Liver
Allyl alcohol	Irritation
Allyl Chloride	Liver
Allyl glycidyl ether (AGE)	Irritation; dermatitis; sensitization
Allyl propyl disulfide	Irritation
alpha-Alumina (Aluminum oxide)	
Total particulate	
Respirable fraction	Lung; irritation

SUBSTANCE	PEL BASIS (Health Effects)
Aluminum (as Al) Total particulate Respirable fraction Pyro powders Welding fumes ^d Soluble salts Alkyls (NOC)	Lung; irritation
Aluminum oxide (Alundum, Corundum) (A) Total particulate (B) Respirable fraction	Lung; irritation
4-Aminodiphenyl (see WAC 296-62-073)	Cancer (bladder)
2-Aminoethanol (Ethanalamine)	Irritation
2-Aminopyridine	CNS
Amitrole	Reproductive; thyroid
Ammonia	Irritation
Ammonium chloride, fume	Irritation
Ammonium sulfamate (Ammate)	Irritation
Total particulate	
Respirable fraction	
n-Amyl acetate	Irritation
sec-Amyl acetate	Irritation
Aniline and homologues	Anoxia
Anisidine (o, p-isomers)	Anoxia
Antimony and Compounds (as Sb)	Irritation, lung, CVS
ANTU (alpha Naphthyl thiourea)	Lung; irritation
Argon	
Arsenic, Organic compounds (as As)	Cancer (lung, skin); lung
Arsenic, Inorganic compounds (as As) (when use is covered by WAC 296-62-07347)	Cancer (lung, skin); lung

SUBSTANCE	PEL BASIS (Health Effects)
Arsenic, Inorganic compounds (as As) (when use is not covered by WAC 296-62-07347)	Cancer (lung, skin); lung
Arsine	Blood; kidney
Asbestos (see WAC 296-62-077)	Asbestosis, cancer
Asphalt (Petroleum fumes)	Irritation
Atrazine	Irritation
Azinphos methyl (Guthion)	Cholinergic
Barium, soluble compounds (as Ba)	Irritation; GI; muscles
Barium Sulfate	Pneumoconiosis (baritosis)
Total particulate	
Respirable fraction	
Benomyl	Dermatitis; irritation; reproductive
Total particulate	
Respirable fraction	
Benzene (see WAC 296-62-07523)	Cancer
Benzidine (see WAC 296-62-073)	Cancer (bladder)
p-Benzoquinone (Quinone)	Irritation; eyes
Benzo(a) pyrene (Coal tar pitch volatiles)	Cancer
Benzoyl peroxide	Irritation
Benzyl chloride	Irritation; lung
Beryllium and beryllium compounds (as Be)	Cancer (lung); berylliosis
Biphenyl (Diphenyl)	Lung
Bismuth telluride, Undoped	Irritation
Total particulate	Irritation
Respirable fraction	Irritation, lung
Bismuth telluride, Se-doped	Irritation, lung
Borates, tetra, sodium salts	Irritation
Anhydrous	Irritation
Decahydrate	Irritation
Pentahydrate	Irritation

SUBSTANCE	PEL BASIS (Health Effects)
Boron oxide	Irritation
Total particulate	
Boron tribromide	Irritation; burns
Boron trifluoride	Irritation
Bromacil	Irritation
Bromine	Irritation
Bromine pentafluoride	Irritation
Bromochloromethane (Chlorobromomethane)	CNS; liver
Bromoform	Irritation, liver
Butadiene (1,3-butadiene)	Cancer
Butane	Narcosis
Butanethiol (Butyl mercaptan)	Irritation; CNS; reproductive
2-Butanone (Methyl ethyl ketone)	Irritation; CNS
2-Butoxy ethanol (Butyl Cellosolve)	Irritation
n-Butyl acetate	Irritation
sec-Butyl acetate	Irritation
tert-Butyl acetate	Irritation
Butyl acrylate	Irritation; reproductive
n-Butyl alcohol	Irritation
sec-Butyl alcohol	Irritation; narcosis
tert-Butyl alcohol	Narcosis; irritation
Butylamine	Irritation
Tert-Butyl chromate (Chromic acid)	Irritation; lung
n-Butyl glycidyl ether (BGE)	Irritation, sensitization
n-Butyl lactate	Irritation; headache
Butyl mercaptan	Irritation; CNS; reproductive
o-sec-Butylphenol	Irritation
p-tert-Butyl-toluene	Irritation; CNS; CVS
Cadmium oxide fume (as Cd) (see WAC 296-62-074)	Cancer
Cadmium dust and salts (as Cd) (see WAC 296-62-074)	Cancer ,Kidney

SUBSTANCE	PEL BASIS (Health Effects)
Total particulate	
Respirable fraction	
Calcium arsenate (see WAC 296-62-07347)	Cancer
Calcium carbonate	Irritation
Total particulate	
Respirable fraction	
Calcium cyanamide	Irritation; dermatitis
Calcium hydroxide	Irritation
Calcium oxide	Irritation
Calcium silicate	Irritation
Total particulate	
Respirable fraction	
Calcium sulfate	Irritation
Total particulate	
Respirable fraction	
Camphor (synthetic)	Irritation; anosmia
Caprolactam	Irritation
Dust	
Vapor	
Captafol (Difolatan)	Dermatitis; sensitization
Captan	Irritation
Carbaryl (Sevin)	Cholinergic; reproductive
Carbofuran (Furadon)	Cholinergic
Carbon black	Lung
Carbon dioxide	N/A
Carbon disulfide	CVS; CNS
Carbon monoxide	Anoxia; CVS; CNS; reproductive
Carbon tetrabromide	Irritation; liver
Carbon tetrachloride (Tetrachloromethane)	Liver; cancer
Carbonyl chloride (Phosgene)	Irritation; CNS; GI

SUBSTANCE	PEL BASIS (Health Effects)
Carbonyl fluoride	Irritation; bone; fluorosis
Catechol (Pyrocatechol)	Irritation; CNS; lung
Cellulose (paper fiber)	Irritation
Total particulate	
Respirable fraction	
Cesium hydroxide	Irritation
Chlordane	Seizures; liver
Chlorinated camphene (Toxaphen)	Seizures; liver
Chlorinated diphenyl oxide	Chloracne, liver
Chlorine	Irritation
Chlorine dioxide	Irritation; bronchitis
Chlorine trifluoride	Irritation; lung
Chloroacetaldehyde	Irritation
a-Chloroacetophenone (Phenacyl chloride)	Irritation, sensitization
Chloroacetyl chloride	Irritation; lung
Chlorobenzene (Monochlorobenzene)	Liver
O-Chlorobenzylidene malononitrile (OCBM)	Irritation
Chlorobromomethane	CNS; liver
2-Chloro-1, 3-butadiene (beta-Chloroprene)	Irritation; liver; reproductive
Chlorodifluoromethane	CVS
Chlorodiphenyl (42% Chlorine) (PCB) (Polychlorobiphenyls)	Irritation; chloracne; liver
Chlorodiphenyl (54% Chlorine) (PCB) (Polychlorobiphenyls)	Irritation; chloracne; liver
1-Chloro-2, 3-epoxypropane (Epichlorhydrin)	Irritation; liver; kidney
2-Chloroethanol (Ethylene chlorohydrin)	Irritation; liver; kidney; GI; CVS; CNS
Chloroethylene (vinyl chloride)	Cancer, liver
Chloroform (Trichloromethane)	Liver; reproductive
1-Chloro-1-nitropropane	Irritation; liver; lung
bis-Chloromethyl ether (see WAC 296-62-073)	Cancer (lung)

SUBSTANCE	PEL BASIS (Health Effects)
Chloromethyl methyl ether (Methyl carbomethyl ether)	Cancer (lung); irritation
Chloropentafluoroethane	CVS
Chloropicrin (Nitrotrichloromethan)	Irritation; lung
beta-Chloroprene (2-Chloro-1, 3-butadiene)	Irritation; liver; reproductive
o-Chlorostyrene	Kidney; CNS; neurotoxic; liver
o-Chlorotoluene	Irritation
2-Chloro-6-trichloromethyl pyridine (see Nitrapyrin)	Liver
Total particulate	
Respirable fraction	
Chlorpyrifos	Cholinergic
Chromic acid and chromates (as CrO3)	Cancer, liver kidney
Chromium, sol, chromic chromous salts (as Cr)	Irritation, dermatitis
Chromium (VI) compounds (as Cr)	Cancer, liver, kidney
Chromium Metal and insoluble salts	Cancer, irritation
Chromyl chloride	Kidney; liver; respiratory
Chrysene (Coal tar pitch volatiles)	Cancer
Clopidol	Irritation
Total particulate	Irritation
Respirable fraction	Irritation
Coal dust (less than 5% SiO2)	
<i>Respirable fraction</i>	Pulmonary fibrosis, pneumoconiosis; pulmonary function
Coal dust (greater than or equal to 5% SiO2)	
<i>Respirable fraction</i>	Pulmonary fibrosis, pneumoconiosis; pulmonary function
Coal tar pitch volatiles (benzene soluble fraction anthracene, BaP, phenanthrene, acridine, chrysene, pyrene, Benzo(a) pyrene, (Particulate polycyclic aromatic hydrocarbons)	Cancer
Cobalt, metal fume & dust (as Co)	Asthma; lung; CVS
Cobalt carbonyl (as Co)	Lung edema

SUBSTANCE	PEL BASIS (Health Effects)
Cobalt hydrocarbonyl (as Co)	Lung edema
Coke oven emissions (see WAC 296-62-200)	Cancer (lung)
Copper fume (as Cu)	Irritation; GI; metal fume fever
Dusts and mists (as Cu)	Irritation; GI; metal fume fever
Cotton dust (raw) see WAC 296-62-14533	Lung, byssinosis
Corundum (Aluminum oxide)	Lung; irritation
Crag herbicide (Sesone, Sodium-2, 4-dichloro-phenoxyethyl sulfate)	Irritation
Total particulate	
Respirable fraction	
Cresol (all isomers)	Dermatitis, irritation, CNS
Crotonaldehyde	Irritation
Crufomate	Cholinergic
Cumene	Irritation; CNS
Cyanamide	Irritation
Cyanide (as CN)	CNS, irritation, anoxia, lung, thyroid
Cyanogen	Irritation
Cyanogen chloride	Irritation; lung function
Cyclohexane	CNS
Cyclohexanol	Irritation; CNS
Cyclohexanone	Irritation; liver
Cyclohexene	Irritation
Cyclohexylamine	Irritation
Cyclonite (RDX)	Irritation; CNS; liver; blood
Cyclopentadiene	Irritation
Cyclopentane	Irritation; narcosis
Cyhexatin (Tricyclohexyltin hydroxide)	Irritation
2,4-D (Dichlorophenoxy- acetic acid)	Irritation
DDT (Dichlorodiphenyltri- chloroethane)	Seizures; liver
DDVP, Dichlorvos	Cholinergic

SUBSTANCE	PEL BASIS (Health Effects)
Decaborane	CNS; lung function
Demeton	Cholinergic
Diacetone alcohol (4-hydroxy-4-methyl- 2-pentanone)	Irritation
1,2-Diaminoethane (Ethylenediamine)	Irritation; asthma; sensitization
Diazinon	Cholinergic
Diazomethane	Irritation; cancer (lung)
Diborane	CNS; lung function
Dibrom (see Naled)	Cholinergic; dermatitis
1,2-Dibromo-3-chloropropane (DBCP) (see WAC 296-62-07342)	Cancer
2-N-Dibutylamino ethanol	Irritation; cholinergic
Dibutyl phosphate	Irritation
Dibutyl phthalate	Reproductive; irritation
Dichloroacetylene	GI; neurotoxicity; irritation
o-Dichlorobenzene	Irritation; liver
p-Dichlorobenzene	Irritation; kidney
3,3'-Dichlorobenzidine (see WAC 296-62-073)	Cancer, Irritation; dermatitis
Dichlorodiphenyltri- chloroethane (DDT)	Seizures; liver
Dichlorodifluoromethane	CVS
1,3-Dichloro-5,5-dimethyl hydantoin	Irritation
1,1-Dichloroethane	Liver; kidney; irritation
1,2-Dichloroethane (Ethylene dichloride)	Liver; narcosis
1,2-Dichloroethylene (Acetylene dichloride)	Liver
1,1-Dichloroethylene (Vinylidene chloride)	CNS; liver; kidney
Dichloroethyl ether	Irritation; lung
Dichlorofluoromethane	Liver
Dichloromethane (Methylene chloride)	CNS; anoxia
1,1-Dichloro-1-nitroethane	Irritation
1,2-Dichloropropane (Propylene dichloride)	Irritation; CNS; liver; kidney
Dichloropropene	Irritation

SUBSTANCE	PEL BASIS (Health Effects)
2,2-Dichloropropionic acid	Irritation
Dichlorotetrafluoroethane	CVS; narcosis; asphyxiation
Dichlorvos (DDVP)	Cholinergic
Dicrotophos	Cholinergic
Dicyclopentadiene	Irritation
Dicyclopentadienyl iron	Blood; liver
Total particulate	
Respirable fraction	
Dieldrin	Liver; CNS
Diethanolamine	Liver; kidney; blood
Diethylamine	Irritation
2-Diethylaminoethanol	Irritation; CNS
Diethylene triamine	Irritation; sensitization
Diethyl ether (Ethyl ether)	Irritation; narcosis
Diethyl ketone	Irritation; narcosis
Diethyl phthalate	Irritation
Difluorodibromomethane	Irritation; liver; CNS
Diglycidyl ether (DGE)	Irritation; reproductive; blood
Dihydroxybenzene (Hydroquinone)	CNS; dermatitis; ocular
Diisobutyl ketone (2, 6-Dimethylheptanone)	Irritation
Diisopropylamine	Vision; irritation
Dimethoxymethane (Methylal)	Irritation; CNS
Dimethyl acetamide	Reproductive; liver
Dimethylamine	Irritation
4-Dimethylaminoazo benzene (see WAC 296-62-073)	Cancer
Dimethylaminobenzene (Xylidene)	Cancer; genotoxic
Dimethylaniline (N,N-Dimethylaniline)	Anoxia; neurotoxicity
Dimethylbenzene (Xylene)	Cancer; genotoxic
Dimethyl-1, 2-dibromo-2, 2-dichloroethyl phosphate (Naled)	Cholinergic; dermatitis

SUBSTANCE	PEL BASIS (Health Effects)
Dimethylformamide	Liver
2, 6-Dimethylheptanone (Diisobutyl ketone)	Irritation
1, 1-Dimethylhydrazine	Irritation; neoplasia
Dimethyl phthalate	Irritation
Dimethyl sulfate	Irritation
Dinitolmide (3, 5-Dinitro-o-toluamide)	Irritation; liver
Dinitrobenzene (all isomers) - (alpha), (meta), and (para)	Anoxia
Dinitro-o-cresol	Metabolic disorders
Dinitrotoluene	CVS; reproductive
Dioxane (Diethylene dioxide)	Irritation; liver; kidney
Dioxathion	Cholinergic
Diphenyl (Biphenyl)	Lung
Diphenylamine	Liver; kidney; blood
Diphenylmethane diisocyanate (Methylene bisphenyl isocyanate (MDI))	Irritation; lung edema; sensitization
Dipropylene glycol methyl ether	Irritation; CNS
Dipropyl ketone	Irritation; liver; kidney; neurotoxicity
Diquat	Irritation, ocular
Di-sec, Octyl phthalate (Di-2-ethylhexylphthalate)	Irritation
Disulfram	GI; CVS
Disulfoton	Cholinergic
2, 6-Di-tert-butyl-p-cresol	Irritation
Diuron	Irritation; blood
Divinyl benzene	Irritation
Emery	Irritation
Total particulate	Irritation
Respirable fraction	Irritation

SUBSTANCE	PEL BASIS (Health Effects)
Endosulfan (Thiodan)	Liver; CNS
Endrin	CNS; liver
Epichlorhydrin (1-Chloro-2, 3-epoxypropane)	Irritation; liver; kidney
EPN	Cholinergic
1, 2-Epoxypropane (Propylene oxide)	Irritation; cancer (nasal)
2, 3-Epoxy-1-propanol (Glycidol)	Irritation; neoplasia
Ethane	
Ethanethiol (Ethyl mercaptan)	Irritation
Ethanolamine (2-Aminoethanol)	Irritation
Ethion	Cholinergic
2-Ethoxyethanol (Glycol monoethyl ether)	Reproductive
2-Ethoxyethyl acetate (Cellosolve acetate)	Reproductive
Ethyl acetate	Irritation
Ethyl acrylate	Irritation; cancer; sensitization
Ethyl alcohol (ethanol)	Irritation
Ethylamine	Irritation
Ethyl amyl ketone (5-Methyl-3-hepatone)	Irritation
Ethyl benzene	Irritation; CNS
Ethyl bromide	Liver; kidney; CVS
Ethyl butyl ketone (3-Heptanone)	Irritation; narcosis
Ethyl chloride	Liver; CNS
Ethylene	N/A
Ethylene chlorohydrin (2-Chloroethanol)	Irritation; liver; kidney; GI; CVS; CNS
Ethylenediamine (1,2-Diaminoethane)	Irritation; asthma; sensitization
Ethylene dibromide	Irritation; liver; kidney
Ethylene dichloride (1,2-Dichloroethane)	Liver; narcosis
Ethylene glycol	Irritation
Ethylene glycol dinitrate	CVS
Ethylene glycol monomethyl ether acetate (Methyl cellosolve acetate)	Blood, reproductive, CNS

SUBSTANCE	PEL BASIS (Health Effects)
Ethyleneimine (see WAC 296-62-073)	Irritation; bronchitis
Ethylene oxide (see WAC 296-62-07359)	Cancer; reproductive
Ethyl ether (Diethyl ether)	Irritation; narcosis
Ethyl formate	Irritation
Ethylidene chloride (1, 1-Dichloroethane)	Liver; narcosis
Ethylidene norbornene	Irritation
Ethyl mercaptan (Ethanethiol)	Irritation
n-Ethylmorpholine	Irritation; ocular
Ethyl sec-amyl ketone (5-methyl-3-heptanone)	Irritation
Ethyl silicate	Irritation; kidney
Fenamiphos	Cholinergic
Fensulfothion (Dasanit)	Cholinergic
Fenthion	Cholinergic
Ferbam	
Total particulate	Irritation
Ferrovandium dust	Irritation
Fluorides (as F)	Irritation, bone, fluorosis
Fluorine	Irritation
Fluorotrichloromethane (see Trichlorofluoro methane)	CVS; CNS
Fonofos	Cholinergic
Formaldehyde (see WAC 296-62-07540)	Irritation; cancer (nasal)
Formamide	Irritation; liver
Formic acid	Irritation
Furfural	Irritation
Furfuryl alcohol	Irritation
Gasoline	Irritation; CNS
Germanium tetrahydride	Blood
Glass, fibrous or dust	Irritation
Gluteraldehyde	Irritation; sensitization
Glycerin mist	Irritation

SUBSTANCE	PEL BASIS (Health Effects)
Total particulate	
Respirable fraction	
Glycidol (2, 3-Epoxy-1- propanol)	Irritation; neoplasia
Glycol monoethyl ether (2-Ethoxyethanol)	Reproductive
Grain dust (oat, wheat, barley)	Irritation, bronchitis, pulmonary function
Graphite, natural Respirable dust	Pneumoconiosis
Graphite, Synthetic	Pneumoconiosis
Total particulate	
Respirable fraction	
Guthion (Azinphosmethyl)	Cholinergic
Gypsum	Irritation
Total particulate	
Respirable fraction	
Hafnium	Liver; irritation
Helium	
Heptachlor	CNS, liver, blood
Heptane (n-heptane)	Irritation; narcosis
2-Heptanone (Methyl n-amyl ketone)	Irritation
3-Heptanone (Ethyl butyl ketone)	Irritation; narcosis
Hexachlorobutadiene	Irritation; kidney
Hexachlorocyclopentadiene	Irritation; pulmonary edema
Hexachloroethane	Irritation; liver; kidney
Hexachloronaphthalene	Liver; chloracne
Hexafluoroacetone	Reproductive; kidney
Hexane	CNS, irritation
n-hexane	Neuropathy; CNS; irritation
other Isomers	Neuropathy; CNS; irritation
2-Hexanone (Methyl-n-butyl ketone)	Neuropathy

SUBSTANCE	PEL BASIS (Health Effects)
Hexone (Methyl isobutyl ketone)	Irritation; kidney
sec-Hexyl acetate	Irritation
Hexylene Glycol	Irritation
Hydrazine	Irritation; liver
Hydrogen	N/A
Hydrogenated terphenyls	Irritation, liver
Hydrogen bromide	Irritation
Hydrogen chloride	Irritation; corrosion
Hydrogen cyanide	CNS, irritation, anoxia, lung, thyroid
Hydrogen fluoride	Irritation; bone; teeth; fluorosis
Hydrogen peroxide	Irritation; pulmonary edema; CNS
Hydrogen selenide (as Se)	Irritation; GI
Hydrogen Sulfide	Irritation; CNS
Hydroquinone (Dihydroxybenzene)	CNS; dermatitis; ocular
4-Hydroxy-4-methyl-2- pentanone (Diacetone alcohol)	Irritation
2-Hydroxypropyl acrylate	Irritation
Indene	Irritation; liver; kidney
Indium and compounds (as In)	Pulmonary edema; bone; GI
Iodine	Irritation
Iodoform	CNS; liver; kidney; CVS
Iron oxide dust and fume (as Fe)	Pneumoconiosis (siderosis)?
Total particulate	
Iron pentacarbonyl (as Fe)	Pulmonary edema; CNS
Iron salts, soluble (as Fe)	Irritation
Isoamyl acetate	Irritation
Isoamyl alcohol (primary and secondary)	Irritation
Isobutyl acetate	Irritation
Isobutyl alcohol	Irritation, ocular

SUBSTANCE	PEL BASIS (Health Effects)
Isooctyl alcohol	Irritation
Isophorone	Irritation; narcosis
Isophorone diisocyanate	Dermatitis; asthma; sensitization
Isopropoxyethanol	Blood
Isopropyl acetate	Irritation
Isopropyl alcohol	Irritation
Isopropylamine	Irritation
N-Isopropylaniline	Blood
Isopropyl ether	Irritation
Isopropyl glycidyl ether (IGE)	Irritation; dermatitis
Kaolin Total particulate Respirable fraction	Pneumoconiosis
Ketene	Lung irritation; lung edema
Lead inorganic (as Pb) (see WAC 296-62-07521)	CNS; blood; kidney; reproductive
Lead arsenate (see WAC 296-62-07347)	CNS; anemia; kidney; reproductive
Lead chromate	Cancer; CVS; reproductive
Limestone Total particulate Respirable fraction	Irritation
Lindane	CNS; liver
Lithium hydride	Irritation
L.P.G. (liquified petroleum gas)	N/A
Magnesite Total particulate Respirable fraction	Irritation; pneumoconiosis
Magnesium oxide fume Total particulate	Irritation; metal fume fever
Malathion Total particulate	Cholinergic; CNS; neuropathy; vision

SUBSTANCE	PEL BASIS (Health Effects)
Maleic anhydride	Irritation; asthma
Manganese and compound (as Mn)	CNS (manganism); lung; reproductive
Manganese tetroxide and fume (as Mn)	CNS (manganism); lung; reproductive
Manganese cyclopentadienyl tricarbonyl (as Mn)	CNS; pulmonary edema
Manganese tetroxide (as Mn)	CNS (manganism); lung; reproductive
Marble	
Total particulate	
Respirable fraction	Irritation
Mercury (aryl and inorganic) (as Hg)	CNS, neuropathy, vision, kidney, reproductive, GI
Mercury (organo-alkyl compounds) (as Hg)	CNS
Mercury (vapor) (as Hg)	CNS
Mesityl oxide	Irritation; narcosis; liver; kidney
Methacrylic acid	Irritation
Methane	N/A
Methanethiol (Methyl mercaptan)	Irritation; CNS
Methomyl (lannate)	Cholinergic
Methoxychlor	CNS; liver
Total particulate	CNS; liver
2-Methoxyethanol (Methyl cellosolve)	Blood; reproductive; CNS
4-Methoxyphenol	Eye; depigmentation
Methyl acetate	Irritation; narcosis
Methyl acetylene (propyne)	Anesthesia
Methyl acetylene-propadiene mixture (MAPP)	Anesthesia
Methyl acrylate	Irritation
Methylacrylonitrile	Irritation; CNS
Methylal (Dimethoxy-methane)	Irritation; CNS
Methyl alcohol (methanol)	Neuropathy; vision; CNS
Methylamine	Irritation
Methyl amyl alcohol (Methyl isobutyl carbinol)	Irritation; anesthesia

SUBSTANCE	PEL BASIS (Health Effects)
Methyl n-amyl ketone (2-Heptanone)	Irritation
N-Methyl aniline (see Monomethyl aniline)	Anoxia; blood
Methyl bromide	Irritation
Methyl butyl ketone (see 2-Hexanone)	Neuropathy
Methyl cellosolve (see 2-Methoxyethanol)	Blood; reproductive; CNS
Methyl cellosolve acetate (2-Methoxyethyl acetate)	Blood; reproductive; CNS
Methyl chloride	Kidney; CNS; reproductive
Methyl chloroform (1,1,1-trichlorethane)	Anesthesia; CNS
Methyl chloromethyl ether (see WAC 296-62-073)	Cancer (lung); irritation
Methyl 2-cyanoacrylate	Irritation; dermatitis
Methylcyclohexane	Narcosis; irritation
Methylcyclohexanol	Irritation; narcosis; liver; kidney
Methylcyclohexanone	Irritation; narcosis
Methylcyclopentadienyl manganese tricarbonyl (as Mn)	CNS, liver, kidney
Methyl demeton	Irritation; cholinergic
Methylene bisphenyl isocyanate (MDI) (Diphenylmethane diisocyanate)	Irritation; lung edema; sensitization
4, 4'-Methylene bis (2-chloro- aniline) (MBOCA) (see WAC 296-62-073)	Cancer
Methylene bis (4-cyclohexylisocyanate)	Irritation; sensitization
Methylene chloride (see WAC 296-62-07470) (Dichloromethane)	CNS; anoxia
4, 4-Methylene dianiline	Liver
Methyl ethyl ketone (MEK) (2-Butanone)	Irritation; CNS
Methyl ethyl ketone peroxide (MEKP)	Irritation; liver; kidney
Methyl formate	Irritation; narcosis.; lung edema
5-Methyl-3-heptanone (Ethyl amyl ketone)	Irritatiion
Methyl hydrazine (Monomethyl hydrazine)	Irritation; liver
Methyl iodide	CNS; irritation

SUBSTANCE	PEL BASIS (Health Effects)
Methyl isoamyl ketone	Irritation; narcosis; liver; kidney
Methyl isobutyl carbinol (Methyl amyl alcohol)	Irritation; anesthesia
Methyl isobutyl ketone (Hexone)	Irritation; kidney
Methyl isocyanate	Irritation; lung edema; sensitization
Methyl isopropyl ketone	Irritation
Methyl mercaptan (Methanethiol)	Irritation; CNS
Methyl methacrylate	Irritation; dermatitis
Methyl parathion	Cholinergic
Methyl propyl ketone (2-Pentanone)	Irritation; narcosis
Methyl silicate	Occular (severe), lung
alpha-Methyl styrene	Irritation; dermatitis; CNS
Mevinphos (Phosdrin)	Cholinergic
Metribuzin	Blood; liver
Mica (Silicates)	Pneumoconiosis
Molybdenum (as Mo)	
Soluble compounds	Irritation, metabolic disorder
Insoluble compounds (Total particulate)	Irritation
Monocrotophos (Azodrin)	Cholinergic
Monomethyl aniline (N-Methyl aniline)	Anoxia; blood
Monomethyl hydrazine	Irritation, liver
Morpholine	Irritation; vision
Naled (Dibrom)	Cholinergic; dermatitis
Naphtha (Coal tar)	Irritation; CNS
Naphthalene	Irritation; ocular; blood
alpha-Naphthylamine (see WAC 296-62-073)	Cancer
beta-Naphthylamine (see WAC 296-62-073)	Cancer (bladder)
Neon	N/A
Nickel carbonyl (as Ni)	Irritation; CNS
Nickel (as Ni)	Dermatitis; pneumoconiosis
Metal and insoluble compounds	Cancer (lung), irritation, dermatitis

SUBSTANCE	PEL BASIS (Health Effects)
Soluble compounds	CNS, irritation, dermatitis
Nicotine	CVS; GI; CNS
Nitrapyrin (2-Chloro-6 trichloromethyl pyridine)	Liver
Total particulate	
Respirable fraction	
Nitric acid	Irritation; corrosion; pulmonary edema
Nitric oxide	Anoxia; irritation; cyanosis
p-Nitroaniline	Anoxia; anemia; liver
Nitrobenzene	Anoxia
4-Nitrobiphenyl (see WAC 296-62-073)	Cancer (bladder)
p-Nitrochlorobenzene	Anoxia; blood; liver
4-Nitrodiphenyl (see WAC 296-62-073)	Cancer
Nitroethane	Irritation; narcosis; liver
Nitrogen	N/A
Nitrogen dioxide	Irritation; pulmonary edema
Nitrogen trifluoride	Anoxia; blood; liver; kidney
Nitroglycerin	CVS
Nitromethane	Thyroid
1-Nitropropane	Irritation; liver
2-Nitropropane	Liver; cancer
N-Nitrosodimethylamine (see WAC 296-62-073)	Cancer, CLiver
Nitrotoluene	Anoxia, cyanosis
o-isomer	
m-isomer	
p-isomer	
Nitrotrichloromethane (Chloropicrin)	Irritation; lung
Nitrous Oxide (Nitrogen oxide)	Reproductive; blood; CNS
Nonane	CNS; skin; irritation
Octachloronaphthalene	Liver; dermatitis
Octane	Irritation

SUBSTANCE	PEL BASIS (Health Effects)
Oil mist mineral (particulate)	Lung
Osmium tetroxide (as Os)	Irritation; vision
Oxalic acid	Irritation; burns
Oxygen difluoride	Irritation; kidney
Ozone	Lung function; irritation
Paraffin wax fume	Irritation
Paraquat (Respirable fraction)	Pulmonary edema, kidney, liver, pumony fibrosis
Parathion	Cholinergic
Particulate polycyclic aromatic hydrocarbons (coal tar pitch volatiles)	Cancer
Particulates not otherwise regulated	Lung
Total particulate	
Respirable fraction	
Pentaborane	CNS
Pentachloronaphthalene	Chloracne; liver
Pentachlorophenol	CVS; CNS
Pentaerythritol	Irritation
Total particulate	
Respirable fraction	
Pentane	Irritation, narcosis
2-Pentanone (methyl propyl ketone)	Irritation; narcosis
Perchloroethylene (tetrachloroethylene)	Irritation; CNS
Perchloromethyl mercaptan	Irritation; pulmonary edema
Perchloryl fluoride	Irritation; blood
Perlite	Irritation
Total particulate	
Respirable fraction	
Petroleum distillates (Naptha, Rubber Solvent)	Irritation, CNS

SUBSTANCE	PEL BASIS (Health Effects)
Phenol	Irritation; CNS; blood
Phenothiazine	Irritation; ocular; liver; kidney
p-Phenylene diamine	Sensitization; skin; eye
Phenyl ether (vapor)	Irritation; nausea
Phenyl ether-diphenyl mixture (vapor)	Irritation; nausea
Phenylethylene (Styrene)	Neurotoxicity; irritation; CNS
Phenyl glycidyl ether (PGE)	Irritation; dermatitis; sensitization
Phenylhydrazine	Dermatitis; anemia
Phenyl mercaptan	Irritation; dermatitis
Phenylphosphine	Irritation; dermatitis; blood; reproductive
Phorate	Cholinergic
Phosdrin (Mevinphos)	Cholinergic
Phosgene (carbonyl chloride)	Irritation; anoxia; lung edema
Phosphine	Irritation; CNS; GI
Phosphoric acid	Irritation
Phosphorus (yellow)	Irritation; liver; kidney; CVS; GI
Phosphorous oxychloride	Irritation; kidney
Phosphorus pentachloride	Irritation
Phosphorus pentasulfide	Irritation
Phosphorus trichloride	Irritation
Phthalic anhydride	Irritation; sensitization
m-Phthalodinitrile	Irritation
Picloram	Liver; kidney
Total particulate	
Respirable fraction	
Picric acid (2, 4, 6-Trinitrophenol)	Dermatitis; irritation; ocular; sensitization
Pindone (2-Pivalyl-1, 3-indandione, Pival	Liver; kidney; bleeding; dermatitis
Piperazine dihydrochloride	Irritation; burns; asthma; sensitization
Pival (Pindone)	Liver; kidney; bleeding; dermatitis
Plaster of Paris	Irritation

SUBSTANCE	PEL BASIS (Health Effects)
Total particulate	
Respirable fraction	
Platinum (as Pt)	
Metal	Irritation
Soluble salts	Asthma, irritation, sensitization
Polychlorobiphenyls (Chlorodiphenyls)	Irritation; chloracne; liver
Portland cement	Irritation; Dermatitis
Total particulate	
Respirable fraction	
Potassium hydroxide	Irritation; corrosion
Propane	N/A
Propargyl alcohol	Irritation; liver; kidney
beta-Propiolactone (see WAC 296-62-073)	Irritation
Propionic acid	Irritation
Propoxur (Baygon)	Cholinergic
n-Propyl acetate	Irritation
n-Propyl alcohol	Irritation; narcosis
n-Propyl nitrate	Blood; cyanosis; anoxia
Propylene	
Propylene dichloride (1,2-Dichloropropane)	Irritation; CNS; liver; kidney
Propylene glycol dinitrate	CVS; headache; CNS, anoxia
Propylene glycol monomethyl ether	Irritation; anesthesia
Propylene imine	Irritation; CNS
Propylene oxide (1, 2-Epoxypropane)	Irritation; cancer (nasal)
Propyne (see Methyl acetylene)	Anesthesia
Pyrethrum	Dermatitis; CNS; liver; sensitization
Pyridine	Irritation; CNS; liver; kidney; blood
Quinone (p-Benzoquinone)	Irritation; eyes
RDX (Cyclonite)	Irritation, CNS, liver, blood

SUBSTANCE	PEL BASIS (Health Effects)
Resorcinol	Irritation; dermatitis; blood
Rhodium (as Rh) Insoluble compounds,	Irritation
Metal fumes and dusts	
Soluble compounds, salts	
Ronnel	Cholinergic
Rosin core solder, pyrolysis products (as formaldehyde)	Cholinergic
Rotenone	Irritation; CNS
Rouge	Lung, siderosis, irritation
Total particulate	
Respirable fraction	
Rubber solvent (naphtha)	Irritation, CNS
Selenium compounds (as Se)	Irritation
Selenium hexafluoride (as Se)	Pulmonary edema
Sesone (Crag herbicide)	Irritation
Silane (see Silicon tetrahydride)	Irritation
Silica, amorphous, precipitated and gel	Irritation
Silica, amorphous, diatomaceous earth, containing less than 1% crystalline silica	Irritation; pneumoconiosis
Total particulate	
Respirable fraction	
Silica, crystalline cristobalite, respirable fraction	Lung fibrosis; silicosis
Silica, crystalline quartz, respirable fraction	Silicosis; lung function; lung fibrosis; cancer
Silica, crystalline tripoli (as quartz), respirable fraction	Lung fibrosis
Silica, crystalline tridymite, respirable fraction	Lung fibrosis; silicosis
Silica, fused, respirable fraction	Lung fibrosis
Silicates (less than 1% crystalline silica)	
Mica (Respirable particulate)	Pneumoconiosis
Soapstone, Total particulate	Pneumoconiosis

SUBSTANCE	PEL BASIS (Health Effects)
Soapstone, Respirable fraction	Pneumoconiosis
Talc (containing asbestos) use asbestos limit (see WAC 296-62-07705)	Lung, asbestosis
Talc (containing no asbestos) Respirable fraction	Lung
Tremolite (see WAC 296-62-07705)	Lung, asbestosis
Silicon	Lung
Total particulate	
Respirable fraction	
Silicon Carbide	Lung
Total particulate	
Respirable fraction	
Silicon tetrahydride (Silane)	Irritation
Silver, metal dust and soluble compounds (as Ag)	Argyria (skin, eyes, mucosa)
Soapstone,	Pneumoconiosis
Total particulate	
Respirable fraction	
Sodium azide	CNS; CVS; lung
(as HN ₃)	Irritation
(as NaN ₃)	Irritation
Sodium bisulfite	Irritation
Sodium-2, 4-dichloro- phenoxyethyl sulfate (Crag herbicide)	Irritation
Sodium fluoroacetate	CNS; CVS
Sodium hydroxide	Irritation
Sodium metabisulfite	Irritation
Starch	Dermatitis; lung
Total particulate	
Respirable fraction	
Stibine	Irritation; blood

SUBSTANCE	PEL BASIS (Health Effects)
Stoddard solvent	Irritation; narcosis; kidney
Strychnine	CNS
Styrene (Phenylethylene, Vinyl benzene)	Neurotoxicity; irritation; CNS
Subtilisins	Irritation, lung, sensitization
Sucrose	Lung
Total particulate	
Respirable fraction	
Sulfotep (TEDP)	Cholinergic
Sulfur dioxide	Irritation
Sulfur hexafluoride	N/A
Sulfuric acid	Irritation; cancer (larynx)
Sulfur monochloride	Irritation
Sulfur pentafluoride	Irritation
Sulfur tetrafluoride	Irritation
Sulfuryl fluoride	Irritation; CNS
Sulprofos	Cholinergic
Systox (Demeton)	Cholinergic
2, 4, 5-T	Irritation
Talc (Silicates)	Lung
Tantalum Metal and oxide dusts	Irritation; lung
TEDP (Sulfotep)	Cholinergic
Tellurium and compounds (as Te)	CNS; cyanosis; liver
Tellurium hexafluoride (as Te)	Irritation
Temephos (Abate)	Cholinergic
Total particulate	
Respirable fraction	
TEPP	Cholinergic
Terphenyls	Irritation
1, 1, 1, 2-Tetrachloro- 2, 2-difluoroethane	Liver, blood

SUBSTANCE	PEL BASIS (Health Effects)
1, 1, 2, 2-Tetrachloro- 1, 2-difluoroethane	CNS; pulmonary edema
1, 1, 2, 2-Tetrachloroethane	Liver; CNS; GI
Tetrachloroethylene (Perchloroethylene)	Irritation; CNS
Tetrachloromethane (Carbon tetrachloride)	Liver; cancer
Tetrachloronaphthalene	Liver
Tetraethyl lead (as Pb)	CNS
Tetrahydrofuan	Irritation; narcosis
Tetramethyl lead (as Pb)	CNS
Tetramethyl succinonitrile	CNS
Tetranitromethane	Irritation
Tetrasodium pyrophosphate	Irritation
Tetryl (2, 4, 6-trinitrophenyl- methyl nitramine)	Liver; dermatitis; sensitization
Thallium (soluble compounds) (as Tl)	Irritation; CNS; CVS
4, 4-Thiobis (6-tert-butyl-m-cresol)	Liver; kidney
Total particulate	Liver; kidney
Respirable fraction	Liver; kidney
Thioglycolic acid	Irritation
Thionyl chloride	Irritation
Thiram (see WAC 296-62-07519)	Cancer, Irritation
Tin (as Sn) Inorganic compounds (except oxides)	Stenosis
Tin, Organic compounds (as Sn)	CNS, immunotoxicity, irritation
Tin Oxide (as Sn)	Stenosis
Titanium dioxide	Lung
Total particulate	
Toluene	CNS
Toluene-2, 4-diisocyanate (TDI)	Irritation; sensitization
m-Toluidine	Anoxia; kidney
o-Toluidine	Anoxia; kidney
p-Toluidine	Anoxia; kidney

SUBSTANCE	PEL BASIS (Health Effects)
Toxaphene (Chlorinated camphene)	Seizures; liver
Tremolite (see WAC 296-62-07705)	Lung, asbestosis
Tributyl phosphate	Irritation; cholinergic
Trichloroacetic acid	Irritation
1, 2, 4-Trichlorobenzene	Irritation
1, 1, 1-Trichloroethane (Methyl chloroform)	Anesthesia; CNS
1, 1, 2-Trichloroethane	CNS; liver
Trichloroethylene	CNS; headache; liver
Trichlorofluoromethane	CVS; CNS
Trichloromethane (Chloroform)	Liver; reproductive
Trichloronaphthalene	Liver
1, 2, 3-Trichloropropane	Liver; kidney
1, 1, 2-Trichloro- 1, 2, 2-trifluoroethane	Narcosis; CVS; asphyxiation
Tricyclohexyltin hydroxide (Cyhexatin)	Irritation
Triethylamine	Irritation; vision
Trifluorobromomethane	CNS; CVS
Trimellitic anhydride	Bleeding (lung); immunotoxicity; sensitization
Trimethylamine	Irritation
Trimethyl benzene	Irritation; CNS; blood
Trimethyl phosphite	Irritation
2, 4, 6-Trinitrophenol (Picric acid)	Dermatitis; irritation; ocular; sensitization
2, 4, 6-Trinitrophenyl- methylnitramine (Tetryl)	Liver; dermatitis; sensitization
2, 4, 6-Trinitrotoluene (TNT)	Irritation; liver; blood; eye
Triorthocresyl phosphate	CNS; cholingeric
Triphenyl amine	Irritation
Triphenyl phosphate	Irritation; dermatitis
Tungsten (as W)	
Soluble compounds	CNS, irritation
Insoluble compounds	Irritation

SUBSTANCE	PEL BASIS (Health Effects)
Turpentine	Irritation
Uranium (as U)	Kidney; blood; cancer
Soluble compounds	
Insoluble compounds	
n-Valeraldehyde	Irritation
Vanadium (as V ₂ O ₅) Respirable fraction	Irritation; lung
Vegetable oil mist	Lung
Total particulate	
Respirable fraction	
Vinyl acetate	Irritation
Vinyl benzene (Styrene)	Neurotoxicity; irritation; CNS
Vinyl bromide	Liver; CNS; cancer
Vinyl chloride (see WAC 296-62-07329) (Chloroethylene)	Cancer (liver)
Vinyl cyanide (See WAC 296-62-07336 , Acrylonitrile)	Cancer
Vinyl cyclohexene dioxide	Irritation; dermatitis; reproductive
Vinyl toluene	Irritation
Vinylidene chloride (1, 1-Dichloroethylene)	CNS; liver; kidney
VM & P Naphtha	Irritation; CNS
Warfarin	Blood; bleeding
Welding fumes ^d (total particulate)	Metal fume fever, irritation
Wood dust	
Nonallergenic (All woods except allergenics)	Irritation, dermatitis, lung
Allergenics (e.g. cedar, mahogany and teak)	Cancer, irritation, mucostasis
Xylenes (Xylol) (o-, m-, p-isomers) (Dimethylbenzene)	Irritation
m-Xylene alpha, alpha-diamine	Irritation; blood
Xylidine (Dimethylaminobenzene)	Cancer; genotoxic
Yttrium	Fibrosis

SUBSTANCE	PEL BASIS (Health Effects)
Zinc chloride fume	Irritation; lung edema
Zinc chromate (as CrO ₃)	Cancer (lung)
Zinc oxide	Lung
Total particulate	
Respirable fraction	
Zinc oxide fume	Lung, metal fume fever
Zinc stearate	Lung
Total particulate	
Respirable fraction	
Zirconium compounds (as Zr)	Lung

PART Y-7

HEARING LOSS PREVENTION (NOISE)

WAC		Page
296-307-630	Scope	1
296-307-632	Summary	2
296-307-63205	Conduct employee noise exposure monitoring.....	3
296-307-63210	Control employee noise exposures that equal or exceed 90 dBA TWA ₈ ..	4
296-307-63215	Make sure employees use hearing protection when their noise exposure equals or exceeds 85 dBA TWA ₈	5
296-307-63220	Make sure exposed employees receive training about noise and hearing protection.....	6
296-307-63225	Make sure warning signs are posted for areas where noise levels equal or exceed 115 dBA.....	7
296-307-63230	Arrange for oversight of audiometric testing.....	7
296-307-63235	Identify and correct deficiencies in your hearing loss prevention program.....	7
296-307-63240	Document your hearing loss prevention activities.....	8
296-307-634	Summary	9
296-307-63405	Make sure that noise-measuring equipment meets recognized standards.....	9
296-307-63410	Measure employee noise exposure.....	10
296-307-63415	Use these equations when estimating full-day noise exposure from sound level measurements.....	11
296-307-636	Summary	12
296-307-63605	Provide audiometric testing at no cost to employees.....	12
296-307-63610	Establish a baseline audiogram for each exposed employee.....	12
296-307-63615	Conduct annual audiograms.....	13
296-307-63620	Review audiograms that indicate a standard threshold shift.....	13
296-307-63625	Keep the baseline audiogram without revision, unless annual audiograms indicate a persistent threshold shift or a significant improvement in hearing.....	14
296-307-63630	Make sure a record is kept of audiometric tests.....	14
296-307-63635	Make sure audiometric testing equipment meets these requirements..	14
296-307-638	Summary	16
296-307-63805	Conduct hearing protection audits at least quarterly.....	17
296-307-63810	Make sure staff conducting audits are properly trained.....	17
296-307-63815	Assess the hearing protection used by each employee during audits.....	18
296-307-63820	Document hearing protection audits.....	18
296-307-63825	Make sure third-party hearing loss prevention programs meet the following requirements.....	18
296-307-640	Noise definitions	19

WAC 296-307-630 Scope.

The purpose of this part is to:

- (1) Prevent employee hearing loss by minimizing employee noise exposures; and
- (2) Make sure employees exposed to noise are protected. These goals are accomplished by:
 - (a) Measuring and computing the employee noise exposure from all equipment and machinery in the workplace, as well as any other noise sources in the work area;
 - (b) Protecting employees from noise exposure by using feasible noise controls;
 - (c) Making sure employees use hearing protection, if the employer cannot feasibly control the noise;
 - (d) Training employees about hearing loss prevention;
 - (e) Evaluating the employer's hearing loss prevention efforts by tracking employee hearing or periodically reviewing controls and protection;
 - (f) Making appropriate corrections to the employer's program.

Reference: Table 1 will help the employer determine the hearing loss prevention requirements for the workplace. For the specific requirements associated with Noise Evaluation Criteria, see WAC 296-307-63410 of this part.

Table 1 Noise Evaluation Criteria		
Criteria	Description	Requirements
85 dBA TWA ₈	Full-day employee noise exposure dose. If you have one or more employees whose exposure equals or exceeds this level, you must have a hearing loss prevention program	<ul style="list-style-type: none"> – Hearing protection – Training – Audiometric testing
90 dBA TWA ₈	Full-day employee noise exposure dose. If you have one or more employees whose exposure equals or exceeds this level, you must reduce employee noise exposures in the workplace	<ul style="list-style-type: none"> – Noise controls AND – Hearing protection – Training – Audiometric testing

Table 1 Noise Evaluation Criteria		
Criteria	Description	Requirements
115 dBA measured using slow response	Extreme noise level (greater than one second in duration)	<ul style="list-style-type: none"> – Hearing protection – Signs posted in work areas warning of exposure
140 dBC measured using fast response	Extreme impulse or impact noise (less than one second in duration)	<ul style="list-style-type: none"> – Hearing protection

HEARING LOSS PREVENTION PROGRAM

WAC 296-307-632 Summary.

Employer responsibility:

To prevent employee hearing loss by minimizing, and providing protection from, noise exposures.

<i>The employer must meet the requirements...</i>	<i>in this section:</i>
Conduct employee noise exposure monitoring.	WAC 296-307-63205
Control employee noise exposure that equals or exceeds 90 dBA TWA ₈ .	WAC 296-307-63210
Make sure employees use hearing protection when their noise exposure equals or exceeds 85 dBA TWA ₈ .	WAC 296-307-63215
Make sure exposed employees receive training about noise and hearing protection.	WAC 296-307-63220
Make sure warning signs are posted for areas with noise levels that equal or exceed 115 dBA.	WAC 296-307-63225

<i>The employer must meet the requirements...</i>	<i>in this section:</i>
Arrange for oversight of audiometric testing.	WAC 296-307-63230
Identification and correction of deficiencies in a hearing loss prevention program.	WAC 296-307-63235
Determining hearing loss prevention activities.	WAC 296-307-63240

WAC 296-307-63205 Conduct employee noise exposure monitoring.

- (1) The employer must conduct employee noise exposure monitoring to determine the employee's actual exposure when reasonable information indicates that any employee's exposure may equal or exceed 85 dBA TWA₈.

Notes:

1. Representative monitoring may be used where several employees perform the same tasks in substantially similar conditions
2. Examples of information or situations that can indicate exposures which equal or exceed 85 dBA TWA₈, include:
 - a. Noise in the workplace that interferes with people speaking, even at close range;
 - b. Information from the manufacturer of equipment the employer uses in the workplace that indicates high noise levels for machines in use;
 - c. Reports from employees of ringing in their ears or temporary hearing loss;
 - d. Warning signals or alarms that are difficult to hear;
 - e. Work near abrasive blasting or jack hammering operations;
 - f. Use of tools and equipment such as the following:
 - i. Heavy equipment or machinery;
 - ii. Fuel-powered hand tools;
 - iii. Compressed air-driven tools or equipment in frequent use;
 - iv. Power saws, grinders or chippers;
 - v. Powder-actuated tools.

- (2) The employer must follow applicable guidance in WAC 296-307-634 when conducting noise exposure monitoring.
- (3) The employer must make sure the sampling for noise exposure monitoring identifies:
- (a) All employees whose exposure equals or exceeds the following:

- (i) 85 dBA TWA₈ (noise dosimetry, providing an average exposure over an eight-hour time period);
 - (ii) 115 dBA (slow response sound level meter, identifying short-term noise exposures);
 - (iii) 140 dBC (fast response sound level meter, identifying almost instantaneous noise exposures).
- (b) Exposure levels for selection of hearing protection.
- (4) The employer must provide exposed employees and their representatives with an opportunity to observe any measurements of employee noise exposure that are conducted.
- (5) The employer must notify each employee whose exposure equals or exceeds 85 dBA TWA₈ of the monitoring results within five working days of when the employer receives the results.
- (6) The employer must conduct additional noise monitoring whenever a change in production, process, equipment or controls, may reasonably be expected to result in:
- (a) Additional employees whose exposure equals or exceeds 85 dBA TWA₈;
 - (b) Employees exposed to higher level of noise requiring more effective hearing protection.

<p>Note:</p> <p>include:</p> <ol style="list-style-type: none"> 1. Adding machinery to the work area; 2. Increasing production rates; 3. Removal or deterioration of noise control devices; 4. Increased use of noisy equipment; 5. Change in work schedule; 6. Change of job duties. 	<p>Conditions that may be expected to increase exposure</p>
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WAC 296-307-63210 Control employee noise exposures that equal or exceed 90 dBA TWA₈.

<p>Important:</p> <p>Hearing protection provides a barrier to noise and protects employees but is not considered a control of the noise hazard. Separate requirements apply to hearing protection and are found in WAC 296-307-63215.</p>
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The employer must reduce employee noise exposure, using feasible controls, wherever exposure equals or exceeds 90 dBA TWA₈.

Notes:

1. Once noise exposures are brought below 90 dBA TWA₈, no further reduction is required. However, further reduction of noise may reduce the need for other hearing loss prevention requirements.
2. Controls that eliminate noise at the sources or establish a permanent barrier to noise are typically more reliable. For example:
 - a. Replacing noisy equipment with quiet equipment;
 - b. Using silencers and mufflers;
 - c. Installing enclosures;
 - d. Damping noisy equipment and parts.
3. Other controls and work practices may also be useful for reducing noise exposure: Examples include:
 - a. Employee rotation;
 - b. Limiting use of noisy equipment;
 - c. Rescheduling work.

WAC 296-307-63215 Make sure employees use hearing protection when their noise exposure equals or exceeds 85 dBA TWA₈.

- (1) The employer must make sure employees wear hearing protectors that will provide sufficient protection when exposure equals or exceeds:
 - (a) 85 dBA TWA₈ (noise dosimetry, providing an average exposure over an eight-hour time period);
 - (b) 115 dBA (slow response sound level meter, identifying short-term noise exposures);
 - (c) 140 dBC (fast response sound level meter, identifying almost instantaneous noise exposures).
- (2) The employer must provide employees with an appropriate selection of hearing protectors:
 - (a) The selection must include at least two distinct types (such as molded earplugs, foam earplugs, custom-molded earplugs, earcaps, or earmuffs) for each exposed employee and must be sufficient to cover:
 - (i) Different levels of hearing protection needed in order to reduce all employee exposures to a level below 85 dBA TWA₈;
 - (ii) Different sizes;
 - (iii) Different working conditions.
 - (b) Consider requests of the employees regarding:
 - (i) Physical comfort;
 - (ii) Environmental conditions;
 - (iii) Medical needs;
 - (iv) Communication requirements.

Note: Hearing protector selection should include earplugs, earcaps and earmuffs.

- (3) The employer must provide hearing protection at no cost to employees;
- (4) The employer must supervise employees to make sure that hearing protection is used correctly;
- (5) The employer must make sure hearing protectors are:
 - (a) Properly chosen for fit;
 - (b) Replaced as necessary.
- (6) The employer must make sure all hearing protection is sufficient to reduce the employee's equivalent eight-hour noise exposure to 85 dBA or less. When using the A-weighted exposure measurements, reported as "dBA TWA₈," the reduction in noise exposure by hearing protectors is given by Table 2.

Table 2 Effective Protection of Hearing Protectors	
Type of hearing protection	Effective protection
Single hearing protection (earplugs, earcaps or earmuffs)	7 dB less than the manufacturer assigned noise reduction rating (NRR); for example, earplugs with an NRR of 20 dB are considered to reduce employee exposures of 95 dBA TWA ₈ to 82 dBA TWA ₈
Dual hearing protection (earplug and earmuff worn together)	2 dB less than the higher NRR of the two protectors; for example, earplugs with an NRR of 20 dB and earmuffs with an NRR of 12 dB are considered to reduce employee exposures of 100 dBA TWA ₈ to 82 dBA TWA ₈

- (7) In addition to protection based on daily noise dose, the employer must make sure hearing protection has an NRR of at least 20 dB when exposures involve noise that equals or exceeds 115 dBA (slow response sound level meter) or 140 dBC (fast response sound level meter).

Note: The employer may also evaluate hearing protection by using the other methods given in the NIOSH Compendium of Hearing Protection (DHHS (NIOSH)) Publication No. 95-105 or online at <http://www.cdc.gov/niosh/topics/noise/hpcomp.html>. These methods require additional monitoring and are more complex, but provide a more thorough evaluation of protection. This may be useful in cases where communication is critical or for evaluating hearing protection for employees with hearing impairment.

WAC 296-307-63220 Make sure exposed employees receive training about noise and hearing protection.

- (1) The employer must train all employees whose noise exposure equals or exceeds 85 dBA TWA₈.
- (2) The employer must provide training when an employee is first assigned to a position involving noise exposure that equals or exceeds 85 dBA TWA₈ **and** at least annually after that.
- (3) The employer must update information provided in the training program to be consistent with changes in controls, hearing protectors and work processes.
- (4) The employer must make sure noise and hearing protection training includes:
 - (a) The effects of noise on hearing (including both occupational and nonoccupational exposures);
 - (b) Noise controls used in workplace;
 - (c) The purpose of hearing protectors: The advantages, disadvantages, and attenuation of various types;
 - (d) Instructions about selecting, fitting, using, and caring for hearing protection;
 - (e) The purpose and procedures for program evaluation including audiometric testing and hearing protection auditing when the employer chooses to rely upon auditing (see WAC 296-307-638);
 - (f) The employees' right to access records kept by the employer.
- (5) The employer must maintain a written program describing initial and refresher training.

WAC 296-307-63225 Make sure warning signs are posted for areas where noise levels equal or exceed 115 dBA.

- (1) The employer must make sure warning signs are posted at the entrances or boundaries of all well-defined work areas where employees may be exposed to noise that equals or exceeds 115 dBA (measured using a sound level meter with slow response).

Warning signs must clearly indicate that the area is a high noise area and that hearing protectors are required.

WAC 296-307-63230 Arrange for oversight of audiometric testing.

- (1) The employer must make sure audiometric testing as described by WAC 296-307-636 is supervised and reviewed by one of the following licensed or certified individuals:
 - (a) An audiologist;
 - (b) An otolaryngologist;
 - (c) Another qualified physician.
- (2) The employer must make sure audiograms are conducted by one of the above individuals or by a technician certified by the Council of Accreditation in Occupational Hearing Conservation (CAOHC) and responsible to a qualified reviewer.

WAC 296-307-63235 Identification and correction of deficiencies in a hearing loss prevention program.

- (1) The employer must use audiometric testing to identify hearing loss, which may indicate program deficiencies;
- (2) The employer must take appropriate actions when deficiencies are found with the employer's program.

A deficiency may be indicated when:

- (a) Any employee experiences measurable hearing loss indicated by a standard threshold shift; or
- (b) Any employee is not wearing appropriate hearing protection during an audit when auditing is used in place of baseline audiograms for short term employees (see WAC 296-307-638, Option to audiometric testing).

Note: A standard threshold shift or audit deficiency does not necessarily indicate that a significant hearing loss has occurred. These criteria are intended to help identify where there may be flaws in the employer's hearing loss prevention program that can be fixed before permanent hearing loss occurs.

There are additional statistical tools and tests that may be used to improve the effectiveness of the employer's program. Staff conducting audiometric testing and auditing may be able to suggest additional ways to improve the employer's hearing loss prevention program and tailor it to the worksite.

- (3) The employer must evaluate the following, at a minimum, when responding to a standard threshold shift:
 - (a) Employee noise exposure measurements;
 - (b) Noise controls in the work area;

- (c) The selection of hearing protection available and refit employees as necessary;
- (d) Employee training on noise and the use of hearing protection and conduct additional training as necessary.

Example: The employer may use the option of auditing hearing protection (see WAC 296-307-638) for employees hired or transferred to jobs with noise exposure for less than one year. The employer may also use audiograms provided by a third-party hearing loss prevention program in some circumstances. Details of these program options are found in WAC 296-307-638, Options to audiometric testing.

WAC 296-307-63240 Documenting hearing loss prevention activities.

The employer must create and retain records documenting noise exposures. Include, at a minimum:

- (1) Exposure measurements required by this part for at least two years and for as long as the employer relies upon them to determine employee exposure;
- (2) Audiometric test records for the duration of employment for the affected employees;
- (3) Hearing protection audits, if the employer chooses to rely upon them, for the duration of employment of the affected employees.

Notes:

1. The employer needs to keep as complete a record as possible. Records developed under previous rules or in other jurisdictions need to be kept, even when they do not fulfill the full requirements of this part. Similarly, records found to have errors in collection or processing need to be kept if they provide an indication of employee exposure or medical condition not found in other records.
2. The employer may want to consider other business needs, such as worker's compensation claims management, before discarding these records.

NOISE MEASUREMENT AND COMPUTATION

WAC 296-307-634 Summary.

Employer responsibility:

Conduct noise monitoring or measurement to evaluate employee exposures in the workplace.

<i>The employer must meet the requirements...</i>	<i>in this section:</i>
Make sure that noise-measuring equipment meets recognized standards.	WAC 296-307-63405
Measure employee noise exposure.	WAC 296-307-63410
Use these equations when estimating full-day noise exposure from sound level measurements.	WAC 296-307-63415

WAC 296-307-63405 Make sure that noise-measuring equipment meets recognized standards.

- (1) The employer must make sure that noise dosimetry equipment meets these specifications:

Dosimeters must be equipment class 2AS-90/80-5 of the American National Rule Specification for Personal Noise Dosimeters, ANSI S1.25-1991, such dosimeters are normally marked "Type 2."

<p>Note:</p> <ol style="list-style-type: none"> 1. Uses slow integration and A-weighting of sound levels. 2. Has the criterion level set to 90 dB, so the dosimeter will report a constant 8-hour exposure at 90 dBA as a 100% dose. 3. Has the threshold level set at 80 dB, so the dosimeter will register all noise above 80 dB. 4. Uses a 5 dB exchange rate for averaging of noise levels over the sample period. 	<p>Make sure any dosimeter used is Type 2 equipment that:</p>
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- (2) The employer must make sure that sound level meters meet these specifications:

- (a) American National Standard Specification for Sound Level Meters, S1.4-1984, Type 2 requirements for sound level meters, such sound level meters are normally marked "Type 2."
 - (b) For continuous noise measurements, the meter must be capable of measuring A-weighted sound levels with slow response.
 - (c) For impulse or impact noise measurements, the meter must be capable of indicating maximum C-weighted sound level measurements with fast response.
- (3) The employer must calibrate dosimeters and sound level meters used to monitor employee noise exposure:
- (a) Before and after each day's use; and
 - (b) Following the instrument manufacturer's calibration instructions.

Notes:

1. The employer may conduct dosimetry using an exchange rate less than 5 dB and compare the results directly to the noise evaluation criteria in Table 1
2. For measuring impulse and impact noise the employer may also use a sound level meter set to measure maximum impulse C-weighted sound levels or peak C-weighted sound levels.

WAC 296-307-63410 Measure employee noise exposure.**Important:**

A noise dosimeter is the basis for determining total daily noise exposure for employees. However, where there is constant noise levels, the employer may estimate employee noise exposure using measurements from a sound level meter. Calculation of the employee noise exposure must be consistent with WAC 296-307-63415.

- (1) The employer must include all:
 - (a) Workplace noise from equipment and machinery in use;
 - (b) Other noise from sources necessary to perform the work;
 - (c) Noise outside the control of the exposed employees.
- (2) The employer must use a noise dosimeter when necessary to measure employee noise dose.
- (3) The employer must use a sound level meter to evaluate continuous and impulse noise levels,

- (4) The employer must identify all employees whose exposures equal or exceed the Noise Evaluation Criteria as follows:

Noise Evaluation Criteria		
Criteria	Description	Requirements
85 dBA TWA ₈	Full-day employee noise exposure dose. If you have one or more employees whose exposure equals or exceeds this level, you must have a hearing loss prevention program	<ul style="list-style-type: none"> – Hearing protection – Training – Audiometric testing
90 dBA TWA ₈	Full-day employee noise exposure dose. If you have one or more employees whose exposure equals or exceeds this level, you must reduce employee noise exposures in the workplace	<ul style="list-style-type: none"> – Noise controls (in addition to the requirements for 85 dBA TWA₈)
115 dBA measured using slow response	Extreme noise level (greater than one second in duration)	<ul style="list-style-type: none"> – Hearing protection – Signs posted in work areas warning of exposure
140 dBC measured using fast response	Extreme impulse or impact noise (less than one second in duration)	<ul style="list-style-type: none"> – Hearing protection

WAC 296-307-63415 Use these equations when estimating full-day noise exposure from sound level measurements.

The employer must compute employee's full-day noise exposure by using the appropriate equations from Table 3 "Noise Dose Computation" **when** using a sound level meter to estimate noise dose.

<i>Table 3 Noise Dose Computation</i>	
Description	Equation
Compute the noise dose based on several time periods of constant noise during the shift	<p>The total noise dose over the work day, as a percentage, is given by the following equation where C_n indicates the total time of exposure at a specific noise level, and T_n indicates the reference duration for that level.</p> $D = 100 \cdot ((C_1/T_1) + (C_2/T_2) + (C_3/T_3) + \dots + (C_n/T_n))$

Table 3 Noise Dose Computation	
Description	Equation
The reference duration is equal to the time of exposure to continuous noise at a specific sound level that will result in a one hundred percent dose	The reference duration, T, for sound level, L, is given in hours by the equation: $T = 8 / (2^{((L - 90)/5)})$
Given a noise dose as a percentage, compute the equivalent eight-hour time weighted average noise level	The equivalent eight-hour time weighted average, TWA ₈ , is computed from the dose, D, by the equation: $TWA_8 = 16.61 \cdot \text{Log}_{10}(D/100) + 90$

AUDIOMETRIC TESTING**WAC 296-307-636 Summary.****Employer responsibility:**

To conduct audiometric testing of employees exposed to noise to make sure that their hearing protection is effective.

<i>The employer must meet the requirements...</i>	<i>in this section:</i>
Provide audiometric testing at no cost to employees.	WAC 296-307-63605
Establish a baseline audiogram for each exposed employee.	WAC 296-307-63610
Conduct annual audiograms.	WAC 296-307-63615
Review audiograms that indicate a standard threshold shift.	WAC 296-307-63620
Keep the baseline audiogram without revision, unless annual audiograms indicate a persistent threshold shift or a significant improvement in hearing.	WAC 296-307-63625
Make sure a record is kept of audiometric tests.	WAC 296-307-63630
Make sure audiometric testing equipment meets these requirements.	WAC 296-307-63635

WAC 296-307-63605 Provide audiometric testing at no cost to employees.

The employer must provide audiograms, including any required travel or necessary additional examinations or testing, at no cost to exposed employees.

WAC 296-307-63610 Establish a baseline audiogram for each exposed employee.

- (1) The employer must conduct a baseline audiogram when an employee is first assigned to work involving noise exposures that equal or exceed 85 dBA TWA₈.
 - (a) Make sure this audiogram is completed no more than one hundred eighty days after the employee is first assigned; or
 - (b) Make sure employee is covered by a hearing protection audit program (as described by WAC 296-307-638 and available as an alternative only for employees hired for less than one year).

Note: Employers who utilize mobile test units are allowed up to one year to obtain a valid baseline audiogram for each exposed employee. The employees must still be given training and hearing protection as required by this part.

- (2) The employer must make sure employees are not exposed to workplace noise at least fourteen hours before testing to establish a baseline audiogram.

Hearing protectors may be used to accomplish this.
- (3) The employer must notify employees of the need to avoid high levels of nonoccupational noise exposure (such as loud music, headphones, guns, power tools, motorcycles, etc.) during the fourteen-hour period immediately preceding the baseline audiometric examination.

WAC 296-307-63615 Conduct annual audiograms.

- (1) The employer must conduct annual audiograms for employees as long as they continue to be exposed to noise that equals or exceeds 85 dBA TWA₈.

Note: Annual audiometric testing may be conducted at any time during the work shift. By conducting the annual audiogram during the work shift with the employee exposed to typical noise for their job, the test may record a temporary threshold shift. This makes the test more sensitive to potential hearing loss and may help you improve employee protection before a permanent threshold shift occurs. A suspected temporary shift is one reason an employer may choose to retest employee hearing.

- (2) The employer must make sure each employee is informed of the results of his or her audiometric test.

Include whether or not there has been a hearing level decrease or improvement since their previous test.

- (3) The employer must make sure each employee's annual audiogram is compared to his or her baseline audiogram by an audiologist, otolaryngologist, another qualified physician, or the technician conducting the test to determine if a standard threshold shift has occurred.

If the annual audiogram indicates that an employee has suffered a standard threshold shift, the employer may obtain a retest within thirty days and consider the results of the retest as the annual audiogram.

- (4) The employer must make sure that an audiologist, otolaryngologist, or other qualified physician sees any annual audiogram that indicates a standard threshold shift.

WAC 296-307-63620 Review audiograms that indicate a standard threshold shift.

- (1) The employer must make sure the healthcare professional supervising audiograms has:
 - (a) A copy of this part;
 - (b) The baseline audiogram and most recent audiogram of the employee to be evaluated;
 - (c) Background noise level records for the testing room;
 - (d) Calibration records for the audiometer.
- (2) The employer must obtain an opinion from the healthcare professional supervising audiograms as to whether the audiograms indicate possible occupational hearing loss and any recommendations for changes in hearing protection.
- (3) The employer must pay for any clinical audiological evaluation or otological examination required by the reviewer, if:
 - (a) Additional review is necessary to evaluate the cause of hearing loss; or
 - (b) If there is indication of a medical condition of the ear caused or aggravated by the wearing of hearing protectors.
- (4) The employer must inform the employee in writing of the existence of a standard threshold shift within twenty-one calendar days of the determination.
- (5) The employer must make arrangements for the reviewer to communicate to the employee any suspected medical conditions that are found unrelated to the workplace. This information is confidential and must be handled appropriately.

WAC 296-307-63625 Keep the baseline audiogram without revision, unless annual audiograms indicate a persistent threshold shift or a significant improvement in hearing.

The employer must keep the baseline audiogram without revision, unless a qualified reviewer determines:

- (1) The standard threshold shift revealed by the audiogram is persistent; or

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- (2) The hearing threshold shown in the annual audiogram indicates significant improvement over the baseline audiogram.

WAC 296-307-63630 Make sure a record is kept of audiometric tests.

The employer must retain a legible copy of all employee audiograms conducted under this part.

Make sure the record includes:

- (1) Name and job classification of the employee;
- (2) Date of the audiogram;
- (3) The examiner's name;
- (4) Date of the last acoustic or exhaustive calibration of the audiometer;
- (5) Employee's most recent noise exposure assessment;
- (6) The background sound pressure levels in audiometric test rooms.

WAC 296-307-63635 Make sure audiometric testing equipment meets these requirements.

- (1) The employer must use pure tone, air conduction, hearing threshold examinations, with test frequencies including as a minimum 500, 1000, 2000, 3000, 4000, and 6000 Hz.
 - (a) Tests at each frequency must be taken separately for each ear.
 - (b) Supra-aural headphones must be used.
- (2) The employer must conduct audiometric tests with audiometers (including microprocessor audiometers) that meet the specifications of, and are maintained and used according to, American National Standard Specification for Audiometers, S3.6-1996.
- (3) The employer must check the functional operation of the audiometer each day before use by doing all of the following:
 - (a) Make sure the audiometer's output is free from distorted or unwanted sound;
 - (b) Test either a person with known, stable hearing thresholds or a bio-acoustic simulator;
 - (c) Perform acoustic calibration for deviations of 10 dB or greater.
- (4) Audiometer calibration must be checked acoustically at least annually to verify continued conformance with ANSI S3.6-1996. Test frequencies below 500 Hz and above 6000 Hz may be omitted from this check.
- (5) The employer must perform an exhaustive calibration at least every two years according to the American National Standard Specification for Audiometers, S3.6-1996. Test frequencies below 500 Hz and above 6000 Hz may be omitted from the calibration.
- (6) The employer must provide audiometric test rooms that meet the requirements of ANSI S3.1-1999 American National Standard Maximum Permissible Ambient Noise Levels for Audiometric Test Rooms using the following table of Maximum Ambient Sound Pressure Levels.

Frequency (Hz)	500	1000	2000	4000	8000
Sound Pressure Level (dB)	40	40	47	57	62

Note: The American Industrial Hygiene Association and National Hearing Conservation Association recommend conducting audiograms using the requirements of ANSI S3.1-1999 American National Standard Maximum Permissible Ambient Noise Levels for Audiometric Test Rooms with adjustments at only 500 Hz and below.

OPTIONS TO AUDIOMETRIC TESTING

WAC 296-307-638 Summary.

Employer responsibility:

This section provides options to baseline audiometric testing for employees assigned to duties with noise exposures for **less than one year**. These program options may also be used to provide added assessment of longer-term employees in addition to audiometric testing.

The requirements of this section apply only if the employer decides to use auditing or a third-party hearing loss prevention program and do not conduct baseline audiometric testing for those employees.

<i>The employer must meet the requirements...</i>	<i>in this section:</i>
Hearing Protection Audits	
Conduct hearing protection audits at least quarterly.	WAC 296-307-63805
Make sure staff conducting audits are properly trained.	WAC 296-307-63810

<i>The employer must meet the requirements...</i>	<i>in this section:</i>
Assess the hearing protection used by each employee during audits.	WAC 296-307-63815
Document your hearing protection audits.	WAC 296-307-63820
Third-Party Audiometric Testing	
Make sure third-party hearing loss prevention programs meet the following requirements.	WAC 296-307-63825

Important:

Hearing protection audits are a tool for use in evaluating the employer's hearing loss prevention program in cases where audiometric testing does not provide a useful measure. For example, if most of the employees are hired on a temporary basis for a few months at a time, audiometric testing may not identify the small changes in hearing acuity that could occur. Auditing provides an alternative to audiometric testing in these cases.

Auditing is not required unless the employer uses it in place of baseline audiometric testing for employees hired for a period of **less than one year** and is permitted as a substitute for audiometric testing only for these employees.

Third-party hearing loss prevention programs are full hearing loss prevention programs and are distinct from audiometric testing provided by third parties as part of the employer's hearing loss prevention program. These programs may be organized by labor groups, trade associations, labor-management cooperatives, or other organizations to:

- (1) Cover a specific group of employees; or
- (2) Combine efforts for several employers with common employees.

Although the employer remains responsible for the program, third-party programs can have at least two benefits over the employer running its own program:

- (a) The audiometric testing is portable between the participating employers so new testing will not be needed when an employee changes employers.
- (b) Employees who only work for short periods for any one employer can be monitored under the group program over a longer period of time increasing the effectiveness of the audiometric testing in preventing hearing loss for these employees.

WAC 296-307-63805 Conduct hearing protection audits at least quarterly.

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- (1) The employer must conduct audits at least quarterly to provide a representative assessment of the workplace.
 - (a) The assessment is representative if it:
 - (i) Covers all processes and work activities in the employer's business at full production levels; and
 - (ii) Covers all employees present on the audit day.
 - (b) If the business is mobile or involves variable processes, auditing may need to be repeated more often than quarterly;
 - (c) Auditing does not need to be repeated more than monthly as long as a reasonable effort is made to cover:
 - (i) The activities with greatest exposure; and
 - (ii) As many employees as possible.
 - (2) The employer must assess exposures and hearing protection for the full shift for each employee covered at the time of the audit.

WAC 296-307-63810 Make sure staff conducting audits are properly trained.

The employer must make sure staff conducting hearing protection audits:

- (1) Can demonstrate competence in:
 - (a) Evaluating hearing protection attenuation;
 - (b) Evaluating hearing protector choices;
 - (c) Assessing the correct use of hearing protectors.
- (2) Are certified by the Council for Accreditation in Occupational Hearing Conservation (CAOHC) or have training in the following areas:
 - (a) Noise and hearing loss prevention;
 - (b) Washington state noise regulations;
 - (c) Hearing protectors;
 - (d) Fitting of hearing protectors;
 - (e) Basic noise measurement.
 - (f) Hearing loss prevention recordkeeping.

WAC 296-307-63815 Assess the hearing protection used by each employee during audits.

The employer must confirm that:

- (1) Current site conditions during audits are consistent with conditions existing during noise monitoring;

- (2) The hearing protection used by the employee is sufficient and appropriate for the conditions;
- (3) The hearing protection is worn properly;

WAC 296-307-63820 Document hearing protection audits.

- (1) The employer must keep a record of audit results for each employee assessed for the length of their employment and for the length of time the employer will rely upon the audit results.
- (2) The employer must include the following information in the record:
 - (a) The make and model of the hearing protectors;
 - (b) The size of the protectors;
 - (c) Average noise exposure of the employee;
 - (d) Any problems found with use of the hearing protection;
 - (e) Any comments or complaints from the employee regarding the hearing protection.

THIRD-PARTY AUDIOMETRIC TESTS

WAC 296-307-63825 Make sure third-party hearing loss prevention programs meet the following requirements.

Important:

Third-party hearing loss prevention programs are intended:

- 1. For short-term employees hired or assigned to duties having noise exposures **for less than one year**; and
- 2. For seasonal employees.

However, other employees may be included as long as the employer meets all requirements for hearing loss follow-ups and recordkeeping.

- (1) The employer must make sure that the third-party program is:
 - (a) Equivalent to an employer program as required by this part; and
 - (b) Uses audiometric testing to evaluate hearing loss.
- (2) The employer must make sure a licensed or certified audiologist, otolaryngologist, or other qualified physician administers the third-party program.
- (3) The employer must make sure the third-party program has written procedures for:
 - (a) Communicating with participating employers of program requirements;
 - (b) Follow-up procedures for detected hearing loss;
 - (c) Annual review of participating employer programs.
- (4) The employer must make sure the following program elements are corrected by the employer or the third-party program when deficiencies are found:

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- (a) Noise exposures;
 - (b) Hearing protection;
 - (c) Employee training;
 - (d) Noise controls.
- (5) The employer must obtain a review of the hearing loss prevention program at least once per year, conducted by the third-party program administrator or their representative, in order to:
- (a) Identify any tasks needing a revised selection of hearing protection; and
 - (b) Provide an overall assessment of the employers' hearing loss prevention activities.

WAC 296-307-640 Noise definitions.

A-weighted. An adjustment to sound level measurements that reflects the sensitivity of the human ear. Used for evaluating continuous or average noise levels.

Audiogram. A chart, graph, or table resulting from an audiometric test showing an individual's hearing threshold levels as a function of frequency.

Audiologist. A professional, specializing in the study and rehabilitation of hearing, who is certified by the American Speech, Hearing, and Language Association, or the American Academy of Audiology, and is licensed by the state board of examiners.

Baseline audiogram. The audiogram against which future audiograms are compared. The baseline audiogram is collected when an employee is first assigned to work with noise exposure. The baseline audiogram may be revised if persistent standard threshold shift (STS) of improvement is found.

Continuous noise. Noise with peaks spaced no more than one second apart. Continuous noise is measured using sound level meters and noise dosimeters with the slow response setting.

Criterion sound level. A sound level of ninety decibels. An eight-hour exposure to constant 90 dBA noise is a one hundred percent noise dose exposure.

C-weighted. An adjustment to sound level measurements that evenly represents frequencies within the range of human hearing. Used for evaluating impact or impulse noise.

Decibel (dB). Unit of measurement of sound level. A-weighting, adjusting for the sensitivity of the human ear, is indicated as "dBA." C-weighting, an even reading across the frequencies of human hearing, is indicated as "dBC."

Fast response. A setting for a sound level meter that will allow the meter to respond to noise events of less than one second. Used for evaluating impulse and impact noise levels.

Hertz (Hz). Unit of measurement of frequency, numerically equal to cycles per second.

Impulsive or impact noise. Noise levels which involve maxima at intervals greater than one second. Impulse and impact noise are measured using the fast response setting on a sound level meter.

Noise dose. The total noise exposure received by an employee during their shift. It can be expressed as a percentage indicating the ratio of exposure received to the noise exposure received in an eight-hour exposure to constant noise at 90 dBA. It may also be expressed as the sound level that would produce the equivalent exposure during an eight-hour period (TWA_8).

Noise dosimeter. An instrument that integrates a function of sound pressure over a period of time in such a manner that it directly indicates a noise dose.

Occupational hearing loss. A reduction in the ability of an individual to hear either caused or contributed to by exposure in the work environment.

Otolaryngologist. A physician specializing in diagnosis and treatment of disorders of the ear, nose and throat.

Permanent threshold shift. A hearing level change that has become persistent and is not expected to improve.

Qualified reviewer. An audiologist, otolaryngologist, or other qualified physician who has experience and training in evaluating occupational audiograms.

Slow response. A setting for sound level meters and dosimeters in which the meter does not register events of less than about one second. Used for evaluating continuous and average noise levels.

Sound level. The intensity of noise as indicated by a sound level meter.

Sound level meter. An instrument that measures sound levels.

Standard threshold shift (STS). A hearing level change, relative to the baseline audiogram, of an average of 10 dB or more at 2000, 3000, and 4000 Hz in either ear.

Temporary threshold shift. A hearing level change that improves. A temporary threshold shift may occur with exposure to noise and hearing will return to normal within a few days. Temporary threshold shifts can be indicators of exposures that lead to permanent hearing loss.

TWA_8 - Equivalent eight-hour time-weighted average sound level. That sound level, which if constant over an eight-hour period, would result in the same noise dose measured in an environment where the noise level varies.

Resource Section
Hearing Loss Prevention (Noise)

	Page
Eliminating Noise	R-1
Hearing Protection – Additional Information	R-4
Noise Computation Examples	R-6

Eliminating Noise

Use with Chapter 296-307 WAC, Part Y-7, Hearing Loss Prevention (Noise)

How can noise be eliminated from the workplace?

When noise monitoring results indicate that workers are exposed to harmful noise levels, the best way to protect them is to eliminate the noise exposure versus using personal protective equipment. Using personal protective equipment can have many drawbacks and will not always be effective. Even small flaws in the fitting or use of hearing protection will significantly reduce its effectiveness. Sound can also be transmitted directly into the inner ear through the skull and have other effects on the body, so there are limits to the effectiveness of hearing protection. Small flaws in fitting or using an earplug or earmuff may not be apparent until a year or two after an employee starts

Eliminating Noise at the Source

Quieting the noise source directly will often be the most efficient way to reduce exposures. Most industrial noise is not part of the work, it is due to machinery operation or materials being worked on or handled. Often, small changes in equipment or processes can significantly reduce noise with little change in the efficiency or effectiveness of the work site. There are a variety of ways to reduce noises at the source:

- Install mufflers on engines.
- Use silencers wherever gases are being released, particularly on the exhausts from compressed air actuated equipment.
- Be sure equipment is in good operating condition—no squeaking parts, no rattling parts, etc.
- Be sure equipment is operating as designed—compressed air pressures are set at manufactures recommended levels, motion is within design limits and not hitting stops or other objects, impact pressure is set correctly.
- Use the correct equipment for the work—inefficient equipment may generate more noise and will usually generate noise for a longer time.
- Damp noise producing machine panels and materials. Some panels and materials will work like drums or bells to produce noise when they are shaken, vibrated or struck. Damping means to hold the materials tightly to prevent them from continuing to vibrate or adding materials that absorb the vibration energy.
- Move workstations further from noise sources.

In most cases, noise in the workplace is a sign of inefficiency—energy is being used to make noise rather than the products to be sold. The amount of energy necessary to create a harmful

exposure is not great, but may be a sign of other inefficiencies in the system. Working to eliminate noise will often have benefits in improved efficiency and more effective production. A program to regularly monitor noise levels in the workplace will not only prevent over-exposure of employees, but may have added benefits such as identifying maintenance or adjustment problems with equipment and improving plant efficiency.

Noise Enclosures and Barriers

Where noise cannot be eliminated at the source, the next form of noise control is to use engineering controls to intercept the sound as it travels from the noise source to the workers. The most effective way to do this is to create a closed box either around the equipment or the worker. Enclosing the sound source should also include adding acoustic insulation to absorb the sound being generated to make the enclosure as effective as possible. Special care must be taken to make sure materials can enter the enclosure and that cooling air and other equipment needs are accounted for without excessive openings into the enclosure. Using entry tunnels and baffles can allow full access to the machinery without compromising the effectiveness of the enclosure.

Barriers

Barriers may be simple walls or curtains of acoustic materials. Barriers have limited effectiveness unless they are very near either the noise source or the employee to be protected. Otherwise, the sound tends to simply travel around the barrier. Placing a barrier around a particularly noisy work area may limit the noise exposure of other workers, but will typically not reduce the exposure of workers performing the operation.

Acoustical panels or baffles

Acoustical panels or baffles are commonly installed near particularly noisy machinery, either on walls or ceilings. These can effectively cut down reflected noise, but do not address the direct noise exposure, which is usually much more significant. These panels and baffles are best suited as additions or treatments of enclosures or barriers.

Buy Quiet Programs

The engineering controls discussed above are often much more cost effective when they are planned and purchased with the equipment. Typically, the equipment will be fitted for the control system, or the controls will be installed during manufacture. This also eliminates the costs of studying and designing the noise controls. By considering noise during planning and purchasing of equipment, it is also possible to take advantage of plant layout and design to minimize noise problems. For example, if a particular machine will be the primary noise source in the plant, the production floor may be arranged to make it simpler to isolate that machine.

Administrative Controls

Another strategy to controlling noise exposures is to use administrative controls, in other words, to change work practices to minimize exposures. In some cases, simply scheduling work appropriately or moving workstations away from high noise areas can result in a significant reduction in noise exposure. Where specific tasks or machinery are the primary noise exposure for employees not working directly with those tasks, moving these employees to other locations may eliminate their noise exposure with little effect on the processes involved. Where employees must move from one location to another, paths should be provided allowing them to avoid high noise areas.

Hearing Protection - Additional Information

Use with Chapter 296-307 WAC, Part Y-7, Hearing Loss Prevention (Noise)

The most convenient method to use when evaluating the type of hearing protection needed is the noise reduction rating (NRR) developed by the Environmental Protection Agency (EPA). According to the EPA regulation, the NRR must be shown on the hearing protector package. The NRR is then related to an individual worker's noise environment in order to assess the adequacy of the attenuation of a given hearing protector. The NRR was developed for use in evaluating hearing protection from environmental sources measured with C-weighting.

The following methods must be used to calculate protected occupational exposure using A-weighted data as required under this rule:

- In general, it is best to fit hearing protection with a protected exposure sufficiently below the PEL to provide a safety factor. However, excessive protection, where the protected exposure is below about 70 dBA may interfere with communication and the employee's ability to hear activity or alarms around them.

Examples:

- Hearing protection example: 90 dBA exposure using earplugs with an NRR of 20 dB. The effective protection for the plugs is 13 dB and the protected exposure is 77 dBA, which is below the PEL.
- Dual hearing protection example: 105 dBA exposure using earplugs with an NRR of 33 dB and earmuff with a NRR of 29 dB. The effective protection is 31 dB and the protected exposure is 74 dB, which is below the PEL.

Instead of using the NRR, employers may evaluate the adequacy of hearing protector attenuation by using one of the three methods developed by the National Institute for Occupational Safety and Health (NIOSH), which are described in the *List of Personal Hearing Protectors and Attenuation Data*, HEW Publication No. 76-120, 1975, pages 21-37. These methods are known as NIOSH Methods No. 1, No. 2 and No. 3. The NRR described here is a simplification of NIOSH Method No. 2. The most complex method is NIOSH Method No. 1, which is probably the most accurate method since it uses the largest amount of spectral information from the individual employee's noise environment.

As in the case of the NRR method described, if one of the NIOSH methods is used, the selected method must be applied to an individual's noise environment to assess the adequacy of the attenuation. Employers should be careful to take a sufficient number of measurements in order to achieve a representative sample for each time segment.

The employer must remember that calculated attenuation values reflect realistic values only to the extent that the protectors are properly fitted and worn.

More information on NRR:

- The 7 dB reduction is based on the typical difference between industrial noise as measured using A-weighting and the noise used in the laboratory to measure attenuation when the hearing protector is evaluated for determination of the NRR.
- If a value other than 7 dB would appear appropriate, the employer should use one of the alternate evaluation methods rather than using the NRR method.
- Similarly, the estimated NRR for dual hearing protection is based on typical results for such systems. Where a NRR specific to the dual protection system worn is available or other data allows use of the alternate evaluation methods, the employer may choose to do so.

Noise Computation Examples

Use with Chapter 296-307 WAC, Part Y-7, Hearing Loss Prevention (Noise)

This helpful tool gives you examples of noise computations that should assist you with your own computations. Also found in this helpful tool are examples of employer actions based on the specific noise computation results. You will need to do your own noise computations and determine the specific actions needed based on the noise exposures in your workplace.

EXAMPLE 1

Assume an employee is exposed to 92 dBA for eight hours. Compute the employee's noise exposure, the time-weighted average and what action, if any, would be required of the employer.

Exposure:

The exposure time is 8 hours. The reference duration for 92 dBA is 6 hours.

$$D = 100 \times \left(\frac{C_1}{T_1} \right) = 100 \times \left(\frac{8}{6} \right) = 133\%$$

Time-weighted Average (TWA):

In Table HT-2, find the values for 130% and 140%. The difference in the time-weighted average values (92.4 - 91.9) equals 0.5. Since 133% is 3/10 of the way between 130 and 140, 133% equals 3/10 (0.5) + 91.9 = 92 dBA.

Employer Action:

Since the employee's exposure is above the 90 dBA TWA₈, the employer would be required to institute a full hearing loss prevention program, including:

- Controlling noise as feasible,
 - Providing hearing protection and training for employees,
- AND
- Instituting an audiometric testing program.

EXAMPLE 2

Assume a continuous noise exposure for an employee of 90 dBA and a work shift of 8 a.m. to 4:30 p.m. with a 15-minute morning and afternoon break and a 30-minute lunch. Both breaks and lunch are in an area with less than 70 dBA exposure. (Although this exposure could be integrated into the employee's total noise exposure, it is not significant and will not be considered in these calculations.) Calculate the worker's exposure, TWA, and the employer's responsibility.

Exposure:

Actual exposure (subtracting the lunch time and work breaks from the employee's work shift) indicates a 90 dBA exposure for 7 ½ hours. $D = 100 (C_1/T_1) = 100 (7.5/8) = 94$ (94%) Time-weighted Average (TWA):

From Table HT-2 a noise exposure of 94% converts to an equivalent 8-hour time-weighted average of 89.6 dBA.

Employer Action:

Since the employee's time-weighted average is between 85 and 90 dBA TWA₈, a hearing loss prevention program must be developed and maintained for the employee including hearing protection, training and audiometric testing. Engineering and/or administrative controls are not required, but may be beneficial, since the hearing loss prevention program would no longer be required if the employee's exposure were reduced below 85 dBA TWA₈.

EXAMPLE 3

Assume a technician works in a noise enclosure booth with a noise exposure of less than 70 dBA. The technician makes rounds to read gauges and instruments that are located in an area with a noise level of 105 dBA. The technician makes four trips a day, and each trip lasts 30 minutes. Calculate the employee's noise exposure, TWA and employer's responsibility.

Exposure:

With four trips a day and 30 minutes per trip, the employee is basically exposed to two hours of noise at 105 dBA with the remaining time spent inside the booth. From Table HT-1 of the rule the reference duration for exposure at 105 dBA is 1 hour.

$$D = 100 \times \left(\frac{C_1}{T_1} \right) = 100 \times \left(\frac{2}{1} \right) = 200\%$$

Time-weighted Average:

The employee's TWA from Table HT- 2 is 95 dBA.

Employer Action:

Since the employee's exposure is above the 90 dBA TWA₈, the employer would be required to institute a full hearing loss prevention program, including controlling noise as feasible, providing hearing protection and training for employees, and instituting an audiometric testing program.

EXAMPLE 4

Assume a timber trimmer operator with a background noise level inside the operator's booth of 85 dBA, cuts one timber every 10 seconds with a noise exposure during the cut of 105 dBA for three seconds. The employee works from 6 a.m. to 4:30 p.m. and has a 15-minute break in the morning and the afternoon and a 30-minute lunch break, all of which are below 70 dBA. Calculate the employee's noise exposure and TWA.

Exposure:

First sound level - 105 dBA

The employee is exposed to this sound level for three seconds out of every ten or 30% of the time. Thus the time of exposure (C₁) at this level is 0.3×9.5 or 2.85 hours. From Table HT- 1, the reference duration (T₁) is one hour.

Second sound level - 85 dBA

The employee is exposed to this sound level for seven seconds out of every ten or 70% of the time. Thus the time of exposure (C₂) at this level is 0.7×9.5 or 6.65 hours. From Table HT-1, the reference duration (T₂) is sixteen hours.

$$D = 100 \times \left(\frac{C_1}{T_1} + \frac{C_2}{T_2} \right) = 100 \times \left(\frac{2.85}{1} + \frac{6.65}{16} \right) = 327\%$$

Time-weighted Average (TWA):

From the conversion table we find a noise dose of 327% lies between 320 and 330 with values of 98.4 dBA and 98.6 dBA respectively.

$$320\% = 98.4 \text{ dBA}$$

$$330\% = 98.6 \text{ dBA}$$

$$327\% = (7/10) * (0.2) + 98.4 = 98.5$$

EXAMPLE 5

Assume a security guard works an eight-hour shift and makes eight rounds a night. In making a round of the facility the guard will spend 20 minutes in Building A, 30 minutes in Building B and 10 minutes in the yard. In Building A the noise levels are less than 70 dBA. Noise level in the yard is 85 dBA. In Building B there is a cyclic machine operation where the noise levels are:

100 dBA for 3 seconds (30%),

95 dBA for 3 seconds (30%) and

90 dBA for 4 seconds (40%);

Calculate the employee's noise exposure and time-weighted average (TWA)

Since the employee's noise exposure in Building A is less than 70 dBA, this exposure is not significant and will not enter into the computation (the theoretical dose would be less than 2%). In Building B we find three noise exposures, 100, 95, and 90 dBA respectively. The yard also has an exposure (85 dBA), which will enter into the total computation.

Calculating the partial exposures at each noise level we find:

At 100 dBA

$$\frac{30 \text{ minutes} \times 8 \text{ rounds}}{60 \text{ minutes}} \times \frac{\text{shift}}{\text{hour}} = 1.2 \text{ hours}$$

30%_x round shift 60 minutes shift

At 95 dBA

$$\frac{30 \text{ minutes} \times 8 \text{ rounds}}{60 \text{ minutes}} \times \frac{\text{shift}}{\text{hour}} = 1.2 \text{ hours}$$

30%_x round shift 60 minutes shift

$$\frac{30 \text{ minutes} \times 8 \text{ rounds}}{60 \text{ minutes}} \times \frac{\text{shift}}{\text{hour}} = 1.6 \text{ hours}$$

40%_x round shift 60 minutes shift

At 90 dBA

The yard at 85 dBA

$$\frac{10 \text{ minutes} \times 8 \text{ rounds}}{60 \text{ minutes}} \times \frac{\text{shift}}{\text{hour}} = 1.33 \text{ hours}$$

round shift 60 minutes shift

The employee's total noise exposure can be calculated from the noise exposure formula using the following values.

Location	Sound Level	Time of Exposure	Reference Duration
Building B	100 dBA	C ₁ = 1.2 hours	T ₁ = 2 hours
Building B	95 dBA	C ₂ = 1.2 hours	T ₂ = 4 hours
Building B	90 dBA	C ₃ = 1.6 hours	T ₃ = 8 hours
Yard	85 dBA	C ₄ = 1.33 hours	T ₄ = 16 hours

The employee's total noise exposure (D) is computed as follows:

$$D = 100 \times \left(\frac{C_1}{T_1} + \frac{C_2}{T_2} + \dots + \frac{C_n}{T_n} \right) = 100 \times \left(\frac{1.2}{2} + \frac{1.2}{4} + \frac{1.6}{8} + \frac{1.33}{16} \right) = 118\%$$

Table HT-1

Reference Durations, in Hours, for given Noise Levels				
Noise Level, L	Reference Duration, T		Noise Level, L	Reference Duration, T
80	32.0		106	0.87
81	27.9		107	0.76
82	24.3		108	0.66
83	21.1		109	0.57
84	18.4		110	0.50
85	16.0		111	0.44
86	13.9		112	0.38
87	12.1		113	0.33
88	10.6		114	0.29
89	9.2		115	0.25
90	8.0		116	0.22
91	7.0		117	0.19
92	6.1		118	0.16
93	5.3		119	0.14
94	4.6		120	0.13
95	4.0		121	0.11
96	3.5		122	0.095
97	3.0		123	0.082

Reference Durations, in Hours, for given Noise Levels				
Noise Level, L	Reference Duration, T		Noise Level, L	Reference Duration, T
98	2.6		124	0.072
99	2.3		125	0.063
100	2.0		126	0.054
101	1.7		127	0.047
102	1.5		128	0.041
103	1.3		129	0.036
104	1.1		130	0.031
105	1.0		131	0.027

Table H-2 Dose Equivalent TWA_8 for Given Dose

<i>Dose</i>	<i>TWA₈</i>	<i>Dose</i>	<i>TWA₈</i>	<i>Dose</i>	<i>TWA₈</i>
10	<=70	350	99.0	670	103.7
20	78.4	360	99.2	680	103.8
30	81.3	370	99.4	690	103.9
40	83.4	380	99.6	700	104.0
50	85.0	390	99.8	710	104.1
60	86.3	400	100.0	720	104.2
70	87.4	410	100.2	730	104.3
80	88.4	420	100.4	740	104.4
90	89.2	430	100.5	750	104.5
100	90.0	440	100.7	760	104.6
110	90.7	450	100.8	770	104.7
120	91.3	460	101.0	780	104.8
130	91.9	470	101.2	790	104.9
140	92.4	480	101.3	800	105.0
150	92.9	490	101.5	810	105.1
160	93.4	500	101.6	820	105.2
170	93.8	510	101.8	830	105.3
180	94.2	520	101.9	840	105.4
190	94.6	530	102.0	850	105.5
200	95.0	540	102.2	860	105.6
210	95.4	550	102.3	870	105.7
220	95.7	560	102.4	880	105.8
230	96.0	570	102.6	890	105.8
240	96.3	580	102.7	900	105.9
250	96.6	590	102.8	910	105.9

<i>Dose</i>	<i>TWA₈</i>	<i>Dose</i>	<i>TWA₈</i>	<i>Dose</i>	<i>TWA₈</i>
260	96.9	600	102.9	920	106.0
270	97.2	610	103.0	930	106.1
280	97.4	620	103.2	940	106.2
290	97.7	630	103.3	950	106.2
300	97.9	640	103.4	960	106.3
310	98.2	650	103.5	970	106.4
320	98.4	660	103.6	980	106.5
330	98.6	670	103.7	990	106.5
340	98.8	680	103.8	1000	106.6

SUMMARY

As you can see, the more variable the noise sources or exposure times, the more involved the computations become. Noise dosimeters overcome this problem by electronically accumulating and integrating the noise signals into the employee's noise dose. Having one person observe several noise dosimeters can save additional time. However, a simultaneous survey using a sound level meter must be conducted to support the dosimeter results.

PART Y-8
CONFINED SPACES

WAC		Page
296-307-642	Scope.	1
296-307-644	Identifying and controlling permit-required confined spaces.	2
296-307-64402	Identify permit-required confined spaces.	2
296-307-64404	Inform employees and control entry to permit-required confined spaces.....	3
296-307-64406	The employer must follow these requirements when contracting with another employer to enter its confined space.	4
296-307-646	Summary.	4
296-307-64602	Develop a written permit-required confined space program.	5
296-307-64604	Meet these additional requirements if employees enter another employer’s confined space.	5
296-307-648	Summary.	6
296-307-64802	Provide employee training.....	6
296-307-64804	Certify employee proficiency.....	7
296-307-650	Summary.	7
296-307-65002	Implement procedures for entry permits.....	8
296-307-65004	Use an entry permit that contains all required information.	8
296-307-65006	Keep and review entry permits.....	9
296-307-65008	Prevent unauthorized entry.....	10
296-307-65010	Provide, maintain, and use proper equipment.	10
296-307-65012	Evaluate and control hazards for safe entry.....	11
296-307-65014	Make sure adequate rescue and emergency services are available.	12
296-307-65016	Use nonentry rescue systems or methods whenever possible.	13
296-307-65018	Make sure entry supervisors perform their responsibilities and duties. .	14
296-307-65020	Provide an attendant outside the permit-required confined space.	15
296-307-65022	Make sure entrants know the hazardous conditions and their duties.....	16
296-307-65024	Implement procedures for ending entry.	16
296-307-652	Alternate entry procedures.	17
296-307-65202	Make sure the following conditions are met if using alternate entry procedures.	17
296-307-65204	Follow these alternate entry procedures for permit-required confined spaces.....	17
296-307-654	Nonpermit confined spaces requirements.	18
296-307-65402	Follow these requirements when classifying a confined space as a nonpermit confined space.	19
296-307 65404	Reevaluate nonpermit confined spaces if hazards develop.	20
296-307-656	Definitions.	20

WAC 296-307-642 Scope.

This part applies to all confined spaces and provides requirements to protect employees from the hazards of entering and working in confined spaces. This part applies in any of the following circumstances:

- (1) The employer has confined spaces in the workplace.
- (2) Employees will enter another employer's confined spaces.
- (3) A contractor will enter the employer's confined spaces.
- (4) The employer provides confined space rescue services.

The employer can use Table 1 to help decide which requirements to follow for confined spaces.

Table 1 Requirements for Confined Spaces						
For confined spaces that are	The requirements in the following sections apply					
	644	646	648	650	652	654
Permit-required confined spaces	X	X	X	X	X	X
Entered by a contractor	X	X	X	X	X	X
Nonpermit confined spaces	X					X
Never entered	X					
If the employer only:						
Uses alternate entry procedures	X	X	X		X	
Has a contractor enter the space	X					
Is a rescue service provider		X	X	X		

Definition:

Confined space. A space that is ALL of the following:

- (a) Large enough and arranged so an employee could fully enter the space and work.
- (b) Has limited or restricted entry or exit. Examples of spaces with limited or restricted entry are tanks, vessels, silos, storage bins, hoppers, vaults, excavations, and pits.
- (c) Not primarily designed for human occupancy.

Notes:

1. Requirements in other chapters may apply to the employer's work. The employer will find some safety and health requirements are addressed on a broad level in this part, while being addressed for a specific application in another rule. When this happens, both requirements apply and should not conflict. When a conflict does occur, the employer needs to follow the more specific requirement.
2. If the employer is uncertain which requirements to follow, contact the local labor and industries (L&I) office.

WAC 296-307-644 Summary. Identifying and controlling permit-required confined spaces.

Employer responsibility:

To identify permit-required confined spaces and control employee entry.

<i>The employer must meet the requirements...</i>	<i>in this section:</i>
Identify permit-required confined spaces.	WAC 296-307-64402
Inform employees and control entry to permit-required confined spaces.	WAC 296-307-64404
The employer must follow these requirements when contracting with another employer to enter its confined space	WAC 296-307-64406

WAC 296-307-64402 Identify permit-required confined spaces.

Important:

If the employer's workplace contains only nonpermit confined spaces and employees do not enter another employer's confined space, the employer may follow only the requirements in:

1. WAC 296-307-644, Identifying and controlling permit-required confined spaces; and
2. WAC 296-307-654, Nonpermit confined spaces requirements.

- (1) The employer must identify all permit-required confined spaces in your workplace.

-
- (2) The employer must assume any confined space is a permit-required confined space, unless the employer determines the space to be a nonpermit confined space.
 - (a) If the employer or employees enter the space to determine the hazards, follow the requirements in WAC 296-307-650, Permit entry procedures.
 - (b) If the employer evaluates the confined space and there are no potential or actual hazards, the employer can consider it to be a nonpermit confined space.
 - (3) The employer must document its determination that the space is nonpermit, as required by WAC 296-307-654.

Definitions:

Permit-required confined space or permit space. A confined space that has one or more of the following characteristics capable of causing death or serious physical harm:

- (a) Contains or has a potential to contain a hazardous atmosphere.
- (b) Contains a material with the potential for engulfing someone who enters the space.
- (c) Has an internal configuration that could allow someone entering to be trapped or asphyxiated by inwardly converging walls or by a floor, which slopes downward and tapers to a smaller cross-section.
- (d) Contains any physical hazard. This includes any recognized health or safety hazards -including engulfment in solid or liquid material, electrical shock, or moving parts.
- (e) Contains any other recognized safety or health hazard that could either:
 - (i) Impair the ability to self-rescue; or
 - (ii) Result in a situation that presents an immediate danger to life or health.

Nonpermit confined space. A confined space that does **NOT** contain actual hazards or potential hazards capable of causing death or serious physical harm.

WAC 296-307-64404 Inform employees and control entry to permit-required confined spaces.

- (1) The employer must provide information about confined spaces as follows:
 - (a) Make available to affected employees and their authorized representatives all information and documents required by this part.
 - (b) Inform affected employees about the existence, location, and danger of any permit-required confined spaces in the workplace by:
 - (i) Posting danger signs; or
 - (ii) Using any other equally effective means to inform employees.

Note: A sign reading “Danger-Permit Required Confined Space, DO NOT ENTER” or using pictures or other similar wording employees can understand would satisfy the requirement for a sign.

- (2) The employer must take effective measures to prevent unauthorized employees from entering permit-required confined spaces.

Note: Examples of measures to prevent employee entry include padlocks, bolted covers, special tools to remove covers, and providing employee training.

WAC 296-307-64406 The employer must follow these requirements when contracting with another employer to enter its confined space.

Important:

The contractor is responsible for following all confined space requirements in this part and in other rules that apply.

The employer must do **all** of the following if the employer arranges to have another employer (contractor) perform work that involves entry into its permit-required confined space:

- (1) Inform the contractor:
 - (a) That the workplace contains permit-required confined spaces and entry is allowed only if the applicable requirements of this part are met.
 - (b) Of the identified hazards and experience with each permit-required confined space.
 - (c) Of any employer required precautions or procedures for the protection of employees in or near spaces where the contractor will be working.
- (2) Coordinate entry operations with the contractor, when either employees or employers from the different companies will be working in or near permit-required confined spaces.
- (3) Discuss entry operations with the contractor when they are complete. Include the following in the discussion:
 - (a) The program followed during confined space entry; and
 - (b) Any hazards confronted or created.

PERMIT-REQUIRED CONFINED SPACE PROGRAM

WAC 296-307-646 Summary.

Employer responsibility:

To develop the employer’s permit-required confined space program and practices.

Important:
This section applies if employees will enter a permit-required confined space.

<i>The employer must meet the requirements...</i>	<i>in this section:</i>
Develop a written permit-required confined space program.	WAC 296-307-64602
Meet these additional requirements if employees enter another employer’s confined space.	WAC 296-307-64604

WAC 296-307-64602 Develop a written permit-required confined space program.

Important:
Identify and evaluate the hazards of permit-required confined spaces and the work performed, to assist the employer in developing its entry program.

- (1) The employer must develop a written program, before employees enter, that describes the means, procedures, and practices the employer uses for the safe entry of permit-required confined spaces as required by this part. Include the following when applicable to the employer’s confined space entry program:
 - (a) Documentation of permit entry procedures.
 - (b) Documentation used for alternate entry procedures.
 - (c) How to reclassify permit-required confined spaces to nonpermit spaces.
 - (d) Designation of employee roles, such as entrants, attendants, entry supervisors, rescuers, or those who test or monitor the atmosphere in a permit-required space.
 - (e) Identification of designated employee duties.
 - (f) Training employees on their designated roles.
 - (g) How to identify and evaluate hazards.

- (h) Use and maintenance of equipment.
- (i) How to prevent unauthorized entry.
- (j) How to coordinate entry with another employer.
- (k) How to rescue entrants.

Note: For alternate entry, the employer’s written program only needs to meet the requirements of WAC 296-307-648, Employee training, and WAC 296-307-652, Alternate entry procedures, of this part.

- (2) The employer must consult with affected employees and their authorized representatives when developing and implementing all aspects of the employer’s permit-required confined space program.
- (3) The employer must make the written program available to employees and their authorized representatives.
- (4) The employer must update its written program as necessary.

WAC 296-307-64604 Meet these additional requirements if employees enter another employer's confined space.

- (1) The employer must obtain any available information about permit-required confined space hazards and entry operations from the host employer.
- (2) The employer must coordinate entry operations with any other employers whose employees will be working in or near the permit-required confined space.
- (3) The employer must inform the host employer, either through a debriefing or during entry operations, about:
 - (a) The entry program that will be followed; and
 - (b) Any hazards confronted or created in the space during entry operations.

EMPLOYEE TRAINING

WAC 296-307-648 Summary.

Employer responsibility

To make sure employees are trained to perform their designated roles safely.

<i>The employer must meet the requirements...</i>	<i>in this section:</i>
Provide employee training.	WAC 296-307-64802

<i>The employer must meet the requirements...</i>	<i>in this section:</i>
Certify employee proficiency.	WAC 296-307-64804

WAC 296-307-64802 Provide employee training.

- (1) The employer must provide training to each employee involved in permit-required confined space activities, so they acquire the understanding, knowledge and skills necessary to safely perform assigned duties.
 - (a) Establish employee proficiency in their confined space duties.
 - (b) Introduce new or revised procedures as necessary.

Note:
Employers can determine employee proficiency by:

1. Observing employee performance during training exercises that simulate actual confined space conditions.
2. A comprehensive written examination; or
3. Any other method that is effective for the employer.

- (2) The employer must provide training at the following times:
 - (a) Before an employee is first assigned to duties covered by this part.
 - (b) Before there is a change in an employee's assigned duties.
 - (c) When there is a permit-required confined space hazard for which the employee has not already been trained.
 - (d) If the employer has reason to believe that there are either:
 - (i) Deviations from the employer's procedures for permit-required confined space entry; or
 - (ii) Employee knowledge or use of the employer's procedures is inadequate.

WAC 296-307-64804 Certify employee proficiency.

- (1) The employer must certify employee proficiency in their assigned duties.
- (2) The employer must make sure the certification:
 - (a) Contains each employee's name, the trainer's written or electronic signature or initials, and the dates of training.
 - (b) Is available for inspection by employees and their authorized representatives.

PERMIT ENTRY PROCEDURES

WAC 296-307-650 Summary.

Employer responsibility:

To establish procedures for the safe permit-required entry of confined spaces.

<i>The employer must meet the requirements...</i>	<i>in this section:</i>
Implement procedures for entry permits.	WAC 296-307-65002
Use an entry permit that contains all required information.	WAC 296-307-65004
Keep and review entry permits.	WAC 296-307-65006
Prevent unauthorized entry.	WAC 296-307-65008
Provide, maintain, and use proper equipment.	WAC 296-307-65010
Evaluate and control hazards for safe entry.	WAC 296-307-65012
Make sure adequate rescue and emergency services are available.	WAC 296-307-65014
Use non-entry rescue systems or methods whenever possible.	WAC 296-307-65016
Make sure entry supervisors perform their responsibilities and duties.	WAC 296-307-65018
Provide an attendant outside the permit-required confined space.	WAC 296-307-65020
Make sure entrants know the hazardous conditions and their duties.	WAC 296-307-65022
Implement procedures for ending entry.	WAC 296-307-65024

WAC 296-307-65002 Implement procedures for entry permits.

- (1) The employer must identify and evaluate, before employees enter, potential hazards from:
 - (a) The permit-required confined space; and
 - (b) The work to be performed.

-
- (2) The employer must complete an entry permit before entry is authorized, documenting that the employer has completed the means, procedures and practices necessary for safe entry and work.
 - (3) The employer must make sure that entrants or their representatives have an opportunity to observe any monitoring or testing, or any actions to eliminate or control hazards, performed to complete the permit.
 - (4) The employer must identify the entry supervisor. Make sure the entry supervisor signs the entry permit, authorizing entry, before the space is entered.
 - (5) The employer must make the completed permit available to entrants or their authorized representatives at the time of entry. Do this by either posting the completed permit at the entry location, or by any other equally effective means.
 - (6) The employer must make sure the duration of the permit does not exceed the time required to complete the assigned task or job identified on the permit.
 - (7) The employer must note any problems encountered during an entry operation on the permit. Use the information to make appropriate revisions to the employer's program, entry operations, means, systems, procedures and practices.

WAC 296-307-65004 Use an entry permit that contains all required information.

- (1) The employer must make sure its entry permit identifies **all** of the following that apply to its entry operation:
 - (a) The space to be entered.
 - (b) Purpose of the entry.
 - (c) Date and the authorized duration of the entry permit.
 - (d) Hazards of the space to be entered.
 - (e) Acceptable entry conditions.
 - (f) Results of initial and periodic tests performed to evaluate and identify the hazards and conditions of the space, accompanied by the names or initials of the testers and by an indication of when the tests were performed.
 - (g) Appropriate measures used before entry to isolate the space, and eliminate or control hazards. Examples of appropriate measures include the lockout or tagging of equipment and procedures for purging, inerting, ventilating, and flushing permit-required confined spaces.
- (2) Names of entrants and current attendants.
- (3) Other means include the use of rosters or tracking systems as long as the attendant can determine quickly and accurately, for the duration of the permit, which entrants are inside the space.
 - (a) The current entry supervisor.
 - (b) A space for the signature or initials of the original supervisor authorizing entry.

- (c) Communication procedures for entrants and attendants to maintain contact during the entry.
- (d) Equipment provided for safe entry, such as:
 - (i) Personal protective equipment (PPE).
 - (ii) Testing equipment.
 - (iii) Communications equipment.
 - (iv) Alarm systems.
 - (v) Rescue equipment.
- (e) Rescue and emergency services available, and how to contact them. Include equipment to use, and names and contact information.
- (f) Other information needed for safety in the particular confined space.
- (g) Additional permits issued for work in the space, such as for hot work.

WAC 296-307-65006 Keep and review entry permits.

- (1) The employer must keep entry permits for at least one year.
- (2) The employer must keep entry permits or other atmospheric monitoring records that show the actual atmosphere an employee entered or worked in, as employee exposure records.
- (3) The employer must review its permit-required confined space entry program as follows:
Conduct a review when there is reason to believe its entry program may not protect employees, and revise the program before allowing subsequent entries.

Note: Examples of circumstances requiring the review of your program include the following:

- 1. There is unauthorized entry of a permit space.
- 2. A permit space hazard not covered by the permit is found.
- 3. A condition prohibited by the permit occurs.
- 4. An injury or near-miss occurs during entry.
- 5. There is a change in the use or configuration of a permit space.
- 6. An employee complains about the effectiveness of the program.

- (4) The employer must review canceled entry permits within one year following each entry to evaluate:
 - (a) The employer's permit-required confined space program.
 - (b) The protection provided to employees entering permit-required confined spaces.
- (5) The employer must update its written permit-required confined space entry program as necessary.

Note: Employers may perform a single annual review covering all entries performed during a twelve-month period. If no entry is performed during a twelve-month period, no review is necessary.

WAC 296-307-65008 Prevent unauthorized entry.

The employer must implement measures necessary to prevent unauthorized entry into permit-required confined spaces, when conducting authorized entry.

Notes:

1. When removing entrance covers to open the confined space, protect entrants and those outside the confined space from hazards.
2. Examples of measures to prevent unauthorized entry are signs, barricades, warning tape, and an attendant.

WAC 296-307-65010 Provide, maintain, and use proper equipment.

- (1) The employer must provide the equipment in Table 2, when needed and at no cost to employees.
- (2) The employer must make sure that employees use provided equipment properly.
- (3) The employer must maintain the provided equipment.

Table 2 Equipment Provided to Employees at No Cost

Type of equipment	For
Testing and monitoring equipment	Evaluating permit-required confined space conditions
Ventilating equipment	Obtaining and maintaining acceptable entry conditions
Communication equipment	Effective communication between the attendant and the entrants and to initiate rescue when required
Personal protective equipment (PPE)	Protecting employees from hazards of the space or the work performed
Lighting equipment	Employees to see well enough to work safely and to exit the space quickly in an emergency
Barriers or shields, such as pedestrian, vehicle or other barriers	Protecting employees from hazards outside of the space
Ladders	Safe entry and exit by entrants

Type of equipment	For
Rescue and emergency equipment, except for equipment provided by the rescue service provider	Safe and effective rescue
Any other equipment	Safe entry into and rescue from permit-required confined spaces

WAC 296-307-65012 Evaluate and control hazards for safe entry.

- (1) Evaluate and control hazards for safe entry into permit-required confined spaces by doing all the following:
- (a) Test for atmospheric hazards, in this order:
 - (i) Oxygen.
 - (ii) Combustible gases and vapors.
 - (iii) Toxic gases and vapors.
 - (b) Provide each entrant or their authorized representative an opportunity to observe any of the following:
 - (i) Preentry testing.
 - (ii) Subsequent testing.
 - (iii) Monitoring of permit-required spaces.
 - (c) Reevaluate the permit-required space in the presence of any entrant, or their authorized representative, who requests this to be done because they have reason to believe that the evaluation of that space may not have been adequate.
 - (d) Upon request, immediately provide each entrant or their authorized representative, with the results of any testing required by this rule.
 - (e) Continuously monitor conditions in areas where entrants are working, when isolation of the space is not feasible.
 - (i) Examples would be a large space or space that is part of a continuous system, such as a sewer.
 - (ii) Evaluate space conditions during entry as follows:

Table 3 Evaluating Space Conditions

The employer must:	In order to
Test conditions before entry	Determine that acceptable entry conditions exist before entry is authorized by the entry supervisor

The employer must:	In order to
Test or evaluate space conditions during entry	Determine that acceptable entry conditions are being maintained during entry operations
Evaluate entry operations	Make sure entrants of more than one employer working at the same time in or around a permit-required confined space, do not endanger each other

Important:

This section applies to both:

1. Employers whose employees use permit entry procedures; and
2. Employers who provide rescue services.

WAC 296-307-65014 Make sure adequate rescue and emergency services are available.

- (1) The employer must make sure they have adequate rescue and emergency services available during their permit-required confined space entry operations.
 - (a) Evaluate and select rescue teams or services who can:
 - (i) Respond to a rescue call in a timely manner. Timeliness is based on the identified hazards. Rescuers must have the capability to reach potential victims within an appropriate time frame based on the identified permit space hazards.
 - (ii) Proficiently rescue employees from a permit-required confined space in the workplace. Rescuers must have the appropriate equipment for the type of rescue.
 - (b) Make sure that at least one member of the rescue team or service holds a current certification in first aid and cardiopulmonary resuscitation (CPR).
 - (c) Inform each rescue team or service about the hazards they may confront when called to perform rescue.
 - (d) Provide the rescue team or service with access to all permit spaces from which rescue may be necessary. This will allow them to develop appropriate rescue plans and to practice rescue operations.

Note: What will be considered timely will vary according to the specific hazards involved in each entry. For example, WAC 296-307-594, Respirators, requires that employers provide a standby person or persons capable of immediate action to rescue employee(s) for work areas considered to contain an IDLH atmosphere.

- (2) The employer must provide employees, assigned to provide permit-required confined space rescue and emergency services, with:

-
- (a) Personal protective equipment (PPE) needed for safe entry.
 - (b) Other equipment required to conduct rescues safely.
 - (c) Training so they are:
 - (i) Proficient in the use of the PPE and other equipment.
 - (ii) Proficient as an entrant of permit-required confined spaces.
 - (iii) Able to safely perform assigned rescue and emergency duties.
 - (iv) Knowledgeable in basic first aid and cardiopulmonary resuscitation (CPR).
 - (d) Practice sessions for permit-required confined space rescues **at least** once every twelve months where dummies, manikins, or actual persons are removed from either:
 - (i) The actual permit spaces; or
 - (ii) Representative permit spaces that simulate the opening size, configuration, and accessibility, of permit spaces where rescue will be performed.
- (3) The employer must establish procedures for:
- (a) Contacting rescue and emergency services.
 - (b) Rescuing entrants from permit-required confined spaces.
 - (c) Providing necessary emergency services to rescued entrants.
 - (d) Preventing unauthorized persons from attempting a rescue.

WAC 296-307-65016 Use nonentry rescue systems or methods whenever possible.

- (1) The employer must use nonentry retrieval systems or methods to rescue entrants in a permit-required confined space unless this:
 - (a) Would increase the overall risk of injury to entrants; or
 - (b) Would not contribute to the rescue of the entrant.
- (2) The employer must make sure each entrant uses a chest or full-body harness, with a retrieval line attached to the harness at one of the following locations:
 - (a) At the center of the employee's back, near shoulder level.
 - (b) Above the employee's head.
 - (c) At another point which presents a profile small enough for the successful removal of the employee.
- (3) The employer must attach the retrieval line to a mechanical device or fixed point outside the space, so rescue can begin as soon as necessary.
- (4) The employer must make sure a mechanical device is available to retrieve entrants from vertical spaces more than five feet (1.52 m) deep.

Note: When the employer can demonstrate that the use of a chest or full-body harness is not feasible or creates a greater hazard, then the employer may use wristlets or another method shown to be the safest and most effective alternative.

WAC 296-307-65018 Make sure entry supervisors perform their responsibilities and duties.

The employer must make sure that an entry supervisor:

- (1) Authorizes the entry into a permit-required confined space by signing the entry permit.
- (2) Oversees entry operations.
- (3) Knows about the hazards that may be faced during entry, including the mode, signs or symptoms, and consequences of the exposure.
- (4) Verifies and checks **all** of the following:
 - (a) The appropriate entries have been made on the permit.
 - (b) All tests specified by the permit have been conducted.
 - (c) All procedures and equipment specified by the permit are in place before approving the permit and allowing entry to the space.
- (5) Terminates the entry and cancels the permit when:
 - (a) The assigned task or job has been completed.
 - (b) A condition in the space that is not covered by the entry permit is discovered.
- (6) Verifies that rescue services are available and that there is a way to contact them.
- (7) Removes unauthorized individuals who enter or attempt to enter the permit-required confined space during entry operations.
- (8) Determines that entry operations remain consistent with the terms of the entry permit and acceptable entry conditions are maintained:
 - (a) Whenever responsibility for a permit-required space entry operation is transferred; and
 - (b) At regular intervals dictated by the hazards and operations performed within the space.

Notes:

1. Make sure entry supervisors have the required knowledge and proficiency to perform the job duties and responsibilities required by this part.
2. The entry supervisor may also perform other duties under this part, such as attendant or entrant, if they are trained and proficient in those duties.
3. The responsibility of the entry supervisor may be passed from one supervisor to another during an entry operation.

WAC 296-307-65020 Provide an attendant outside the permit-required confined space.**Important:**

1. The number of attendants assigned should be tailored to the requirements of the space and the work performed.
2. The employer needs to assess if it is appropriate or possible to have multiple permit spaces monitored by a single attendant, or have an attendant stationed at a location outside each space. Video cameras and radios are examples of tools that may assist an attendant monitoring more than one space.
3. Attendants may be stationed at any location outside the permit-required confined space if the duties described in this section can be effectively performed for each space that is monitored.

- (1) The employer must provide at least one attendant outside the permit-required confined space during entry operations.
- (2) The employer must make sure each permit-required confined space attendant:
 - (a) Understands the hazards that may be faced during entry, including the mode, signs or symptoms, and results of exposure to the hazards.
 - (b) Is aware of the behavioral effects of exposure to the hazard.
 - (c) Continuously maintains an accurate count of entrants in the space.
 - (d) Maintains an accurate record of who is in the permit-required confined space.
 - (e) Communicates with entrants as necessary to monitor their status or alert them of the need to evacuate the space.
 - (f) Monitors activities inside and outside the space to determine if it is safe for entrants to remain in the space.
 - (g) Orders entrants to evacuate the space immediately if **any** of the following conditions occur:
 - (i) A prohibited condition.
 - (ii) The behavioral effects of hazardous exposure on an entrant.
 - (iii) A situation outside the space that could endanger entrants.
 - (iv) The attendant cannot effectively and safely perform all the duties required in this part.
 - (h) Takes the following actions when unauthorized persons approach or enter a space:
 - (i) Warns unauthorized persons to stay away from the space.
 - (ii) Tells the unauthorized persons to exit immediately if they have entered the space.

-
- (iii) Informs entrants and the entry supervisor if unauthorized persons have entered the space.
 - (i) Performs nonentry rescues as specified in your employer's rescue procedure.
 - (j) Has the means to respond to an emergency affecting one or more of the permit spaces being monitored without preventing performance of the attendant's duties to the other spaces being monitored.
 - (k) Carries out no duties that might interfere with their primary duty to monitor and protect the entrants.
 - (l) Calls for rescue and other emergency services as soon as entrants may need assistance to escape from the space.
 - (m) Monitors entry operations until relieved by another attendant or all entrants are out of the space.

WAC 296-307-65022 Make sure entrants know the hazardous conditions and their duties.

The employer must make sure that all entrants:

- (1) Know the hazards they may face during entry, including the mode, signs or symptoms, and results of exposure to the hazards.
- (2) Use equipment properly.
- (3) Communicate with the attendant as necessary so the attendant can:
 - (a) Monitor entrant status.
 - (b) Alert entrants of the need to evacuate.
- (4) Alert the attendant whenever either of these situations exist:
 - (a) A warning sign or symptom of exposure to a dangerous situation such as, behavioral changes, euphoria, giddiness potentially from lack of oxygen or exposure to solvents.
 - (b) A prohibited condition.
- (5) Exit from the permit-required confined space as quickly as possible when one of the following occurs:
 - (a) The attendant or entry supervisor gives an order to evacuate.
 - (b) The entrant recognizes any warning sign or symptom of exposure to a dangerous situation.
 - (c) The entrant detects a prohibited condition.
 - (d) An evacuation alarm is activated.

WAC 296-307-65024 Implement procedures for ending entry.

The employer must terminate entry when entry operations are completed, including securing an entrance cover and canceling the permit.

WAC 296-307-652 Alternate entry procedures.

Summary:

Employer responsibility:

To choose alternate entry procedures for spaces where the only hazard is a hazardous atmosphere.

<i>The employer must meet the requirements...</i>	<i>in this section:</i>
Make sure the following conditions are met if using alternate entry procedures.	WAC 296-307-65202
Follow these alternate entry procedures for permit-required confined spaces.	WAC 296-307-65204

WAC 296-307-65202 Make sure the following conditions are met if using alternate entry procedures.

- (1) The employer must make sure, when using alternate entry procedures, instead of permit entry procedures, that it has monitoring and inspection data that supports the following:
 - (a) That the only hazard of the permit-required confined space is an actual or potentially hazardous atmosphere.
 - (b) That continuous forced air ventilation alone is all that is needed to maintain the permit-required confined space for safe entry.
- (2) The employer must make sure an entry to obtain monitoring and inspection data or to eliminate hazards is performed according to WAC 296-307-500, Permit entry procedures.
- (3) The employer must make sure all documentation produced is available to each affected employee and their authorized representative.

WAC 296-307-65204 Follow these alternate entry procedures for permit-required confined spaces.

- (1) The employer must use the following alternate entry procedures:

Eliminate any unsafe conditions before removing an entrance cover.

 - (a) When entrance covers are removed, promptly guard the opening with a railing, temporary cover, or other temporary barrier to prevent accidental falls through the opening and protect entrants from objects falling into the space.
 - (b) Certify that preentry measures have been taken (such as safe removal of the cover and having protection needed to gather preentry data), with the date, location of

- the space, and signature of the person certifying.
- (2) The employer must make the preentry certification available before entry to each entrant.
 - (a) Before an employee enters the confined space, test the internal atmosphere with a calibrated, direct-reading instrument for all of the following, in this order:
 - (i) Oxygen content.
 - (ii) Flammable gases and vapors.
 - (iii) Potential toxic air contaminants.
 - (b) Provide entrants, or their authorized representatives, with an opportunity to observe the preentry and periodic testing.
 - (c) Make sure the atmosphere within the space is not hazardous when entrants are present.
 - (d) Use continuous forced air ventilation, as follows:
 - (i) Wait until the forced air ventilation has removed any hazardous atmosphere before allowing entrants into the space.
 - (ii) Direct forced air ventilation toward the immediate areas where employees are, or will be, and continue ventilation until all employees have left the space.
 - (3) The employer must provide the air supply from a clean source and make sure it does not increase hazards in the space.
 - (a) Test the atmosphere within the space as needed to make sure hazards do not accumulate.
 - (b) If a hazardous atmosphere is detected during entry, do all of the following:
 - (i) Evacuate employees from the space immediately.
 - (ii) Evaluate the space to determine how the hazardous atmosphere developed.
 - (iii) Implement measures to protect employees from the hazardous atmosphere before continuing the entry operation.
 - (iv) Verify the space is safe for entry before continuing the entry operation.

WAC 296-307-654 Nonpermit confined spaces requirements.

Summary:

Important:

A confined space may be classified as a nonpermit confined space for as long as the hazards remain eliminated. Once a hazard is present, the employer must follow all requirements of this part that apply.

Employer responsibility:

To make sure any space classified as nonpermit does not have the potential to contain serious health or safety hazards.

<i>The employer must meet the requirements...</i>	<i>in this section:</i>
Follow these requirements when classifying a confined space as a non-permit confined space.	WAC 296-307-65402
Reevaluate non-permit confined spaces if hazards develop.	WAC 296-307-65404

WAC 296-307-65402 Follow these requirements when classifying a confined space as a nonpermit confined space.

- (1) The employer must make sure the confined space meets these conditions to be classified as nonpermit confined spaces:
 - (a) The confined space does not contain an actual or potential hazardous atmosphere.
 - (b) 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.
 - (c) If the employer must enter to remove hazards, the space must be treated as a permit-required confined space until hazards have been eliminated.

Notes:

1. Controlling atmospheric hazards through forced air ventilation does not eliminate the hazards.
2. The employer should evaluate the use of lockout-tagout, as covered in WAC 296-307-320, to determine if using it fully eliminates the hazard.
3. The employer is allowed to use alternate entry procedures covered in WAC 296-307-652, if the employer can demonstrate that forced air ventilation alone will control all hazards in the space.

- (2) The employer must document how the employer determined the confined space contained no permit-required confined space hazards. Certify this documentation with the following:
 - (a) Date.
 - (b) Location of the space.
 - (c) Signature of the person making the determination.
- (3) The employer must 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.

WAC 296-307-65404 Reevaluate nonpermit confined spaces if hazards develop.

- (1) The employer must reclassify a nonpermit confined space to a permit-required confined space, if necessary, when changes in the use or configuration of the space increase the hazards to entrants.
- (2) The employer must make sure all employees exit the space if hazards develop. The employer must then reevaluate the space and determine whether it must be reclassified as a permit-required confined space.

WAC 296-307-656 Definitions.

Acceptable entry conditions. The conditions that must exist in a permit-required confined space to allow safe entry and work.

Attendant. An individual stationed outside one or more permit-required confined spaces to monitor the entrants.

Blanking or blinding. The absolute closure of a pipe, line, or duct by fastening a solid plate (such as a spectacle blind or a skillet blind) that completely covers the bore. It is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.

Confined space. A space that is **all** of the following:

- (a) Large enough and arranged so an employee could fully enter the space and work.
- (b) Has limited or restricted entry or exit. Examples of spaces with limited or restricted entry are tanks, vessels, silos, storage bins, hoppers, vaults, excavations, and pits.
- (c) Not primarily designed for human occupancy.

Double block and bleed. The closure of a line, duct, or pipe by closing and locking or tagging two in-line valves and by opening and locking or tagging a drain or vent valve in the line between the two closed valves.

Emergency. Any occurrence (including any failure of hazard control or monitoring equipment) or event internal or external to the permit-required confined space that could endanger authorized entrants.

Engulfment. The surrounding capture of a person by a liquid or finely divided (flowable) solid substance that can be inhaled to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, or crushing.

Enter (entry). The action by which a person passes through an opening into a permit-required confined space and includes work activities in that space. Entry is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.

Note: If the opening is large enough for the worker to fully enter the space, a permit is required even for partial body entry. Permits are not required for partial body entry where the opening is not large enough for full entry, although other rules such as lockout-tagout, WAC 296-307-320 or respiratory hazards, WAC 296-307-624 may apply.

Entrant. An employee who is authorized by the employer to enter a permit-required confined space.

Entry permit (permit). The written or printed document that is provided by the employer to allow and control entry into a permit-required confined space and that contains the information required in WAC 296-307-650, Permit entry procedures.

Entry supervisor. The person (such as the employer, crew leader, or crew chief) responsible for:

- (a) Determining if acceptable entry conditions are present at a permit-required confined space where entry is planned;
- (b) Authorizing entry and overseeing entry operations; and
- (c) Terminating entry as required.

Hazardous atmosphere. An atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (that is, escape unaided from a permit-required confined space), injury, or acute illness caused by one or more of the following:

- (a) Flammable gas, vapor, or mist in excess of ten percent of its lower flammable limit (LFL).
- (b) Airborne combustible dust at a concentration that meets or exceeds its LFL.

Note: This concentration may be approximated as a condition in which the dust obscures vision at a distance of five feet (1.52 m) or less.

- (c) Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent.
- (d) Atmospheric concentration of any substance which may exceed a permissible exposure limit. For additional information about atmospheric concentration, see chapter [296-62](#) WAC, Parts F, G, and I, General occupational health standards and WAC 296-307-624, Respiratory hazards.

Note: An airborne concentration of a substance that is not capable of causing death, incapacitation, impairment of ability to self-rescue, injury, or acute illness due to its health effects is not covered by this definition.

- (e) Any other atmospheric condition that is immediately dangerous to life or health.

Note: The employer can find guidance on establishing acceptable atmospheric conditions for air contaminants, which have no WISHA-determined doses or permissible exposure limits using other sources of information, such as:

1. Material safety data sheets required by WAC 296-307-550, Employer chemical hazard communication.
2. Published information.
3. Internal documents.

Hot work permit. A written authorization to perform operations, for example, riveting, welding, cutting, burning, and heating, that can provide a source of ignition.

Immediately dangerous to life or health (IDLH). Any of the following conditions:

- (a) An immediate or delayed threat to life.
- (b) Anything that would cause irreversible adverse health effects.
- (c) Anything that would interfere with an individual's ability to escape unaided from a permit-required confined space.

Note: Some materials - hydrogen fluoride gas and cadmium vapor, for example - may produce immediate transient effects that, even if severe, may pass without medical attention, but are followed by sudden, possibly fatal collapse twelve to seventy-two hours after exposure. The victim "feels normal" after recovery from transient effects until collapse. Such materials in hazardous quantities are considered to be "immediately" dangerous to life or health (IDLH).

Inerting. The displacement of the atmosphere in a permit-required confined space by a noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible.

Note: This procedure produces an IDLH oxygen-deficient atmosphere.

Isolation. The process by which a permit-required confined space is removed from service and completely protected against the release of energy and material into the space by such means as:

- (a) Blanking or blinding;
- (b) Misaligning or removing sections of lines, pipes, or ducts;
- (c) A double block and bleed system;
- (d) Lockout or tagout of all sources of energy; or
- (e) Blocking or disconnecting all mechanical linkages.

Line breaking. The intentional opening of a pipe, line, or duct that is or has been carrying flammable, corrosive, or toxic material, an inert gas, or any fluid at a volume, pressure, or temperature capable of causing injury.

Nonpermit confined space. A confined space that does NOT contain actual hazards or potential hazards capable of causing death or serious physical harm.

Oxygen deficient atmosphere. An atmosphere containing less than 19.5 percent oxygen by volume.

Oxygen enriched atmosphere. An atmosphere containing more than 23.5 percent oxygen by volume.

Permit-required confined space or permit space. A confined space that has one or more of the following characteristics capable of causing death or serious physical harm:

- (a) Contains or has a potential to contain a hazardous atmosphere.
- (b) Contains a material with the potential for engulfing someone who enters.

- (c) Has an internal configuration that could allow someone entering to be trapped or asphyxiated by inwardly converging walls or by a floor, which slopes downward and tapers to a smaller cross section.
- (d) Contains any physical hazard. This includes any recognized health or safety hazards including engulfment in solid or liquid material, electrical shock, or moving parts.
- (e) Contains any other recognized serious safety or health hazard that could either:
 - (i) Impair the ability to self-rescue; or
 - (ii) Result in a situation that presents an immediate danger to life or health.

Permit-required confined space program. An overall program for:

- (a) Controlling and appropriately protecting employees from permit-required confined space hazards; and
- (b) Regulating employee entry into permit-required confined spaces.

Prohibited condition. Any condition in a permit-required confined space that is not allowed by the permit during the authorized entry period.

Rescue service. The personnel designated to rescue employees from permit-required confined spaces.

Retrieval system. The equipment used for nonentry rescue of persons from permit-required confined spaces, such as a retrieval line, full-body harness or wristlets, and a lifting device or anchor.

Testing. The process of identifying and evaluating the hazards that entrants may be exposed to in a permit-required confined space. Testing includes specifying the tests that are to be performed in the permit-required confined space.

<p>Note: Testing allows employers to devise and implement adequate controls to protect entrants during entry, and to determine if acceptable entry conditions are present.</p>

Resource Section Confined Spaces

	Page
Atmospheric Testing of Permit-Required Confined Spaces	R-1
Evaluating Rescue Teams or Services	R-2
Table HT-1 Initial Evaluation Worksheet	R-3
Performance Evaluation	R-5
Table HT-2 Performance Evaluation Worksheet	R-6
Example Confined Space Entry Programs	R-9
Sample Confined Space Entry Permit Sample 1	R-28
Sample Confined Space Entry Permit Sample 2	R-33
Sample Confined Space Entry Permit Sample 3	R-36

Atmospheric Testing of Permit-Required Confined Spaces

Use with Chapter 296-307 WAC, Part Y-8, Confined Spaces

Atmospheric testing of permit-required confined spaces is used so you can do both of the following:

1. Evaluate potential atmospheric hazards
2. Verify that acceptable atmospheric entry conditions exist

Evaluate Hazards

- Collect and analyze data on the atmosphere of your space using equipment that is sensitive enough and specific enough for any hazardous atmosphere that may arise. This will enable you to:
 - Develop appropriate entry procedures and
 - Maintain acceptable entry conditions.
- Have a technically-qualified individual perform, or at least review, the following:
 - Evaluate and interpret the data
 - Identify all serious hazards
 - Develop appropriate entry procedures

Note:

Examples of technically-qualified individuals include:

- *WISHA industrial hygiene consultant*
- *Qualified industrial hygienist*
- *Qualified registered safety engineer*
- *Qualified safety professional*
- *Certified marine chemist*

Verify that Acceptable Entry Conditions Exist

Verify that acceptable entry conditions exist by doing the following:

- If the space may contain a hazardous atmosphere, test for all potential contaminants.
 - Use the equipment specified on your permit, for the time specified by the manufacturer, to determine whether contaminants are within the range of acceptable entry conditions.
 - Measure for the time recommended by the manufacturer.
- Perform tests in this order:
 - First, perform a test for oxygen. Most combustible gas meters are oxygen dependent and will not provide reliable readings in an oxygen-deficient atmosphere.
 - Next, test for combustible gases. They present an immediate threat to life, through inhalation, fire, or explosion.
 - Last, if necessary, test for toxic gases and vapors.
- Record test results, such as the actual concentration, in the appropriate space on the permit.
 - When monitoring atmospheres that may be stratified, also do the following:
- Test the atmospheric envelope at a distance of approximately 4 feet (1.22 m) in the direction of travel, and to each side.

- If using a sampling probe, adapt the entrant's rate of progress to the sampling speed and detector response.

Evaluating Rescue Teams or Services **Use with Chapter 296-307 WAC, Part Y-8, Confined Spaces**

This helpful tool will help you do the following for permit-required confined spaces in your workplace:

- Evaluate the type of rescue services you need and
- Determine how well rescue services perform

Select and use either on-site rescue teams or off-site rescue services that will minimize the potential for harm to both entrants and rescuers.

For any rescue team or service, your evaluation should consist of the following two elements:

- An **initial evaluation** where you decide whether a rescue team or service is adequately trained and equipped to perform the kind of rescues needed at your workplace in a timely manner.
- A **performance evaluation** on the performance of the prospective or existing rescue team or service during an actual or practice rescue.

For example:

During your initial evaluation you determined that an on-site rescue team would be more expensive but not more effective than an off-site rescue service. As a result, you hire an off-site rescue service.

After observing the off-site rescue service perform a practice rescue, you decide their training or preparedness is not adequate. You decide to select another rescue service or to form an on-site rescue team.

Initial Evaluation

The following information can help you determine the rescue service needs for your workplace.

For an off-site rescue service you need to, at a minimum, contact the service to plan and coordinate the evaluations required.

The following are examples that **do not** meet the requirements of WAC 296-307-65014, *Make sure you have adequate rescue and emergency services available*:

- Posting a rescue service's number without contacting them
- Planning to rely on 911 emergency services without checking to see if they are able to provide them.

Note:

Whether a rescue service meets your workplace needs depends on all of the following:

- The confined spaces from which a rescue may be necessary
- The hazards likely to be encountered in those spaces.
- The number of entrants needing rescue.

Table HT-1 can help you determine whether a rescue service meets your permit-required confined space rescue needs. Use the column labeled "Results" to answer the questions in the "Task" column.

**Table HT-1
Initial Evaluation Worksheet
(If you answer no to any of these questions, you need to consider an alternative.)**

Task	Results
<p>1. Determine the rescue response time needs for your permit-required confined spaces.</p> <p>Examples:</p> <p>If entering an atmosphere that is potentially or immediately dangerous to life or health (IDLH), the rescue team or service needs to be standing by at the permit-required confined space, ready to enter.</p> <p>If the danger to entrants is restricted to mechanical hazards that can cause injuries such as broken bones or abrasions, a longer response time of 10 or 15 minutes might be acceptable.</p> <p>2. Consider the amount of time required for rescue services to:</p> <ul style="list-style-type: none"> • Receive notification • Arrive at the scene <p>To find out how quickly the rescue team or service is able to get from its location to your permit-required confined spaces, you need to consider:</p> <ul style="list-style-type: none"> - The location of the rescue team or service relative to your workplace - The quality of roads and highways, bottlenecks, or traffic congestion that might be encountered in transit • The reliability of the rescuer’s vehicles <ul style="list-style-type: none"> - The training and skill of the rescuer’s drivers. • Set up and be ready for entry. <p>3. Determine the availability of the rescue service by considering:</p> <p>a. Is the rescue service available at the times of the day when you will be entering permit-required confined spaces?</p>	<p>_____ minutes</p> <ul style="list-style-type: none"> • Receive notification + _____ minutes • Arrive at the scene + _____ minutes <p>Comments:</p> <ul style="list-style-type: none"> • Set up and be ready for entry. + _____ minutes = _____ minutes <p>Does this amount of time meet your needs from Task 1?</p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p>

Task	Results
b. Are key members of the rescue service available at these times?	Yes <input type="checkbox"/> No <input type="checkbox"/>
c. If the rescue service becomes unavailable while an entry is underway, can they notify you so you can instruct the attendant to abort the entry immediately?	Yes <input type="checkbox"/> No <input type="checkbox"/>
<p>4. Determine if the rescue service meets all of the requirements in the Performance Evaluation Worksheet found in Table HT- 2.</p>	<p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>If you answered “yes” above, how soon can the plan be implemented?</p> <hr/> <p>If you answered “no” and this cannot be resolved, then you need to consider an alternative.</p>
<p>5. Determine if a 911 service is willing to perform rescues at your workplace:</p> <p>a. If you call 911, is a responder available?</p>	Yes <input type="checkbox"/> No <input type="checkbox"/>
b. Will the 911 responder be willing to perform rescue?	<p>Rescue <input type="checkbox"/></p> <p>First Aid Only <input type="checkbox"/></p> <p>If you answered “first aid only,” then an alternative is required.</p>
c. Have you made sure the 911 responders can perform rescues in your spaces?	Yes <input type="checkbox"/> No <input type="checkbox"/>
<p>6. Determine if there is an adequate communication method between the attendant and the prospective rescuer:</p> <p>Can a request for rescue be transmitted without delay?</p>	Yes <input type="checkbox"/> No <input type="checkbox"/>

Performance Evaluation

WAC 296-307-65014, *Make sure you have adequate rescue and emergency services*, requires rescue practice at least once every 12 months if the team or service has not successfully performed a rescue within that time. This practice exercise provides you with an opportunity to evaluate the rescue service under conditions similar to your permit-required confined spaces.

First, as part of any practice session, the rescue service or another qualified party should perform a critique of the practice rescue, so that deficiencies can be corrected in:

- Procedures
- Equipment
- Training
- Number of people

Then, you should review the results of the critique and any corrections made for deficiencies identified by a “no” answer in Table HT-2. This will help you determine whether the service could be quickly upgraded to meet your needs.

Table HT-2 will help you determine:

- If the rescue service meets all of the performance requirements in WAC 296-307-65014, *Make sure you have adequate rescue and emergency services* and
- What changes may be necessary.

Use the right column labeled “Results” to answer the questions in the “Task” column.

Table HT-2
Performance Evaluation Worksheet
(If you answer no to questions 1-12, you need to take corrective action)

Task	Result
1. Have all team members been trained as entrants, including the potential hazards of all permit-required confined spaces, or of representative spaces, from which rescue may be needed?	Yes <input type="checkbox"/> No <input type="checkbox"/>
2. Can team members recognize the signs, symptoms, and consequences of exposure to any hazardous atmospheres that may be present in those permit-required confined spaces?	Yes <input type="checkbox"/> No <input type="checkbox"/>
3. Is every team member:	Yes <input type="checkbox"/> No <input type="checkbox"/>
a. Provided with and properly trained in the use of any PPE that may be needed to perform rescues in the facility, such as air-line respirators or fall arrest equipment?	
b. Properly trained to perform functions during rescues, and to use any rescue equipment, such as ropes and backboards, needed in a rescue attempt?	Yes <input type="checkbox"/> No <input type="checkbox"/>
4. Are team members trained in the first-aid and medical skills needed to treat victims injured or overcome by the types of hazards that may be encountered in the permit spaces at the facility?	Yes <input type="checkbox"/> No <input type="checkbox"/>
5. Do all team members perform their duties safely and efficiently?	Yes <input type="checkbox"/> No <input type="checkbox"/>
6. Do the team members focus on their own safety before considering the safety of the victim?	Yes <input type="checkbox"/> No <input type="checkbox"/>
7. If necessary, can the rescue service properly test the atmosphere to identify acceptable entry conditions?	Yes <input type="checkbox"/> No <input type="checkbox"/>
8. Can the rescue team members identify the information that applies to the rescue from:	Yes <input type="checkbox"/> No <input type="checkbox"/>
a. Entry permits	
b. Hot work permits	Yes <input type="checkbox"/> No <input type="checkbox"/>
c. Material Safety Data Sheets (MSDSs)?	Yes <input type="checkbox"/> No <input type="checkbox"/>
9. Has the rescue service been informed of any hazards that may arise from outside the permit-required confined space, such as those caused by future work near the space?	Yes <input type="checkbox"/> No <input type="checkbox"/>
10. If necessary, can the rescue service properly rescue injured employees from a permit space that has any of the following:	Yes <input type="checkbox"/> No <input type="checkbox"/>
a. .A limited size opening (less than 24 inches (60.9 cm) in diameter)?	

Task	Result
b. Limited internal space?	Yes <input type="checkbox"/> No <input type="checkbox"/>
c. Internal obstacles or hazards?	Yes <input type="checkbox"/> No <input type="checkbox"/>
11. If necessary, can the rescue service safely perform an elevated (high angle) rescue?	Yes <input type="checkbox"/> No <input type="checkbox"/>
12 Determine if the rescue service has a plan for each type of rescue operation at your workplace. a. Does the rescue service have a plan for each of the kinds of permit space rescue operations at your workplace?	Yes <input type="checkbox"/> No <input type="checkbox"/>
b. Is the plan adequate for all types of rescue operations that may be needed at your workplace?	Yes <input type="checkbox"/> No <input type="checkbox"/>
13. Rescue practice may occur in representative confined spaces or in the most restrictive spaces. When planning a practice include any of the following features that exist in your permit-required confined spaces: <u>Space Access</u> Horizontal -- The entrance is located on the side of the permit space. Use of retrieval lines could be difficult.	Is this type of rescue a possible situation at your workplace? Yes <input type="checkbox"/> No <input type="checkbox"/> <input type="checkbox"/> A description is attached.
Vertical -- The entrance is located: – On the top of the permit-required confined space so that rescuers must climb down or – The bottom of the permit space so that rescuers must climb up, to enter the space. Rescuers may need special knowledge to safely retrieve an injured entrant.	Is this type of rescue a possible situation at your workplace? Yes <input type="checkbox"/> No <input type="checkbox"/> <input type="checkbox"/> A description is attached.
<u>Entrance Size</u> Restricted – An entrance with a smallest dimension of 24 inches or less. Entrances of this size are too small for a rescuer to enter the space while using a self-contained breathing apparatus, or allow normal spinal immobilization of an injured employee.	Is this type of rescue a possible situation at your workplace? Yes <input type="checkbox"/> No <input type="checkbox"/> <input type="checkbox"/> A description is attached.
Unrestricted – An entrance with a smallest dimension greater than 24 inches. These entrances allow relatively free movement into and out of the permit space.	Is this type of rescue a possible situation at your workplace? Yes <input type="checkbox"/> No <input type="checkbox"/>

Task	Result
	<input type="checkbox"/> A description is attached.
<p>Internal configuration</p> <p>Open -- No obstacles, barriers, or obstructions within the space. For example, a water tank.</p>	<p>Is this type of rescue a possible situation at your workplace?</p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <input type="checkbox"/> A description is attached.
<p>Obstructed -- The space contains some type of obstacle, requiring a rescuer to maneuver around it. For example, a baffle or mixing blade. Large equipment such as a ladder or scaffold brought into a space for work purposes is considered an obstacle if the positioning or size makes rescue more difficult.</p>	<p>Is this type of rescue a possible situation at your workplace?</p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <input type="checkbox"/> A description is attached.
<p>Elevated -- A space where the entrance is above grade by 4 feet or more. This type of space usually requires knowledge of high angle rescue procedures because it is difficult to package and transport an injured employee to the ground from the entrance.</p>	<p>Is this type of rescue a possible situation at your workplace?</p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <input type="checkbox"/> A description is attached.
<p>Non-elevated -- A space with the entrance located less than 4 feet above grade. The rescue team can transport an injured employee normally.</p>	<p>Is this type of rescue a possible situation at your workplace?</p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <input type="checkbox"/> A description is attached.

Example Confined Space Entry Programs

Use with Chapter 296-307 WAC, Part Y-8, Confined Spaces

This helpful tool gives you examples of confined space entry programs, including a fill-in-the-blank form, for different workplace situations. The examples are provided to help you determine what information to include in a program for your workplace. To develop an effective program for your facility or work environment, you will need to identify work conditions both typical to your industry and unique to your workplace.

The examples include:

- A fill-in-the-blank template
- 2 examples showing content information to consider for the following specific workplaces:
 - Meat and poultry rendering plants
 - Portable tank fabricating or servicing

You are responsible for implementing and maintaining your written program.

FILL-IN-THE-BLANK TEMPLATE

The following is a fill-in-the-blank template for a confined space entry program. You are responsible for:

- Providing the actual content
- and**
- Implementing and maintaining your written program.

Complete this document by adding your specific information to meet the requirements of WAC 296-307-64602, Develop a written permit-required confined space program

(Insert company name)

CONFINED SPACE ENTRY PROGRAM

OVERVIEW

This confined space entry program:

- Identifies all permit-required confined spaces in our workplace
and
- Describes our procedures for worker safety and health in permit-required confined spaces

Employees will participate in developing and implementing the program in the following ways:

(Insert how your employees will participate)

(Insert company name) will treat all confined spaces as permit-required spaces until they have been evaluated **and** are documented to be nonpermit.

ROLES & RESPONSIBILITIES

The following shows which employees are responsible for the tasks outlined:

For information only

Remove this box from your completed program

In addition to the roles below, you may want to designate:

- Someone with overall responsibilities for your program

or

- One person with all the responsibilities.

Responsibility:	Person assigned this responsibility:
Evaluate our work locations and determine: ✓ [Check appropriate box(es)] Confined space(s) exist at the worksite. Permit-required confined space(s) exist at the worksite.	

Responsibility:	Person assigned this responsibility:
Evaluate the confined space(s) to determine whether hazards are present.	
Evaluate hazards and determine the appropriate entry procedure for the space. Note: <ul style="list-style-type: none"> • Until evaluated and documented otherwise, all confined spaces will be considered permit-required spaces. • Alternate entry procedure may apply when the only hazard remaining in the space is a potential hazardous atmosphere controlled by the use of forced air ventilation. 	
Re-evaluate the space when the use, configuration, or hazards of a confined space change.	
Monitoring and testing as follows: <ul style="list-style-type: none"> • Conduct initial monitoring to identify and evaluate any potentially hazardous atmospheres • Complete atmospheric testing in the following order: <ul style="list-style-type: none"> – Oxygen – Combustible gases – Toxic gases and vapors • Record the data (<i>specify location</i>) _____ • Keep these records on-site in (<i>Specify location</i>) _____ 	
Inform exposed or potentially-exposed employees of the existence and hazards of confined spaces using the methods described below under “Control Confined Space Entry.”	
Provide employees entering confined spaces, or their designated representative, an opportunity to observe pre-entry testing and any subsequent testing. <ul style="list-style-type: none"> - All test results will be provided to the entrants or their representatives upon request. 	

Responsibility:	Person assigned this responsibility:
- The space will be re-evaluated if entrants or their representatives believe that the permit space was inadequately tested.	
Make sure that all equipment needed for safe entry into any confined space is available and in proper working order.	
Conduct a review using the canceled entry permits to identify and correct any deficiencies in our program.	

IDENTIFY CONFINED SPACES AND HAZARDS

For information only

Remove this box from your completed program.

If you have a list of confined spaces and their hazards, you can attach it instead of completing this table.

Confined Spaces and Hazards

Confined Space (name or number)	Type of Space (tank, hopper, sump, pit etc.)	Location	Hazards
<i>(Insert your confined space information)</i>			

CONTROL OF CONFINED SPACE ENTRY

We use the following method(s) to inform employees about the existence and hazards of confined spaces, and prevent unauthorized entry:

- Posting danger signs at each permit space reading "Danger-Confined Space - Do not Enter"

(Insert additional means you use to prevent entry)

For information only

Remove this box from your completed program

The methods used to prevent entry must be effective. The following are examples of effective methods:

- Using barriers
- Specialized tools under management’s control to open the space
- Supplementing these measures with training and signs

PERMIT ENTRY PROCEDURES

Our entry procedures for permit spaces include the following:

For information only

Remove this box from your completed program

Examples of entry permits are included in the resource section.

You may have multiple entry procedures. Specific examples of some of the procedures you may use to enter and complete work include the following:

- Procedure 001 Lockout/Tagout (LOTO)
- Procedure 002 Atmospheric monitoring
- Procedure 003 Job Hazard Analysis

Alternate Entry Procedures

For information only

Remove this box from your completed program.

Complete this section **only** when using alternate entry.

Our permit spaces that have as their only hazard an actual or potential hazardous atmosphere may use alternate entry procedures. These alternate entry procedures do not require the use of an entry permit.

Alternate entry procedures can be used for the spaces listed in the following table:

Confined Space Name or Number	Hazards	Method of Hazard Elimination	Potential Hazardous Atmosphere	Ventilation Equipment Required
<i>(insert your specific information)</i>				

We will do all of the following when using alternate entry procedures:

- Eliminate unsafe conditions before removing entrance covers.
 - After removing entrance covers, promptly guard the opening with a railing, temporary cover, or other temporary barrier to prevent accidental falls through the opening and protect entrants from objects falling into the space.
 - Certify that pre-entry measures have been taken (such as safe removal of the cover and having protection needed to gather pre-entry data), with the date, location of the space, and signature of the person certifying.
 - Make the pre-entry certification available to each entrant before entry.
- Before an employee enters the confined space, test the internal atmosphere with a calibrated, direct-reading instrument for all of the following, in this order:
 1. Oxygen content
 2. Flammable gases and vapors

3. Potential toxic air contaminants.
- Provide entrants, or their authorized representatives, with an opportunity to observe the pre-entry and periodic testing.
 - Make sure the atmosphere within the space is not hazardous when entrants are present.
 - Use continuous forced air ventilation, as follows:
 - Wait until the forced air ventilation has removed any hazardous atmosphere before allowing entrants into the space.
 - Direct forced air ventilation toward the immediate areas where employees are, or will be, and continue ventilation until all employees have left the space.
 - Provide the air supply from a clean source and make sure it does not increase hazards in the space.
 - Test the atmosphere within the space as needed to make sure hazards do not accumulate.
 - If a hazardous atmosphere is detected during entry, we will do all of the following:
 - Evacuate employees from the space immediately.
 - Evaluate the space to determine how the hazardous atmosphere developed.
 - Implement measures to protect employees from the hazardous atmosphere before continuing the entry operation.
 - Verify the space is safe for entry before continuing the entry operation.
 - The written documentation is available to each employee entering the space or to that employee's representative at the confined space bulletin board.

CLASSIFY A CONFINED SPACE AS A NON-PERMIT SPACE

For information only

Remove this box from your completed program.

Complete this section **only** when you classify a space as non-permit.

See Non-permit Space Documentation Form in this section.

- A space will be classified nonpermit only for as long as all the hazards remain eliminated.
- If someone must enter the space to eliminate of any of the hazards, we will follow all the requirements listed under the permit entry procedures.

- Documentation that no permit-required confined space hazards exist will include the following:
 - The date, location, and signature of the person making the determination.
 - How we determined that no permit-required confined space hazards exist.
 - Documentation will be available to entrants or their authorized representatives by posting at the entry to the space.

The following spaces can be classified as non-permit spaces by following the listed methods of hazard elimination:

Date	Location of Confined Space	Hazards	Method of Hazard Elimination
<i>(Input your specific information)</i>			

NON-PERMIT SPACE DOCUMENTATION FORM

Non-permit confined space name or number	<i>(Insert your specific information here)</i>
Location	
Documentation	
Date	
Signature	

TRAINING

- We will provide permit space training to employees at the following times:
 - When hired, so new employees are aware of our confined spaces
 - Before they are assigned permit space entry duties
 - When their assigned duties changeand
 - When there is a change in a space that creates hazards for which they have not been trained.

For information only

Remove this box from your completed program.

Following are 6 basic categories of training, based on duties and potential exposure:

1. Awareness training provided to all employees potentially exposed to permit spaces, covering the following:
 - a. The location and hazard of each space
 - b. The company program for confined spaces
 - c. Emphasis on **not** entering the space for any reason.
2. Entry and exit training for the following team members:
 - a. Entrants
 - b. Attendants
 - c. Supervisors
 - d. Rescue team members
3. Training on how to manage confined space entries for entry supervisors.
4. Rescue training for rescue team members.
5. Pre-entry procedure training for all:
 - a. Entrants
 - b. Supervisors
 - c. Attendants
 - d. Rescue team members
6. Training on evaluating and testing confined spaces for:
 - a. Entry supervisors
 - b. Staff assigned to test and evaluate the space
7. Retraining for employees when you have any reason to believe they are not proficient at their confined space duties.

OUR RESPONSIBILITIES FOR CONTRACTORS

For information only

Remove this box from your completed program.

Complete this section **only** when you hire a contractor to work in your confined space(s).

A copy of this Confined Space Entry Program will be provided to each contractor involved in permit space entry work at our company. Each contractor will be briefed on the following:

- The location of the permit spaces at our facility.
- Entry into permit spaces is only allowed by following the written entry program.
- The reasons for listing the space as a permit space, including both of the following:
 - The identified hazards
 - Our experience with the particular space.
- Precautions we have implemented to protect employees working in or near the space.
- Who will debrief the contractor at the completion of entry operations, or during entry if needed, on whether any hazards were confronted or created during their work.

OUR RESPONSIBILITIES WITH HOST EMPLOYERS

For information only

Remove this box from your completed program.

Complete this section **only** when you are a contractor working in someone else's confined space.

Our entry supervisor will do the following to make sure entry operations are coordinated with host employers:

- Obtain any information on the hazards of the permit space and information from previous entry operations
- Determine if other workers will be working in or near the space.
- Coordinate entry operations with other workers
- Inform the host employer of the permit space program that we follow.
- Hold a debriefing conference at the completion of the entry operation, or during the entry operation if needed, to inform the host employer of any hazards confronted or created during work in the space.

RESCUE AND EMERGENCY SERVICES

We have developed the following rescue and emergency action plan:

<p>For information only</p> <p>Remove this box from your completed program.</p> <ol style="list-style-type: none">1. Insert your specific company rescue and emergency plan here.2. For more information about rescue from confined spaces, see the Helpful Tool <i>Evaluating Rescue Teams or Services</i>.3. You need to use non-entry rescue procedures and equipment, unless this would increase the risk of injury to the entrant or would be ineffective.4. For entry rescue, see Entry Rescue Plans in this section.5. This section is not required for the following confined space entries:<ul style="list-style-type: none">– Classified and documented non-permit spaces.– Proper use of alternate entry procedures.
--

ENTRY RESCUE PLANS

Following are 3 options for you to consider when developing rescue plans as outlined in the helpful tool, *Evaluating Rescue Teams or Services*, which is located in the Resources section of this part.

Option 1

The entry supervisor will contact (name of rescue service) at (phone number) to do both of the following:

- Coordinate entry
- Schedule an entry date and time.

Option 2

Complete the following information.

Train employees on the specific procedures for summoning the rescue and emergency services.

Name of rescue service: _____

Telephone number: _____

Location: _____

Approximate response time: _____

Name of emergency medical service: _____

Telephone number: _____

Location: _____

Approximate response time: _____

Option 3

The specific procedures for summoning rescue and emergency services for our workplace are:

Following are the permit spaces that require stand-by rescue services during entry. The rescue service will be available at the space during the entire entry procedure to ensure prompt entrant rescue.

Permit Spaces Requiring Stand-by Rescue Services	
Permit space:	Stand-by rescue service name and telephone number:

PERMIT-REQUIRED CONFINED SPACE PROGRAM REVIEW

For information only

Remove this box from your completed program.

This section is not required if you only enter non-permit spaces or use alternate entry procedures.

At least every 12 months we will conduct a review using canceled entry permits to identify any deficiencies in our program. We will conduct a review immediately if there is reason to believe that the program does not adequately protect our employees, such as the following situations:

- Unauthorized entry of a permit space
- Discovery of a hazard not covered by the permit
- Detection of a condition prohibited by the permit
- An injury or near-miss during entry
- Change in the use or configuration of the space
- or
- Employee complaints of permit space program ineffectiveness.

Corrective measures will be documented by revising the program. Employees will participate in revising the program, and will be trained on any changes.

If no permit space entry operations are conducted during the year, no review is needed.

Example Confined Space Entry Program for Meat and Poultry Rendering Plants

Cookers and dryers are horizontal, cylindrical vessels equipped with a center, rotating shaft and agitator paddles or discs. If the inner shell is jacketed, it is usually heated with steam at pressures up to 150 psig (1034.25 kPa). The rotating shaft assembly of the continuous cooker or dryer is also steam heated.

Cooker and dryer operations can be either batch or continuous. Multiple batch cookers are operated in parallel. When one unit of a multiple set is shut down for repairs, make means available to isolate that unit from the others which remain in operation.

POTENTIAL HAZARDS

Check the boxes after you have reviewed your workplace for these hazards.

The recognized hazards associated with cookers and dryers include the risk that employees could be:

- Struck or caught by rotating agitator.
- Engulfed in raw material or hot, recycled fat.

-
- Burned by steam from leaks into the cooker/dryer steam jacket or the condenser duct system if steam valves are not properly closed and locked out.
 - Burned by contact with hot metal surfaces, such as the agitator shaft assembly, or inner shell of the cooker/dryer.
 - Subjected to heat stress caused by warm atmosphere inside cooker/dryer.
 - Injured by slipping and falling on grease in the cooker/dryer.
 - Electrically shocked by faulty equipment taken into the cooker/dryer.
 - Burned or overcome by fire or products of combustion.
 - Overcome by fumes generated by welding or cutting done on grease covered surfaces.

Permits

- The supervisor is always present at the cooker/dryer or other permit entry confined space when entry is made.
- The supervisor:
 - Follows the pre-entry isolation procedures described in the entry permit when preparing for entry,
 - and
 - Makes sure the protective clothing, ventilating equipment, and any other equipment required by the permit are at the entry site.
- The permit specifies how isolation is accomplished and any other preparations needed before making entry. This is especially important in parallel arrangements of cooker/dryers so you do not have to shut down the entire operation to allow safe entry into one unit.

CONTROL OF HAZARDS

Check the boxes that apply after you have addressed the hazards below.

Mechanical

- Lock out main power switch to agitator motor at main power panel.
- Affix tag to the lock to inform others that a permit confined space entry is in progress.

Engulfment

- Close all valves in the raw material blow line.
- Secure each valve in its closed position using chain and lock.
- Attach a tag to the valve and chain warning that a permit confined space entry is in progress.

- The same procedure is used for securing the fat recycle valve.

Burns and heat stress

- Close steam supply valves to jacket and secure with chains and tags.
- Insert solid blank at flange in cooker vent line to condenser manifold duct system.
- Vent cooker/dryer by opening access door at discharge end and top center door to allow natural ventilation throughout the entry.
- If faster cooling is needed, use a portable ventilation fan to increase ventilation.
- Cooling water may be circulated through the jacket to faster reduce both outer and inner surface temperatures of cooker/dryers.
- Check air and inner surface temperatures in cooker/dryer to assure they are within acceptable limits before entering, or use proper protective clothing.

Fire and fume hazards

- Careful site preparation, such as cleaning the area within 4 inches (10.16 cm) of all welding or torch cutting operations, and proper ventilation are the preferred controls.
- All welding and cutting operations are required to be done based on chapter 296-307 WAC, Part V, Welding.
- Proper ventilation may be achieved by local exhaust ventilation, or the use of portable ventilation fans, or a combination of the two practices.

Electrical shock

- Electrical equipment used in cooker/dryers needs to be in serviceable condition.

Slips and falls

- Remove residual grease before entering cooker/dryer.

Attendant

- The supervisor is the attendant for employees entering cooker/dryers.

Rescue

- When necessary, the attendant calls the employer's trained rescue team or the local fire services as previously.

Example Confined Space Entry Program for Workplaces where Portable Tanks are Fabricated or Serviced

During fabrication

These tanks and dry-bulk carriers are entered repeatedly throughout the fabrication process. These products are not configured identically, but the manufacturing processes by which they are made are very similar.

Sources of hazards

In addition to the mechanical hazards arising from the risks that an entrant would be injured due to contact with components of the tank or the tools being used, there is also the risk that a worker could be injured by breathing fumes from welding materials or mists or vapors from materials used to coat the tank interior. In addition, many of these vapors and mists are flammable, so the failure to properly ventilate a tank could lead to a fire or explosion.

Control of hazards

- Welding
 - Use local exhaust ventilation to remove welding fumes once the tank or carrier is completed to the point that workers may enter and exit only through a manhole. (Follow the requirements of chapter 296-307 WAC, Part V, Welding).
 - Do not ever bring welding gas tanks into a tank or carrier that is a permit entry confined space.
- Application of interior coatings/linings
 - Control atmospheric hazards by forced air ventilation sufficient to keep the atmospheric concentration of flammable materials below 10% of the lower flammable limit (LFL) (or lower explosive limit (LEL), whichever term is used locally).
 - Provide the appropriate respirators and use them in addition to providing forced ventilation when the forced ventilation does not maintain acceptable respiratory conditions.

Permits

Because of the repetitive nature of the entries in these operations, an “area entry permit” will be issued to cover production areas where tanks are fabricated so that entry and exit are through manholes.

Authorization

Only the area supervisor may authorize an employee to enter a tank within the permit area. The area supervisor determines that conditions in the tank trailer, dry-bulk trailer, or truck, for example, meet permit requirements before authorizing entry.

Attendant

- The area supervisor designates an employee to maintain communication by employer specified means with employees working in tanks to make sure they are safe.
- The attendant may not enter any permit confined space to rescue an entrant or for any other reason, unless authorized by the rescue procedure and, and even then, only after calling the rescue team and being relieved by an attendant by another worker.

Communications and observation

- Communications between the attendant and entrants has to be maintained throughout entry.
- Methods of communication that may be specified by the permit include voice, voice-powered radio, tapping or rapping codes on tank walls, and signaling tugs on a rope.
- The attendant's need to observe the work activities such as chipping, grinding, welding, spraying, for example, that require deliberate operator control to make sure they continue normally.
- These activities often generate so much noise that the necessary hearing protection makes communication by voice difficult.

Rescue Procedures

Acceptable rescue procedures include entry by a team of employee-rescuers, use of public emergency services, and procedures for breaching the tank.

The area permit specifies which procedures are available, but the area supervisor makes the final decision based on circumstances.

Note:

Certain injuries may make it necessary to breach the tank to remove a person rather than risk additional injury by removal through an existing manhole.

The supervisor makes sure that no breaching procedure used for rescue would violate terms of the entry permit.

For example, if the tank has to be breached by cutting with a torch, the tank surfaces to be cut need to:

- Be free of volatile or combustible coatings within four inches (10.16 cm) of the cutting line
- and

- The atmosphere within the tank has to be below the LFL.

Retrieval line and harnesses

- The retrieval lines and harnesses generally required under this rule are usually impractical for use in tanks. The internal configuration of the tanks and their interior baffles and other structures would prevent rescuers from hauling out injured entrants.
- However, unless the rescue procedure calls for breaching the tank for rescue, the rescue team needs to be trained in the use of retrieval lines and harnesses for removing injured employees through manholes.

REPAIR OR SERVICE OF "USED" TANKS AND BULK TRAILERS**Sources of hazards**

In addition to facing the potential hazards encountered in fabrication or manufacturing, tanks or trailers which have been in service may contain residues of dangerous materials, whether left over from the transportation of hazardous cargoes or generated by chemical or bacterial action on residues of non-hazardous cargoes.

Control of atmospheric hazards

A "used" tank needs to be brought into areas where tank entry is authorized only after the tank has been emptied, cleansed of any residues without employee entry, and purged of any potential atmospheric hazards.

Welding

- In addition to tank cleaning for control of atmospheric hazards, coating and surface materials need to be:
 - Removed four inches (10.16 cm) or more from any surface area where welding or other torch work will be done
 - and
 - Make sure the atmosphere within the tank remains well below the LFL.
- Follow the requirements of chapter 296-307 WAC, Part V, Welding, at all times.

Permits

- An entry permit needs to be issued prior to authorization of entry into used tank trailers, dry-bulk trailers, or trucks.
- In addition to the pre-entry cleaning requirement, this permit needs to require the employee safeguards specified for new tank fabrication or construction permit areas.

Authorization

- Only the area supervisor may authorize an employee to enter a tank trailer, dry-bulk trailer, or truck within the permit area.
- The area supervisor determines that the entry permit requirements have been met before authorizing entry.

Sample Confined Space Entry Permits

Use with Chapter 296-307 WAC, Part Y-8, Confined Spaces

The following 3 fill-in-the-blank confined space entry permits can be modified to fit your particular entry or used as they are if they can fit your entry needs.

You can also design your own entry permit. You are not required to use the fill-in-the-blank entry permits provided here.

Sample 1

Date:		
Site location or description:		
Purpose of entry:		
<hr/> <hr/> <hr/> <hr/> <hr/>		
Supervisor(s) in charge of crews:	Phone #:	Type of crew (welding, plumbing, etc.)
Permit duration:		
Communication procedures (including equipment):		
<hr/> <hr/> <hr/> <hr/>		
Rescue procedures (also see emergency contact phone numbers at end of form):		
<hr/> <hr/> <hr/>		

REQUIREMENTS COMPLETED (Put N/A if item does not apply)	DATE	TIME	REQUIREMENTS COMPLETED (Put N/A if item does not apply)	DATE	TIME
Lockout/De-energize/Try-out			Supplied Air Respirator (N/A if alternate entry)		
Line(s) Broken-Capped-Blank			Respirator(s) (Air Purifying)		
Purge-Flush and Vent			Protective Clothing		
Ventilation			Full Body Harness w/ "D" ring		
Secure Area (Post and Flag)			Emergency Escape Retrieval Equipment		
Lighting (Explosive Proof)			Lifelines		
Hotwork Permit			Standby safety personnel (N/A if alternate entry)		
Fire Extinguishers			Resuscitator—Inhalator (N/A if alternate entry)		
Add other specific information, if needed, or attach additional instructions or requirements. See the following examples in bold print.					
Line(s) to be bled/blanked:					
Ventilation equipment:					
PPE clothing:					
Respirator(s):					
Fire extinguisher(s):					
Emergency retrieval equipment:					

AIR MONITORING									
Substance Monitored		Permissible Levels		Monitoring Results					
Time monitored (put time)	Percent Oxygen	19.5% to 23.5%							
		LEL/LFL		Under 10%					
Toxic 1:		_____ PEL	_____ STEL						
Toxic 2:		_____ PEL	_____ STEL						
Toxic 3:		_____ PEL	_____ STEL						
Toxic 4:		_____ PEL	_____ STEL						

Sample 1 (continued)

REQUIREMENTS COMPLETED (Put N/A if item does not apply)			DATE	TIME	REQUIREMENTS COMPLETED (Put N/A if item does not apply)			DATE	TIME

REMARKS:

Air Tester Name	Instrument(s) Used (For example: oxygen meter, combustible gas indicator, etc.)	Model # or Type	Serial# or Unit

ATTENDANTS AND ENTRANTS

Attendant(s) (Required for all confined space work except alternate entry)	ID#	Confined Space Entrant(s)	ID#

REMARKS:

SUPERVISOR AUTHORIZATION - ALL CONDITIONS SATISFIED

Department or phone number: _____

EMERGENCY CONTACT PHONE NUMBERS:

AMBULANCE:	FIRE:	SAFETY:	RESCUE TEAM:	OTHER:
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

CONFINED SPACE ENTRY PERMIT

Sample 2

Date and time issued:	Date and time expires:
Job site/space I.D.:	Job supervisor:
Equipment to be worked on:	Work to be performed:
Standby personnel:	
<p>1. Atmospheric Checks: Time: _____</p> <p>Oxygen _____ %</p> <p>Explosives _____ %L.F.M.</p> <p>Toxic _____ PPM</p>	
<p>2. Tester's signature: _____</p>	
<p>3. Source isolation (No Entry): N/A Yes No</p> <p>Pumps or lines blinded, disconnected, or blocked: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>	
<p>4. Ventilation modification: N/A Yes No</p> <p>Mechanical: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>Natural Ventilation only: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>	
<p>5. Atmospheric check after isolation and ventilation:</p> <p>Oxygen: _____ % >19.5%</p>	

Explosive: _____ % L.F.M. <10%

Toxic: _____ PPM <10PPM H₂S

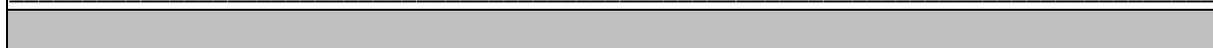
Time: _____

Tester's signature: _____



6. Communication procedures:

7. Rescue procedures:



8. Entry standby and backup persons successfully completed required training?	Yes	No
	<input type="checkbox"/>	<input type="checkbox"/>
Is it current?		
	<input type="checkbox"/>	<input type="checkbox"/>



9. Equipment:	N/A	Yes	No
Direct reading gas monitor-tested:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety harnesses and lifelines for entry and standby persons:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hoisting equipment:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Powered communications:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SCBA's for entry and standby persons:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Protective clothing:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
All electric equipment listed: Class I, Division I, Group D and non-sparking tools	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. Periodic atmospheric tests:

Oxygen _____ % ^{Time} _____	Oxygen _____ % Time _____
Oxygen _____ % Time _____	Oxygen _____ % Time _____
Explosive _____ % Time _____	Explosive _____ % Time _____
Explosive _____ % Time _____	Explosive _____ % Time _____
Toxic _____ % Time _____	Toxic _____ % Time _____
Toxic _____ % Time _____	Toxic _____ % Time _____

We have reviewed the work authorized by this permit and the information contained here. Written instruction and safety procedures have been received and are understood. Entry cannot be approved if any squares are marked in the "No" column. This permit not valid unless all appropriate items are completed.

Permit prepared by: _____
Entry Supervisor

Approved by: _____
Unit Supervisor

Reviewed by: _____
Operations Manager

This permit is to be kept at the job site. Return this job site copy to the unit supervisor following job completion.

Entrants Name	Sign in	Sign out	Sign in	Sign out

Sample 3

PERMIT VALID FOR 8 HOURS ONLY. ALL PERMIT COPIES MUST REMAIN AT THE SITE UNTIL JOB IS COMPLETED.					
Date:		Site location /description:			
Purpose of entry:					
Supervisor (s) in charge of crews		Type of Crew		Telephone #	
Communication procedures:					
Rescue procedures (telephone number at bottom):					
BOLD INDICATES MINIMUM REQUIREMENTS TO COMPLETE AND REVIEW PRIOR TO ENTRY Note: For Items that do not apply, enter N/A in the blank.					
REQUIREMENTS COMPLETED	DATE	TIME	REQUIREMENTS COMPLETED	DATE	TIME
Lockout/De-energize/Tagout			Full Body Harness w/"D" Ring		
Line(s) Broken-Capped-Blank			Emergency Escape Retrieval Equipment		
Purge-Flush and Vent			Lifelines		
Ventilation			Fire Extinguishers		
Secure Area (Post and Flag)			Lighting (Explosive proof)		
Breathing Apparatus			Protective Clothing		
Resuscitator - Inhalator			Respirator(s) (Air Purifying)		

Standby Safety Personnel			Burning and Welding Permit		
Continuous Monitoring: <input type="checkbox"/> Yes <input type="checkbox"/> No Periodic Monitoring Frequency: _____					
Test(s)			Permissible entry level		
Percent of oxygen			19.5% TO 23.5%		
Lower flammable limit			Under 10%		
Carbon monoxide			+35 PPM		
Aromatic Hydrocarbon			+1 PPM *5 PPM		
Hydrogen Cyanide			(Skin) *4 PPM		
Hydrogen Sulfide			+10 PPM *15 PPM		
Sulfur Dioxide			+2 PPM *5 PPM		
Ammonia			* 35 PPM		
* Short-term exposure limit: Employees can work in the area up to 15 minutes. + 8 hour Time Weighted Average: Employees can work in the area 8 hours (longer with appropriate respiratory protection). REMARKS: _____ _____					
GAS TESTER NAME & CHECK #: _____					
INSTRUCTIONS USED: _____					
MODEL &/OR TYPE: _____					
SERIAL &/OR UNIT #: _____					

SAFETY STANDBY IS REQUIRED FOR ALL CONFINED SPACE WORK

SAFETY STANDBY PERSON(S)

CHECK#

CONFINED SPACE ENTRANT(S)

CHECK #

SUPERVISOR AUTHORIZATION - ALL CONDITIONS SATISFIED:

Department or phone number: _____

EMERGENCY CONTACT PHONE NUMBERS:

Ambulance: _____

Fire: _____

Safety: _____

Gas coordinator: _____

PART Y-10 EMERGENCY RESPONSE

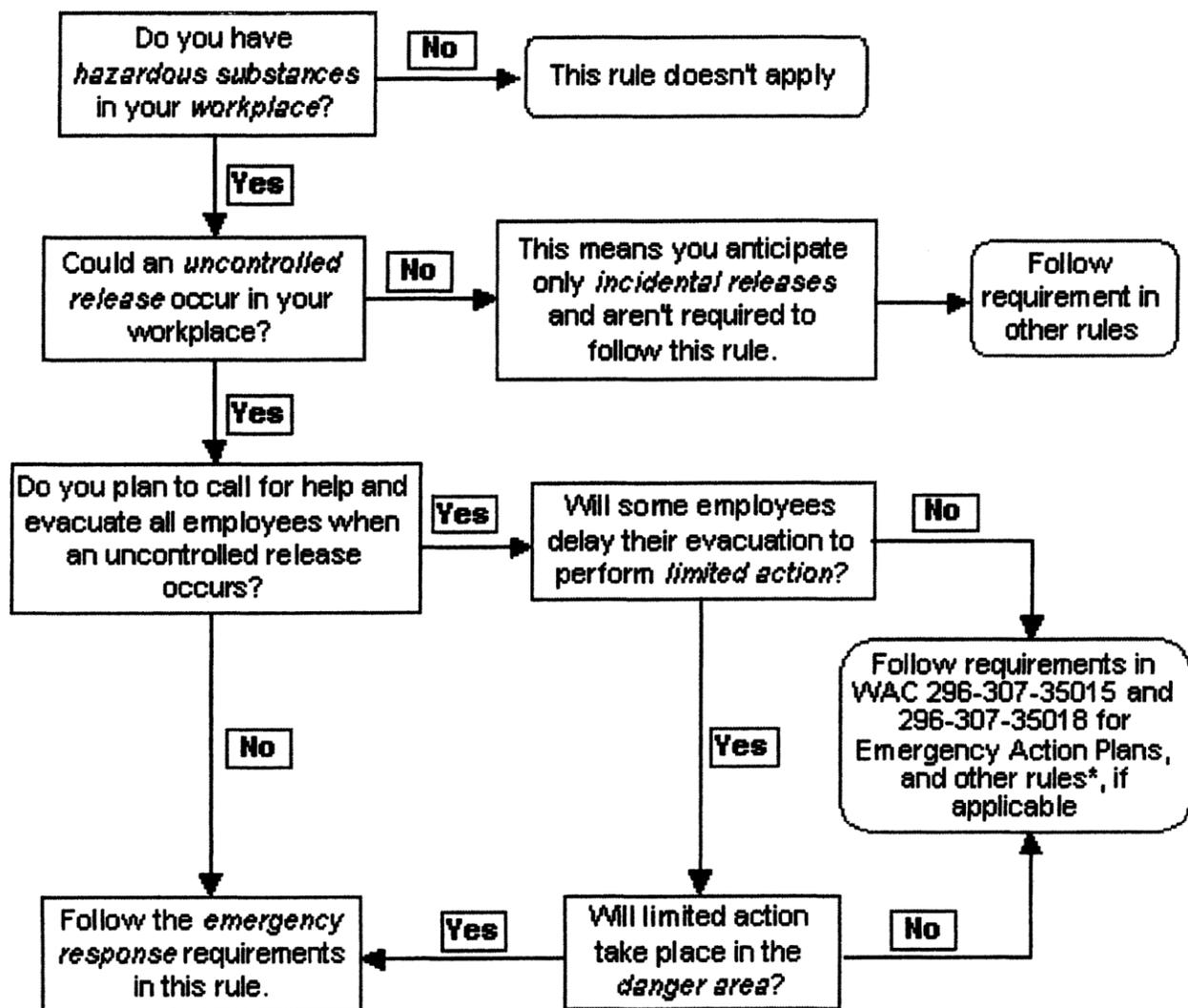
WAC		Page
296-307-704	Scope.....	1
296-307-70410	Planning.....	4
296-307-70415	Training.	9
296-307-70420	Medical Surveillance. Provide medical surveillance to employees.	14
296-307-70425	Keep records.	17
296-307-70430	Incident requirements. Recognize emergencies and initiate a response.....	18
296-307-70435	Implement and maintain an incident command system (ICS).	18
296-307-70440	Prepare skilled support personnel.....	18
296-307-70445	Make sure the incident commander oversees activities during response.....	19
296-307-70450	Use the buddy system in danger areas.....	20
296-307-70455	Provide rescue and medical assistance.	20
296-307-70460	Personal protective equipment.	20
296-307-70465	Control hazards created by personal protective equipment (PPE).	22
296-307-70470	Use personal protective equipment (PPE) properly.	22
296-307-70475	Postemergency response.....	23
296-307-70480	Definitions.....	25

WAC 296-307-704 Scope. Emergency response to hazardous substance releases.

To state the minimum requirements that help the employer protect the safety and health of its employees during a response to hazardous substance releases in the employer's workplace or any other location.

Requirements of this rule that apply to the employer's workplace.

This section applies if the employer's employees are, or could become, involved in responding to uncontrolled releases of hazardous substances in the workplace or any other location. Use the scope flow chart, and definitions that follow, to determine if this section applies to the employer's workplace(s). Defined words are italicized in the flow chart.



*The flow chart references other rules applicable to the workplace depending on conditions and hazards.

Examples include:

- (1) Chapter [296-828](#) WAC, Hazardous chemicals in laboratories
- (2) WAC 296-307-594, Respiratory protection.

Definitions that apply to the flow chart (see WAC 296-307-70480 for additional definitions used in this section):

Danger area. Areas where conditions pose a serious danger to employees, such as areas where:

- (a) Immediately dangerous to life or health (IDLH) conditions could exist; or
- (b) High levels of exposure to toxic substances could exist; or
- (c) 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 296-307-70480 for a more specific definition.)

Immediately dangerous to life or health (IDLH). Any atmospheric condition that would:

- (a) Cause an immediate threat to life
- (b) Cause permanent or delayed adverse health effects
- (c) 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:

- (a) Secure an operation during emergency responses or
- (b) 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.

- (a) Examples of conditions that could create a significant safety and health risk:
 - (i) Large-quantity releases.
 - (ii) Small-releases that could be highly toxic.
 - (iii) 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) A fixed facility; or
- (b) A temporary location (such as a traffic corridor); or
- (c) Locations where employees respond to emergencies.

Summary:

Employer responsibility:

To anticipate, plan for, and manage emergency response operations so employees are protected from hazardous substances and conditions.

Note: Other chapters may apply to the employer's workplace, such as: Chapter [296-62](#) WAC, General occupational health standards.

The employer will find some safety and health requirements (for example, personal protective equipment) are addressed on a general level in the core rules, while being addressed for a specific application in this section. When this happens, both requirements apply and should not conflict.

If the employer is uncertain which requirements to follow, the employer must comply with the more protective requirement. Contact the local L&I office if assistance is needed in making this determination.

<i>The employer must meet the requirements...</i>	<i>in this section:</i>
Planning.	WAC 296-307-70410

<i>The employer must meet the requirements...</i>	<i>in this section:</i>
Training.	WAC 296-307-70415
Medical surveillance.	WAC 296-307-70420
Keep records.	WAC 296-307-70425

<i>The employer must meet the requirements...</i>	<i>in this section:</i>
Incident requirements.	WAC 296-307-70430
Implement and maintain an incident command system (ICS).	WAC 296-307-70435
Prepare skilled support personnel.	WAC 296-307-70440
Make sure the incident commander oversees activities during the response.	WAC 296-307-70445
Use the buddy system in danger areas.	WAC 296-307-70450
Provide rescue and medical assistance.	WAC 296-307-70455
Personal protective equipment.	WAC 296-307-70460
Control hazards created by personal protective equipment (PPE).	WAC 296-307-70465
Use personal protective equipment (PPE) properly.	WAC 296-307-70470
Postemergency response.	WAC 296-307-70475
Definitions.	WAC 296-307-70480

WAC 296-307-70410 Planning Develop an emergency response plan.**Notes:**

1. The employer may already have an emergency response plan, such as required by chapter [296-843](#) WAC, Hazardous waste operations or by state and locally coordinated response efforts (Section 303 of Superfund Amendments and Reauthorization Act (SARA), Title III). The employer may use those plans to comply with this section, if they include the items listed below.
2. Before a written emergency response plan can be developed, the employer will need to anticipate the types of uncontrolled releases that employees could encounter in the workplace(s).

- (1) The employer must make sure its plan is written and adequately addresses, as a minimum, all of the following:
 - (a) 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).
 - (b) Personnel roles, (see Table 1) and lines of authority and communications for all affected parties including responders.
 - (c) Employee training (see WAC 296-307-70415, train employees), for more detail:

Notes:

1. Responders' level of training depends on the duties and roles the employer assigns.
2. Training for the employees' role should address the competencies specified in Tables 3 through 6.
3. 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, the employer could provide training (covering the knowledge and skills specified in Tables 3 through 6) relevant to that single substance. If employees might respond to a range of hazardous substances, training may be required to cover categories of hazardous substances.

- (d) Videos and automated training methods (for example: Interactive computer based

programs) may be used in training; however, instructors must be readily available to:

- (i) Encourage and provide responses to questions for the benefit of the group;
 - (ii) Evaluate employees' understanding of the material;
 - (iii) Provide instructional interaction to the group.
- (e) Emergency recognition;
- (f) Immediate emergency procedures including:
- (i) Methods of alerting employees (see WAC 296-307-345, Employee alarm systems) and outside responders
 - (ii) 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 and Employee Roles (Cont.)	
Limited action will not be conducted in IDLH conditions	Considered evacuees, not emergency responders

- (g) Details of who will evacuate immediately and who will remain behind for limited action
- (h) Evacuation routes and procedures
- (i) 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).
- (j) Methods of securing and controlling access to the site
- (k) Emergency medical treatment and first aid
- (l) A complete personal protective equipment (PPE) program that addresses:
 - (i) Selection of PPE including selection criteria to be used and the identification, specified use and limitations of the PPE selected;

- (ii) Training on proper use of PPE (including maintenance);
- (iii) Hazards created by wearing PPE including heat stress during temperature extremes, and/or other appropriate medical considerations;
- (iv) Criteria used for determining the proper fit of PPE;
- (v) Procedures covering proper use of PPE including procedures for inspection, putting it on (donning) and removing it (doffing);
- (vi) Maintenance of PPE including procedures for decontamination, disposal and storage;
- (vii) Methods used to evaluate the effectiveness of your PPE program;

Notes:

1. 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.
2. The employer may use written procedures provided by the equipment manufacturer when they meet the requirements of other chapters, including chapter 296-307 WAC, Part Y-5, Respirators.

- (viii) Emergency equipment
 - (ix) Emergency response procedures
 - (x) Decontamination procedures determined by a hazardous materials specialist or other qualified individual
 - (xi) Methods to critically assess the response and conduct appropriate follow-up.
- (2) The employer must make its 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:

1. Who will be designated as the incident commander (IC); and
2. 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 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

If the employee's role is:	Then all the following apply. They:
	<ul style="list-style-type: none"> - 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
	<ul style="list-style-type: none"> • Are trained in the hazards of specific substances • 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

WAC 296-307-70415 Training.

Train employees.

Notes:

1. Use Tables 3 through 6 to identify employees' training competencies.
2. The employer may conduct training internally, or use outside training services to comply with this section.

When outside trainers are hired, the employer is still responsible for making sure the requirements of this section are met. For example, employers may compare the course outline to the competencies listed in Tables 3 through 6.

- (1) The employer must make sure employees are appropriately trained for their assigned roles and duties as follows:

Exemption: Skilled support employees are not covered by the training requirements of this section (see WAC 296-307-70440).

- (2) The employer must provide initial training:
 - (a) Provide initial training before the employee is allowed to participate in an actual emergency response operation.

Note: When first responders at the awareness or operations level have sufficient experience to objectively demonstrate competencies specified in Table 3, you may accept experience instead of training.

- (b) Make sure initial training adequately addresses the competencies in Tables 3 through 6 and the minimum training durations in Table 2.
 - (c) Certify that employees objectively demonstrate competencies specified in Tables 3 through 6 (except for employees trained as first responders at the awareness level).
- (3) The employer must provide retraining (refresher) training:
 - (a) Provide retraining annually.
 - (b) Make sure retraining covers necessary content.
 - (c) Document training or demonstrated competency.

Note: Retraining is not required when employees demonstrate competencies annually and a record is kept of the demonstration methodology used.

- (4) For trainer qualifications, the employer must:

- (a) Verify trainers have satisfactorily completed an instructors' training course for the subjects they teach. For example, courses offered by the United States National Academy, or equivalent courses are acceptable or
- (b) Have the educational and instructional experience necessary for training.
- (5) For specialist employees, the employer must:
Specialist employees who have been sent to the scene to advise or assist must receive training or demonstrate competency in their specialty, annually.

Table 2 Minimum Training Durations for all Responders

If you are a:	Then:
First responder at the awareness level	Training duration needs to be sufficient to provide the required competencies
First responder at the operations level	You need a minimum of 8 hours training (see Table 3)
Hazardous materials technician	You need a minimum of 24 hours training (see Table 4)
Hazardous materials specialist	You need a minimum of 24 hours training (see Table 4)
Incident commander	You need a minimum of 24 hours training (see Table 5)

Table 3 Competencies for First Responders at the Awareness Level and Operations Level

Employees must be able to show they:	When they are designated as First Responders at the:	
	Awareness Level	Operations Level
Understand what hazardous substances are and their associated risks.	X	X
Recognize the presence of hazardous substances in an emergency.	X	X
Can identify the hazardous substances, when possible.	X	X
Understand the potential consequences of hazardous substances in an emergency.	X	X
Understand the role of a first responder at the awareness level as described in: <ul style="list-style-type: none"> The employer's emergency response plan, including site security and control. The United States Department of Transportation's Emergency Response Guidebook. (Search at: http://www.dot.gov.) 	X	X
Can use The United States Department of Transportation's Emergency Response Guidebook.	X	X
Recognize the need for additional resources and the need to notify the incident's communication center accordingly.	X	X
Know basic hazard and risk assessment techniques.		X
Can select and use personal protective equipment (PPE) appropriate for first responder operations level.		X
Understand basic hazardous materials terms.		X
Can perform basic control, containment, and/or confinement operations within the capabilities of the resources and PPE available.		X
Can implement decontamination procedures to their level of training.		X

Employees must be able to show they:	When they are designated as First Responders at the:	
	Awareness Level	Operations Level
Understand relevant standard operating and termination procedures.		X

Table 4 Competencies for Hazardous Materials Technicians and Hazardous Materials Specialist

Employees must be able to show they:	When they are designated as a Hazardous Materials:	
	Technician	Specialist
Have the competencies specified for the first responder operations level. (See Table 3)	X	X
Can implement an employer's emergency response plan.	X	X
Can function within their assigned role in the incident command system.	X	X
Understand hazard and risk assessment techniques.	X	X
Understand basic chemical and toxicological terminology and behavior.	X	X
Can use field survey instruments and equipment to classify, identify, and verify materials at the incident.	X	X
Can select and use personal protective equipment (PPE) appropriate for hazardous materials technicians.	X	X
Can perform advance control, containment, and/or confinement operations within the capabilities of the resources and PPE available.	X	X
Can implement decontamination procedures to their level of training.	X	X
Understand termination procedures.	X	X
Can implement the local emergency response plan.		X
Know of the state emergency response plan.		X

Employees must be able to show they:	When they are designated as a Hazardous Materials:	
Can develop a site safety and control plan.		X
Understand chemical, radiological, and toxicological terminology and behavior.		X
Understand in-depth hazard and risk techniques.		X
Can use advanced survey instruments and equipment to classify, identify and verify materials at the incident.		X
Can select and use proper specialized chemical PPE given to hazardous materials specialists.		X
Can perform specialized control, containment, and/or confinement operations within the capabilities of the resources and PPE available.		X
Can determine decontamination procedures.		X

Table 5 Competencies for Incident Commanders

Employees designated as Incident Commanders must be able to show they:
<ul style="list-style-type: none"> • Have competencies specified for the First Responder Operations Level. (See Table 3.)
<ul style="list-style-type: none"> • Know of the state emergency response plan and the Federal Regional Response Team.
<ul style="list-style-type: none"> • Can implement the local emergency response plan.
<ul style="list-style-type: none"> • Can implement the employer's emergency response plan.
<ul style="list-style-type: none"> • Have knowledge of the incident command system (ICS) and understand how they relate to it.
<ul style="list-style-type: none"> • Can implement the employer's ICS.
<ul style="list-style-type: none"> • Understand the hazards and risks associated with employees working in chemical protective clothing.
<ul style="list-style-type: none"> • Understand the importance of decontamination procedures.
<p>Note: If the first employee arriving at the scene is not trained as an IC, they may take control of the incident within their designated role and training level.</p>

Table 6 Competencies for Specialist Employees

Employees designated as Specialist Employees must be able to show they:
<ul style="list-style-type: none"> • Have current knowledge in their field regarding safety and health practices relating to the specific hazardous substances.
<ul style="list-style-type: none"> • Have the knowledge of the ICS and understand how they relate to it.
<ul style="list-style-type: none"> • Understand the care and use of personal protective equipment (PPE).

WAC 296-307-70420 Medical surveillance. Provide medical surveillance to employees.

- (1) The employer must provide medical surveillance for employees to comply with Tables 7 and 8, and the following:
- (a) Make medical surveillance available at:
 - (i) Reasonable times and places;
 - (ii) No cost to employees, including travel associated costs such as mileage, gas or bus fare if the employee is required to travel off site; and
 - (iii) Wages for additional time spent outside of employees' normal work hours.
 - (b) Make sure a licensed physician performs or supervises exams and procedures.
 - (c) Give complete information to the examining physician including:
 - (i) A copy of this section.
 - (ii) A description of the employee's duties that relate to hazardous substance exposure.
 - (iii) The hazardous substance exposure levels anticipated for the employee.
 - (iv) A description of the personal protective equipment (PPE) the employee could use.
 - (v) Information available from previous medical examinations.
 - (vi) The medical evaluation information required by chapter 296-307 WAC, Part Y-5, Respirators.
 - (d) Medical exams must include, at a minimum:
 - (i) A medical history.
 - (ii) A work history (or updated history if on file).
 - (iii) A special emphasis on:
 - (A) Assessment of symptoms related to handling hazardous substances.
 - (B) Health hazards.
 - (C) Evaluation of fitness for duty (including the ability to wear any personal

protective equipment (PPE) or other conditions that may be expected at the workplace).

- (iv) Other content as determined by the examining physician.

Note: The physician should consult the Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities and the Medical Management Guidelines for Acute Chemical Exposure (search OSHA website: <http://www.osha.gov>).

- (2) The employer must obtain the physician's written opinion and give a copy to the employee that includes:
- (a) A statement of whether or not medical conditions were found which would increase the employee's risk for impairment during emergency response work or respirator use.
Do not include specific findings or diagnoses unrelated to occupational exposures.
 - (b) Limitations recommended to the employee's assigned work, if any.
 - (c) Exam and test results if the employee requests this information.
 - (d) A statement that affirms the employee has been confidentially informed of medical exam results (including medical conditions requiring follow-up).

Table 7 Medical Surveillance for Employee Categories

If the employee is covered by this section and is:	Then you must:
<ul style="list-style-type: none"> • Exposed for at least 30 days a year to health hazards or hazardous substances at or above the permissible exposure limit or published exposure levels (even when respirators are used), <li style="text-align: center;">OR • Required to wear a respirator for at least 30 days a year.* 	<ul style="list-style-type: none"> • Offer standard medical surveillance as specified in Table 8.*
<ul style="list-style-type: none"> • A hazardous materials (HAZMAT) team member. • A hazardous materials specialist. 	<ul style="list-style-type: none"> • Provide standard medical surveillance as specified in Table 8.
<ul style="list-style-type: none"> • An emergency responder who shows immediate or delayed signs or symptoms possibly resulting from exposure to hazardous substances during an incident. 	<ul style="list-style-type: none"> • Provide incident-specific medical surveillance as specified in Table 8.
<ul style="list-style-type: none"> • Not an emergency responder and: <ul style="list-style-type: none"> – May be injured. – Shows immediate or delayed signs or symptoms possibly resulting from exposure to hazardous substances. – May have been exposed to hazardous substances at concentrations above the permissible exposure limits (PELs) or the published exposure levels without appropriate PPE. 	<ul style="list-style-type: none"> • Offer incident-specific medical surveillance as specified in Table 8.

***Note:** A medical evaluation for respirator use is required by chapter 296-307 WAC, Part Y-5, Respiratory protection, for those employees who have not been cleared for respirator use during medical surveillance activities.

Table 8 Frequency of Exams and Consultations

If the employee is covered by:	Then medical surveillance must include:
<ul style="list-style-type: none"> • Standard medical surveillance 	<p>Exams and consultations:</p> <ul style="list-style-type: none"> • Before assignment. <p>Note: If the employee is a hazardous materials (HAZMAT) team member or a hazardous materials specialist, the employee must receive a baseline physical examination.</p> <ul style="list-style-type: none"> • At least once every 12 months after their initial assignment unless the physician believes a shorter, or longer interval (but no more than 24 months) is appropriate. • Whenever employees are reassigned to an area where they will no longer be covered by medical surveillance and they have not been examined within the past 6 months. • As soon as possible after an employee reports: <ul style="list-style-type: none"> – Signs or symptoms of possible overexposure to hazardous substances or health hazards. – Injury. – Exposure above the permissible exposure limits or published exposure levels. • At the termination of their employment unless they were examined within the past 6 months.
<ul style="list-style-type: none"> • Incident-specific medical surveillance 	<p>Medical consultations and exams:</p> <ul style="list-style-type: none"> • As soon as possible following the incident or development of signs or symptoms. • At additional times, if the physician determines follow-up is medically necessary.

WAC 296-307-70425 Keep records.

The employer must keep a record of:

- (1) Name and Social Security number of the employee receiving medical surveillance;
- (2) Physicians' written opinions, recommended limitations, and results of examinations and tests;

- (3) Any employee medical complaints regarding hazardous substance exposures;
- (4) A copy of all information given to the examining physician (except a copy of this section).

WAC 296-307-70430 Incident requirements. Recognize emergencies and initiate a response.

The employer must make sure employees follow procedures in your emergency response plan to:

- (1) Recognize when an emergency response must be initiated
- (2) Notify employees, and others designated in your plan, of the release
- (3) Follow immediate emergency procedures
- (4) Prevent the incident from increasing in severity or to secure the operation.

WAC 296-307-70435 Implement and maintain an incident command system (ICS).

- (1) The employer must make sure a single individual, acting as the incident commander (IC), is in charge of the site-specific incident command system (ICS) and acts within their designated role and training level.

Note: For multiemployer worksites:

1. The IC has responsibility for controlling emergency response operations at the site for all employers.
2. Emergency response plans should be consistent in designating who assumes the IC position.
3. If the first employee arriving at the scene is not trained as an IC (see Table 5, Training Requirements for Incident Commanders and Specialist Employees, WAC 296-307-70415), they may take control of the incident within their designated role and training level.

- (2) The employer must make sure all employers' emergency responders and their communications are coordinated and controlled by the IC.

Note: The IC may delegate tasks to subordinates (within their training level).

- (3) The employer must make sure each employer at the scene has designated a representative to assist the IC.
- (4) The employer must establish security and control of the site as specified in your written emergency response plan.

WAC 296-307-70440 Prepare skilled support personnel.

Note: The duties of skilled support personnel are described in Table 1, Roles and Duties of Emergency Responders.

-
- (1) The employer must make sure that their skilled support personnel (including those employees who are not regularly employed by you) who could be exposed to on-scene hazards are given an initial briefing at the site before they participate in any emergency response. The initial briefing must include:
 - (a) What chemical hazards are involved;
 - (b) What duties are to be performed;
 - (c) Instruction in the wearing of appropriate personal protective equipment.

<p>Note: Skilled support personnel do not need to comply with the other training requirements of this section.</p>

- (2) The employer must make sure the safety and health precautions given to your employees are also given to skilled support personnel.

WAC 296-307-70445 Make sure the incident commander oversees activities during the response. The employer of the incident commander (IC) must:

- (1) Identify all hazardous substances and conditions present, within their training level, using site analysis and maximum exposure limits, when appropriate.
- (2) Implement emergency response procedures appropriate to the hazardous substances and conditions present, such as:
 - (a) Procedures that address the use of engineering controls, hazardous substance handling, and new technologies
 - (b) Procedures that address decontamination
 - (c) Procedures that address PPE
 - (d) Procedures that limit the number of personnel to those who are actively performing emergency response operations, in areas where exposure could exist.

- (3) Designate an incident safety officer (ISO).

Make sure the ISO demonstrates knowledge about operations being implemented at the emergency response site. They must:

- (a) Identify and evaluate hazards
- (b) Communicate with the IC about hazards, immediately informing the IC of corrective actions that must be taken when conditions are judged to be:
 - (i) An imminent danger; or
 - (ii) Immediately dangerous to life or health (IDLH).
- (c) Provide direction about the safety of operations.

WAC 296-307-70450 Use the buddy system in danger areas.

The employer must make sure operations and tasks (including limited actions) in danger areas are conducted using the buddy system in teams of two or more.

Definition: Danger areas are areas where conditions pose a serious danger to employees, such as areas where:

- (a) Immediately dangerous to life or health (IDLH) conditions could exist; or
- (b) High levels of exposure to toxic substances could exist; or
- (c) There is a potential for exceeding the lower explosive limit (LEL), also known as the lower flammability limit (LFL) of a hazardous substance.

WAC 296-307-70455 Provide rescue and medical assistance.

- (1) The employer must provide stand-by employees equipped with the same level of personal protective equipment (PPE) as the entrants, for assistance or rescue.

Note:

1. The buddy system applies to stand-by employees (WAC 296-307-70450).
2. One of the two stand-by employees can be assigned to another task provided it does not interfere with the performance of the stand-by role.
3. Rescue equipment should be selected and provided based on the types of rescue situations that could occur.

- (2) The employer must make sure employees trained in first aid are readily available with necessary medical equipment and have a way to transport the injured.

Note:

Employers who require their employees to provide first aid must comply with the bloodborne pathogen rule, chapter [296-823](#) WAC.

WAC 296-307-70460 Personal protective equipment.**Notes:**

1. Only properly trained employees should select PPE. Hazardous materials technicians and hazardous materials specialists can select PPE within the competencies specified in Table 4.
2. Selection requirements in other PPE rules also apply, including:
 - a. Chapter 296-307 WAC, Part Y-5, Respirators.
 - b. Chapter [296-305](#) WAC, Safety standards for firefighting.

- (1) The employer must provide employees with appropriate PPE and make sure it is used if hazards could be present.

- (2) The employer must select PPE (such as respirators, gloves, protective suits and other PPE) based on:
- An evaluation of the performance characteristics (such as breakthrough time and hazardous substance-specificity of the material or item) relevant to the requirements and limitations of the site.
 - Task-specific conditions and durations.
 - The hazards and potential hazards of the site (see Table 9, Selecting PPE for Specific Hazards).
- (3) The employer must select totally encapsulating chemical protective (TECP) suits, as specified in Table 9, that:
- Maintain positive air pressure.
 - Prevent inward test gas leakage of more than 0.5 percent.

Note: Follow the manufacturer's recommended procedure for testing a TECP suit is ability to maintain positive air pressure and prevent inward gas leakage. Other established test protocols for these suits, for example NFPA 1991 and ASTM F1052-97, may also be used.

Table 9 Selecting PPE for Specific Hazards

If:	Then use:
<ul style="list-style-type: none"> Inhalation hazards could be present. 	<ul style="list-style-type: none"> Positive-pressure (pressure-demand) self-contained breathing apparatus (SCBA) <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> A decreased level of respiratory protection only when the incident commander determines, from air monitoring results, that employees will be adequately protected.
Chemical exposure levels will create a substantial possibility of: <ul style="list-style-type: none"> Immediate death. Immediate serious illness or injury. Reduced ability to escape. 	Either positive-pressure (pressure-demand): <ul style="list-style-type: none"> SCBA Air-line respirators equipped with an escape air supply.

If:	Then use:
Skin absorption of a hazardous substance may result in a substantial possibility of: <ul style="list-style-type: none"> • Immediate death. • Immediate serious illness or injury. • Reduced ability to escape. 	Protection equivalent to Level A including a totally encapsulating chemical protective (TECP) suit.

WAC 296-307-70465 Control hazards created by personal protective equipment (PPE).

The employer must control hazards created by the use of PPE, including:

- (1) Heat stress due to extremely high temperatures.
- (2) Any other employee health hazard and consideration.

WAC 296-307-70470 Use personal protective equipment (PPE) properly.

- (1) The employer must make sure employees inspect PPE before, during and after use, following your plan's procedures.
- (2) The employer must make sure employees put on (don) and remove (doff) PPE following your plan's procedures.
- (3) The employer must make sure employees do not interchange self-contained breathing apparatus (SCBA) air cylinders from different manufacturers, unless all of the following apply:
 - (a) There is a life-saving emergency;
 - (b) You need a supplemental air supply;
 - (c) The cylinders are of the same capacity and pressure rating.
- (4) The employer must make sure compressed air cylinders used with SCBAs meet the testing and service life requirements of the United States Department of Transportation (USDOT). Search at: <http://www.dot.gov>.

Note: You can also check with the cylinder manufacturers to obtain USDOT test and service life specifications.

- (5) The employer must make sure PPE is maintained in a safe and reliable condition using your plan's procedures. PPE maintenance includes:
 - (a) Decontamination;
 - (b) Cleaning;
 - (c) Inspection;
 - (d) Identification of damage or defects;
 - (e) Parts repair or replacement;

- (f) Storage or disposal.

WAC 296-307-70475 Postemergency response.

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 296-307-70460 through 296-307-70470 apply to these employees).

- (1) The employer must follow Table 10 to determine which requirements apply to postemergency response activities.
- (2) The employer must maintain clean-up equipment as specified in Table 10.

Table 10 Rules that Apply to Postemergency Response Activities

When postemergency response cleanup is performed by employees who were not part of the initial emergency response and:	The following rules or requirements apply:
It is necessary to remove hazardous substances, health hazards and contaminated materials (example: Soil) from the site.	Chapter 296-843 WAC, Hazardous waste operations.

When postemergency response cleanup is performed by employees who were not part of the initial emergency response and:	The following rules or requirements apply:
<p>Cleanup is done on plant property using plant or workplace employees</p> <p>AND</p> <p>It is not necessary to remove hazardous substances, health hazards and contaminated materials from the site.</p>	<p>For training:</p> <ul style="list-style-type: none"> • WAC 296-307-35015 and 296-307-35018, Employee emergency action plans • Chapter 296-307 WAC, Part Y-5, Respiratory protection • WAC 296-307-550, Employer chemical hazard communication • Other appropriate training requirements relevant to personal protective equipment (PPE) and decontamination <p>For equipment:</p> <ul style="list-style-type: none"> • Make sure that all equipment used for clean-up work is serviced and inspected before use.

WAC 296-307-70480 Definitions.

The following definitions are specific to this section:

Annually. Any twelve-month cycle.

Buddy system. A system of organizing employees (who enter or stand by danger areas) into work groups, so each employee can be observed by at least one other member of the group. The purpose of this system is to provide rapid assistance to employees in an emergency.

Clean-up operation(s). An operation where hazardous substances are removed, contained, incinerated, neutralized, stabilized, cleared up or, in any other manner, processed or handled with the goal of making the site safer for people or the environment.

Danger area. Areas where conditions pose a serious danger to employees, such as areas where:

- (a) Immediately dangerous to life or health (IDLH) conditions could exist; or
- (b) High levels of exposure to toxic substances could exist; or
- (c) There is a potential for exceeding the lower explosive limit (LEL), also known as the lower flammability limit (LFL), of a substance.

Decontamination. Removing hazardous substances from employees and their equipment so potential adverse health effects will not occur.

Emergency response. An organized response to an anticipated release of a hazardous substance that is, or could become, an uncontrolled release.

Emergency response plan. A written plan that requires coordination between emergency response participants, and contains procedures, criteria, and other information that will be applied to emergency response operations. Each employer's plan should be compatible with local and state plans.

Engineering controls. Methods of controlling employee exposures by modifying the source or reducing the quantity of contaminants.

Hazardous materials team (HAZMAT team). A group of employees who are expected to perform responses to releases, or possible releases, of hazardous substances for the purpose of control and stabilization. As a result of their duties, HAZMAT team members may have close contact with hazardous substances.

Note: A HAZMAT team may be a separate component of a fire brigade or fire department.

Hazardous substance. Any of the following substances that could adversely affect an exposed employee's health or safety:

- (a) Substances defined under section 101(14) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) or "Superfund" Act (visit: <https://www.epa.gov>)
- (b) Biological or other disease-causing agents released that could reasonably be expected to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions (including malfunctions in reproduction) or physical deformations in a person or their offspring when the person:
 - (i) Is directly exposed to the agent in the environment;
 - (ii) Directly ingests, inhales, or assimilates the agent from the environment;
 - (iii) Indirectly ingests the agent through a food chain
- (c) Substances listed by the United States Department of Transportation as hazardous materials under Title 49 (Transportation) in the Code of Federal Regulations (CFR), Part 172, section 101 and appendices (visit: <http://www.nara.gov> and search for "List of CFR subjects")
- (d) Hazardous wastes as defined in this section.

Hazardous waste. A substance designated by chapter 173-303 WAC, Dangerous waste regulations, department of ecology, as a dangerous waste or an extremely hazardous waste and any waste fitting the definition of "health hazard" in this section.

Note: For department of ecology regulations, visit: <http://www.ecy.wa.gov>.

Health hazard. A chemical, a mixture of chemicals, or a pathogen for which there is statistically significant evidence, based on at least one study conducted according to established scientific principles, that acute or chronic health effects may occur in exposed employees.

The term “**health hazard**” includes stress due to temperature extremes and chemicals that are:

- (a) Carcinogens;
- (b) Toxic or highly toxic agents;
- (c) Reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, or neurotoxins;
- (d) Agents acting on the hematopoietic system agents that damage lungs, skin, eyes, or mucous membranes. (Detailed definitions of these chemical terms can be found in the Safety and health core rules, WAC 296-307-550, chemical hazard communication.)

Immediately dangerous to life or health (IDLH). Any atmospheric condition that would:

- (a) Cause an immediate threat to life; or
- (b) Cause permanent or delayed adverse health effects; or
- (c) Interfere with an employee's ability to escape.

Incident command system (ICS). An organized approach to control and manage operations at an emergency response incident.

Incidental release. A release that can be safely controlled at the time of the release and does not have the potential to become an uncontrolled release.

Note: Example of a situation that results in an incidental release:

A tanker truck is receiving a load of hazardous liquid when a leak occurs. The driver knows the only hazard from the liquid is minor skin irritation. The employer has trained the driver on procedures and provided equipment to use for a release of this quantity. The driver puts on skin protection and stops the leak. A spill kit is used to contain, absorb, and pick up the spilled material for disposal.

Limited action. Action necessary to:

- (a) Secure an operation during emergency responses; or
- (b) Prevent an incident from increasing in severity.

Examples include shutting down processes and closing emergency valves.

Lines of authority. A preestablished ranking of individuals, qualified to assume a commanding role during an emergency response, noted in an emergency response plan and implemented during a response. This is most important when responders from multiple employers could participate in an emergency response.

Lower explosive limit (LEL). See lower flammable limit (LFL).

Lower flammable limit (LFL). The lowest concentration of a material that will propagate a flame. The LFL is usually expressed as a percent (by volume) of the material in air (or other oxidant).

Must. Must means mandatory.

Permissible exposure limit (PEL). Means the established time-weighted-average (TWA) concentration or ceiling concentration of a contaminant that must not be exceeded.

The exposure, inhalation, or dermal permissible limit specified in chapter 296-307 WAC, Part Y-6, Respiratory hazards.

Personal protective equipment (PPE). Protective items designed to be worn by the user to protect them against airborne, skin contact and other hazards. This includes items such as respiratory protection, protective suits, gloves, eye protection, etc.

Postemergency response. The stage of the emergency response where the immediate threat from the release has been stabilized or eliminated, and cleanup of the site has started.

Published exposure level. Exposure limits published in “National Institute for Occupational Safety and Health (NIOSH) Recommendations for Occupational Safety and Health” (DHHS publication #92-100, 1992).

If an exposure limit is not published by NIOSH, then “published exposure level” means the exposure limits published by the American Conference of Governmental Industrial Hygienists (ACGIH) in “TLVs and BEIs-Threshold Limit Values for Chemical Substances and Physical Agents” (1999 edition).

Note: Additional exposure levels published by recognized organizations such as the American Industrial Hygiene Association are not required to be observed by this rule; however, they may be a useful resource when a hazardous substance is not covered by NIOSH and ACGIH publications.

Release. A spill, leak, or other type of hazardous substance discharge.

Uncontrolled release. A release where significant safety and health risks could be created. Releases of hazardous substances that are either incidental or could not create a safety or health hazard (i.e., fire, explosion or chemical exposure) are not considered to be uncontrolled releases.

(a) Examples of conditions that could create a significant safety and health risk:

- (i) Large-quantity releases
- (ii) Small releases that could be highly toxic
- (iii) 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.

(b) 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) A fixed facility; or
- (b) A temporary location (such as a traffic corridor); or
- (c) Locations where employees respond to emergencies.

Resource Section
Emergency Response

	Page
Developing Emergency Response Plans	R-1

Developing Emergency Response Plans Basic Planning Considerations

INSTRUCTIONS:

Important Information

Chapter 296-307 WAC, Part Y-10, Emergency Response to Hazardous Substance Releases Rule, **requires** you to do the following if there could be an **uncontrolled release** of a hazardous substance in your workplace:

- Develop and follow an Emergency Response Plan (ERP)
- OR
- Develop and follow an Emergency Action Plan (EAP)

This optional tool will help you develop an ERP. Planning an ERP and preparing designated employees for responding (including training, equipment, and medical surveillance) is more complex than the requirements for an EAP.

Before using this guideline see:

- The “Scope” section of Chapter 296-307 WAC, Part Y-10, for more information about uncontrolled releases.
- The EAP requirements in Chapter 296-307 WAC, Part S, Employee Emergency Plans and Fire Prevention Plans.

- **Before** you use this guideline:
 - Identify (by performing a hazard assessment), the types of uncontrolled hazardous substance releases that could occur in your workplace.
 - Familiarize yourself with the rule requirements in Chapter 296-307 WAC, Part Y-10.

Follow all these steps to plan for **EACH TYPE** of uncontrolled release that could occur.

Step 1. Identify expected hazards.

- Hazard assessment needs to be done by an individual who has appropriate technical knowledge and experience.
- This information forms the basis for selection of personal protective equipment (PPE) and development of emergency response procedures.
- If confined spaces could exist site-specific evaluations and procedures may be necessary. Follow requirements in Chapter 296-307 WAC, Part Y-8 to identify confined spaces.

Step 2. Make sure all potential participants are involved in planning, whether the response involves only your employees or other employees at the site. Make a written agreement covering all of the following:

- How potential participants will be notified when a release occurs. Be specific about the communication system to be used (for example, method to use, and sequence of contact).

- What roles your employees will take during the response.
- See Table 1 in Chapter 296-307 WAC, Part Y-10, for roles and duties employees may assume during a response.
 - Who assumes the Incident Commander position both initially and whenever a new response participant arrives.
 - New response participants you should consider are site-response teams, fire departments, law enforcement, HAZMAT teams, emergency medical services, state or federal officials, and other affected employers in the vicinity.
- Step 3. Describe how your employees will be alerted to the release.
 - Examples of methods to use for alerting employees include dedicated radio frequencies, siren blasts, and alarms linked to monitoring devices.
- Step 4. Plan and describe your site's evacuation procedures. Specify:
 - Who initiates the evacuation and notifies employees
 - Primary and alternate escape routes
 - Who will assist in evacuating employees, including physically challenged employees
 - Where the "safe" primary and secondary assembly areas will be
 - How you will account for all employees and any others present
 - How first aid needs will be supported
- Step 5. For releases at your facility or job site, decide if any of your employees (for example, process operators) need to control or shut down critical processes before designated responders arrive.
 - If actions require these employees to enter the danger area they need to be trained as emergency responders.
 - Develop procedures for these employees, including:
 - Identifying circumstances that trigger such actions
 - Specifying how selected employees will be notified to start the procedures
 - Describing how to perform actions safely
- Step 6. Identify employees who will be emergency responders. Make arrangements to train these employees, or certify competencies, on their expected roles and duties.
 - Decide and document how competencies will be determined.
 - Review course outlines to make sure training is complete.
 - Make sure documentation of training or competency is provided.
- Step 7. Develop and carry out a medical surveillance program for your employees as specified in Chapter 296-307 WAC, Part Y-10, Sections 70420 through 70430.
 - Identify covered employees.
 - Make arrangements for appropriate medical surveillance (for example: exams or consultations).

- Provide and document the appropriate surveillance for employees.

Step 8. Develop and carry out a written PPE program for your emergency response employees that covers all of the following:

- Selection of PPE for the hazards expected
- Limitations, capabilities and hazards of wearing PPE
- How to identify and prevent heat stress (and related injuries), if applicable
- Proper fit procedures for PPE, if applicable
- Procedures for maintenance (decontamination, cleaning, repairs, storage and disposal)
- Training and documentation to support all program elements
- How to effectively evaluate the PPE program
- You can combine other written PPE-related program requirements from Chapter 296-307 WAC, and The General Occupational Health Standards, Chapter [296-62](#) WAC, into this program to prevent duplication of written programs.

Step 9. Make arrangements to properly equip your emergency response employees. Provide:

- PPE such as respirators, protective suits, gloves.
- Rescue equipment, if needed (for example, retrieval devices for confined spaces).
- Air-monitoring devices and other field equipment, if needed.

Step 10. Make arrangements to provide appropriate emergency medical treatment and first aid to your emergency response employees.

- Identify who will provide emergency medical services (EMS).
- Determine notification procedures.
- Specify where the medical assistance area will be located.
- Include provisions for transporting individuals, if necessary.
- Provide training and proper equipment to in-house EMS employees.

Step 11. Develop written emergency response procedures that:

- Specify how all response participants will communicate in joint operations and describe the chain of command.
- Describe methods for securing and controlling access to the site (i.e., work zones, equipment, personnel, procedures).
- Describe methods for identifying hazardous substances and hazard analysis.
- Specify control methods.
- Detail how proper PPE is selected.
- Designate necessary equipment and personnel duties for handling the release.
- Describe when the buddy system will be used.
- Detail decontamination methods (i.e., equipment, personnel, location, set-up).
- Identify procedures for completing the response.

Step 12. Plan and conduct on-site drills at least once a year to determine if your evacuation and notification procedures are sufficient. Drills should include all emergency response participants who would be involved in a response.

Part A General and Educational Requirements

Navigating this chapter.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-003, filed 02/02/2021, effective 03/08/2021. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-003, filed 12/01/98, effective 03/01/99. [Recodified as § 296-307-003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-006 Scope.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-006, filed 02/02/2021, effective 03/08/2021. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-006, filed 12/01/98, effective 03/01/99. [Recodified as § 296-307-006. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-006, filed 10/31/96, effective 12/1/96.]

WAC 296-307-009 Definitions that apply to this chapter.

[[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-009, filed 02/02/2021, effective 03/08/2021. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-009, filed 05/06/03, effective 08/01/03. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-009, filed 12/01/98, effective 03/01/99. [Recodified as § 296-307-009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-012 Equipment approved by a nonstate organization.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-012, filed 02/02/2021, effective 03/08/2021. Recodified as § 296-307-012. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-012, filed 10/31/96, effective 12/1/96.]

WAC 296-307-018 Employee responsibilities.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-018, filed 02/02/2021, effective 03/08/2021. Statutory Authority: RCW 49.17.010, .040, and .050. 15-11-066, (Order 14-24), § 296-307-018, filed 05/19/15, effective 07/01/15. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-018, filed 12/21/04, effective 04/02/05. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-018, filed 05/06/03, effective 08/01/03. Statutory Authority: Chapter 49.17.010, .040, .050. 01-17-033, (Order 01-14), § 296-307-018, filed 08/08/01, effective 09/01/01. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-018, filed 12/01/98, effective 03/01/99. [Recodified as § 296-307-018. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-018, filed 10/31/96, effective 12/1/96.]

WAC 296-307-021 Employee responsibilities.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-021, filed 02/02/2021, effective 03/08/2021. Recodified as § 296-307-021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-024 Applying for a variance.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-024, filed 02/02/2021, effective 03/08/2021. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-024, filed 12/01/98, effective 03/01/99. [Recodified as § 296-307-024. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-024, filed 10/31/96, effective 12/1/96.]

Part B Accident Prevention Program; First-Aid; Safe Place Standard

WAC 296-307-030 Required elements of an accident prevention program.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-030, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 09-07-098 (Order 08-21), § 296-307-030, filed 03/18/09, effective 05/01/09. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-030, filed 12/01/98, effective 03/01/99. [Recodified as § 296-307-030. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-030, filed 10/31/96, effective 12/1/96.]

WAC 296-307-033 Requirements for how often safety meetings must be held.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-033, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-033. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-033, filed 10/31/96, effective 12/1/96.]

WAC 296-307-036 Items to go on the safety bulletin board.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-036, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-036. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-036, filed 10/31/96, effective 12/1/96.]

WAC 296-307-039 First-aid rule summary.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-039, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-039, filed 12/21/04, effective 04/02/05. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 04-07-160 (Order 03-31), § 296-307-039, filed 03/23/04, effective 05/01/04. Statutory Authority: RCW 49.17.010, .040, .050. 02-12-98 (Order 00-20) § 296-307-039, filed 06/05/02, effective 08/01/02. Statutory Authority: Chapter 49.17.010, .040, .050. 01-17-033, (Order 01-14), § 296-307-039, filed 08/08/01, effective 09/01/01. Recodified as § 296-307-039. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-039, filed 10/31/96, effective 12/1/96.]

WAC 296-307-03905 Make sure that first-aid trained personnel are available to provide quick and effective first-aid.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-03905, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 04-07-160 (Order 03-31), § 296-307-03905, filed 03/23/04, effective 05/01/04. Statutory Authority: Chapter 49.17.010, .040, .050. 01-17-033, (Order 01-14), § 296-307-03905, filed 08/08/01, effective 09/01/01.]

WAC 296-307-03920 Make sure appropriate first-aid supplies are readily available.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-03920, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-03920, filed 12/21/04, effective 04/02/05. Statutory Authority: Chapter 49.17.010, .040, .050. 01-17-033, (Order 01-14), § 296-307-03920, filed 08/08/01, effective 09/01/01].

WAC 296-307-03930 Make sure emergency washing facilities are functional and readily accessible.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-03930, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-03930, filed 05/06/03, effective 08/01/03.

WAC 296-307-03935 Inspect and activate emergency washing facilities.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-03935, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-03935, filed 05/06/03, effective 08/01/03.

WAC 296-307-03940 Make sure supplemental flushing equipment provides sufficient water.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-03940, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-03940, filed 05/06/03, effective 08/01/03.

WAC 296-307-03945 Definitions.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-03945, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-03945, filed 05/06/03, effective 08/01/03.

WAC 296-307-045 Requirements for the safe place standard.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-045, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-045. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-045, filed 10/31/96, effective 12/1/96.]

Part C Hand Tools

WAC 296-307 050 Requirements that apply to hand tools.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-050, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-050. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-050, filed 10/31/96, effective 12/1/96.]

Part D Ladders, Bulk Storage, Pits, and Trenches

WAC 296-307-055 Ladders.

[Recodified as § 296-307-055. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-055, filed 10/31/96, effective 12/1/96.]

WAC 296-307-05501 Ladder care and maintenance.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-05501, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-05501. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-05501, filed 10/31/96, effective 12/1/96.]

WAC 296-307-05503 Instructing employees on the use of ladders.

[Statutory Authority; RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-05503, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-05503. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-05503, filed 10/31/96, effective 12/1/96.]

WAC 296-307-05505 Use of orchard ladders.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-05505, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-05505. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-05505, filed 10/31/96, effective 12/1/96.]

WAC 296-307-05507 Ladder requirements.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-05507, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-05507, filed 12/01/98, effective 03/01/99 [Recodified as § 296-307-05507. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-05507, filed 10/31/96, effective 12/1/96.]

WAC 296-307-060 Requirements that apply to job made ladders.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-060, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-060. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-060, filed 10/31/96, effective 12/1/96.]

WAC 296-307-061 Requirements that apply to working around bins, bunkers, hoppers, tank pits, and trenches.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-061, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-061, filed 12/21/04, effective 04/02/05. Recodified as § 296-307-061. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-061, filed 10/31/96, effective 12/1/96.]

Part E Vehicle and Farm Field Equipment

WAC 296-307-065 Identification of slow moving vehicles.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-065, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-065. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-065, filed 10/31/96, effective 12/1/96.]

WAC 296-307-070 Motor vehicles.

[Recodified as § 296-307-070. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-070, filed 10/31/96, effective 12/1/96.]

WAC 296-307-07001 Motor vehicles maintenance.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-07001, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-07001. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-07001, filed 10/31/96, effective 12/1/96.]

WAC 296-307-07003 Motor vehicles operation.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-07003, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-07003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-07003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-07005 Qualifications to operate motor vehicle.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-07005, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-07005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-07005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-07007 Requirements that apply to motor vehicle brakes.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-07007, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-07007. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-07007, filed 10/31/96, effective 12/1/96.]

WAC 296-307-07009 Loading and unloading motor vehicles.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-07009, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-07009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-07009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-07011 Required safety equipment for motor vehicles.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-07011, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-07011. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-07011, filed 10/31/96, effective 12/1/96.]

WAC 296-307-07013 Rules that apply to vehicles used to transport employees.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-07013, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-07013, filed 12/21/04, effective 04/02/05. Statutory Authority: RCW 49.17.010, .040, .050. 00-17-033 (Order 01-14), § 296-307-07013, filed 08/08/01, effective 09/01/01. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-07013, filed 12/01/98, effective 03/01/99. [Recodified as § 296-307-07013. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-07013, filed 10/31/96, effective 12/1/96.]

WAC 296-307-073 Requirements that apply to changing and charging, and storage of batteries.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-073, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-073. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-073, filed 10/31/96, effective 12/1/96.]

WAC 296-307-076 Guarding farm field equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-076, filed 10/20/2020, effective 11/20/2020. Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-076, filed 12/01/98, effective 03/01/99. [Recodified as § 296-307-076. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-076, filed 10/31/96, effective 12/1/96.]

Part F Rollover Protective Structures (ROPS) for Tractors

WAC 296-307-080 Rollover protective structures (ROPS) for tractors.

[Recodified as § 296-307-080. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-080, filed 10/31/96, effective 12/1/96.]

WAC 296-307-08003 Agricultural tractors covered by this section.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-08003, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-08003, filed 12/01/98, effective 03/01/99 [Recodified as § 296-307-08003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.]060. 96-22-048, § 296-306A-08003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-08006 Definitions that apply to ROPS for agricultural tractors.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-08006, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-08006. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.]060. 96-22-048, § 296-306A-08006, filed 10/31/96, effective 12/1/96.]

WAC 296-307-08009 Requirements that apply to the testing and performance of ROPS used on agricultural tractors.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-08009, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050. 02-12-98 (Order 00-20) § 296-307-08009, filed 06/05/02, effective 08/01/02. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-08009, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-08009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.]060. 96-22-048, § 296-306A-08009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-08012 Requirements that apply to seatbelts used with ROPS on agricultural tractors.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-08012, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-08012, filed 12/01/98, effective 03/01/99. [Recodified as § 296-307-08012. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.]060. 96-22-048, § 296-306A-08012, filed 10/31/96, effective 12/1/96.]

WAC 296-307-08015 ROPS requirements that apply to agricultural tractors.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-08015, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-08015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.]060. 96-22-048, § 296-306A-08015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-08018 Required employee training that apply to ROPS used on agricultural tractors.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-08018, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-08018, filed 12/01/98, effective 03/01/99. [Recodified as § 296-307-08018. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.]060. 97-08-051A, § 296-306A-08018, filed 3/31/97, effective 5/1/97; 96-22-048, § 296-306A-08018, filed 10/31/96, effective 12/1/96.]

WAC 296-307-08021 Requirements that apply to ROPS used on agricultural tractors.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-08021, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-08021, filed 12/01/98, effective 03/01/99. [Recodified as § 296-307-08021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.]060. 96-22-048, § 296-306A-08021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-085 Requirements for ROPS to be provided for material handling equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-085, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-085, filed 12/01/98, effective 03/01/99. [Recodified as § 296-307-085. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.]060. 96-22-048, § 296-306A-085, filed 10/31/96, effective 12/1/96.]

WAC 296-307-090 Requirements that apply to overhead protection for operators of agricultural and industrial tractors.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-090, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-090. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.]060. 96-22-048, § 296-306A-090, filed 10/31/96, effective 12/1/96.]

Part G Field Sanitation.

WAC 296-307-095 Field sanitation.

[Recodified as § 296-307-095. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.]060. 96-22-048, § 296-306A-095, filed 10/31/96, effective 12/1/96.]

WAC 296-307-09503 Scope.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-09503, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-09503, filed 12/01/98, effective 03/01/99. [Recodified as § 296-307-09503. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.]060. 96-22-048, § 296-306A-09503, filed 10/31/96, effective 12/1/96.]

WAC 296-307-09506 Definitions that apply to this section.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-09506, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 12-24-071 (Order 12-20), § 296-307-09506, filed 12/04/12, effective 01/04/13. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-09506, filed 12/01/98, effective 03/01/99. [Recodified as § 296-307-09506. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.]060. 96-22-048, § 296-306A-09506, filed 10/31/96, effective 12/1/96.]

WAC 296-307-09509 Required field sanitation training.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-09509, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-09509, filed 12/01/98, effective 03/01/99. [Recodified as § 296-307-09509. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-09509, filed 10/31/96, effective 12/1/96.]

WAC 296-307-09512 The employer must provide potable water sources.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-09512, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 09-07-098 (Order 08-21), § 296-307-09512, filed 03/18/09, effective 05/01/09. Recodified as § 296-307-09512. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.]060. 96-22-048, § 296-306A-09512, filed 10/31/96, effective 12/1/96.]

WAC 296-307-09515 Handwashing facilities.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-09515, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-09515. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.]060. 96-22-048, § 296-306A-09515, filed 10/31/96, effective 12/1/96.]

WAC 296-307-09518 Toilet facilities.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-09518, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-09518. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.]060. 96-22-048, § 296-306A-09518, filed 10/31/96, effective 12/1/96.]

Part G-1 Outdoor Heat Exposure.

WAC 296-307-097 Outdoor heat exposure.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 09-07-098 (Order 08-21), § 296-307-097, filed 03/19/09, effective 05/01/09.]

WAC 296-307-09710 Scope and purpose.

[Statutory Authority: RCW 49.17.010, .040, .050, 060. 23-14-042, (Order 21-33), § 296-307-09710, filed 06/27/23, effective 04/17/23. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 22-12-095 (Order 22-22), § 296-307-09710, filed 06/01/22, effective/06/15/22. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-09710, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 09-07-098 (Order 08-21), § 296-307-09710, filed 03/18/09, effective 05/01/09.]

WAC 296-09720 Definitions.

[Statutory Authority: RCW 49.17.010, .040, .050, 060. 23-14-042, (Order 21-33), § 296-307-09720, filed 06/27/23, effective 04/17/23. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 22-12-095 (Order 22-22), § 296-307-09720, filed 06/01/22, effective/06/15/22. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and 49.17.060. WSR 21-15-017 (Order 21-25), § 296-307-09720, filed 07/09/21, effective 07/13/21. WSR 09-07-098, § 296-307-09720, filed 3/18/09, effective 5/1/09. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-09720, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 09-07-098 (Order 08-21), § 296-307-09720, filed 03/18/09, effective 05/01/09.]

WAC 296-307-09730 Employer and employee responsibility.

[Statutory Authority: RCW 49.17.010, .040, .050, 060. 23-14-042, (Order 21-33), § 296-307-09730, filed 06/27/23, effective 04/17/23. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 22-12-095 (Order 22-22), § 296-307-09730, filed 06/01/22, effective/06/15/22. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and 49.17.060. WSR 21-15-017 (Order 21-25), § 296-307-09730, filed 07/09/21, effective 07/13/21. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 09-07-098 (Order 08-21), § 296-307-09730, filed 03/18/09, effective 05/01/09.]

WAC 296-307-09735 Access to shade.

[Statutory Authority: RCW 49.17.010, .040, .050, 060. 23-14-042, (Order 21-33), § 296-307-09735, filed 06/27/23, effective 04/17/23. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 22-12-095 (Order 22-22), § 296-307-09735, filed 06/01/22, effective/06/15/22.]

WAC 296-307-09740 Drinking water.

[Statutory Authority: RCW 49.17.010, .040, .050, 060. 23-14-042, (Order 21-33), § 296-307-09740, filed 06/27/23, effective 04/17/23. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 22-12-095 (Order 22-22), § 296-307-09740, filed 06/01/22, effective/06/15/22. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and 49.17.060. WSR 21-15-017 (Order 21-25), § 296-307-09740, filed 07/09/21, effective 07/13/21. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 09-07-098 (Order 08-21), § 296-307-09740, filed 03/18/09, effective 05/01/09.]

WAC 296-307-09745 Acclimatization.

[Statutory Authority: RCW 49.17.010, .040, .050, 060. 23-14-042, (Order 21-33), § 296-307-09745, filed 06/27/23, effective 04/17/23. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 22-12-095 (Order 22-22), § 296-307-09745, filed 06/01/22, effective 06/15/22.]

WAC 296-307-09747 High heat procedures.

Statutory Authority: RCW 49.17.010, .040, .050, 060. 23-14-042, (Order 21-33), § 296-307-09747, filed 06/27/23, effective 04/17/23.]

WAC 296-307-09750 Responding to signs and symptoms of heat-related illness.

[Statutory Authority: RCW 49.17.010, .040, .050, 060. 23-14-042, (Order 21-33), § 296-307-09750, filed 06/27/23, effective 04/17/23. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 22-12-095 (Order 22-22), § 296-307-09750, filed 06/01/22, effective 06/15/22. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 09-07-098 (Order 08-21), § 296-307-09750, filed 03/18/09, effective 05/01/09.]

WAC 296-307-09755 Extreme high heat procedures.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 22-12-095 (Order 22-22), § 296-307-09755, filed 06/01/22, effective 06/15/22. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and 49.17.060. WSR 21-15-017 (Order 21-25), § 296-307-09755, filed 07/09/21, effective 07/13/21.]

WAC 296-307-09760 Information and training.

[Statutory Authority: RCW 49.17.010, .040, .050, 060. 23-14-042, (Order 21-33), § 296-307-09760, filed 06/27/23, effective 04/17/23. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 22-12-095 (Order 22-22), § 296-307-09760, filed 06/01/22, effective/06/15/22. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and 49.17.060. WSR 21-15-017 (Order 21-25), § 296-307-09760, filed 07/09/21, effective 07/13/21. [Statutory Authority: RCW 49.17.010, .040, .050, and .060. 09-07-098 (Order 08-21), § 296-307-09760, filed 03/18/09, effective 05/01/09.]

Part H Personal protective equipment.

WAC 296-307-100 Personal protective equipment.

[Recodified as § 296-307-100. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-100, filed 10/31/96, effective 12/1/96.]

WAC 296-307-10005 Personal protective equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-10005, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-10005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-10005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-10010 Requirements that apply to eye protection.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-10010, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-10010. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-10010, filed 10/31/96, effective 12/1/96.]

WAC 296-307-10015 Requirements for personal protective equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-10015, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-10015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-10015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-10020 Preventing heat-related illnesses.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-10020, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-10020. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-10020, filed 10/31/96, effective 12/1/96.]

WAC 296-307-10025 Training for personal protective equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-10025, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-10025. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-10025, filed 10/31/96, effective 12/1/96.]

Part I Worker Protection Standard

WAC 296-307-108 General provisions.

[Statutory Authority: RCW 49.17, RCW 49.17.040, RCW 49.050, and RCW 49.17.280. 19-21-169 (Order 16-35), § 296-307-108, filed 10/22/2019, effective 02/03/2020.]

WAC 296-307-10805 Federal worker protection standard-Washington state department of labor and industries.

[Statutory Authority: RCW 49.17.010, RCW 49.17.040, RCW 49.17.050, RCW 49.17.060, RCW 49.17.280, RCW 49.17.285. 22-17-124 (Order 22-20), § 296-307-10805, filed 08/23/22, effective 09/26/22. Statutory Authority: RCW 49.17, RCW 49.17.040, RCW 49.050, and RCW 49.17.280. 19-21-169 (Order 16-35), § 296-307-10805, filed 10/22/2019, effective 02/03/2020.]

WAC 296-307-10810 Scope and purpose.

[Statutory Authority: RCW 49.17, RCW 49.17.040, RCW 49.050, and RCW 49.17.280. 19-21-169 (Order 16-35), § 296-307-10810, filed 10/22/2019, effective 02/03/2020.]

WAC 296-307-10815 Applicability.

[Statutory Authority: RCW 49.17, RCW 49.17.040, RCW 49.050, and RCW 49.17.280. 19-21-169 (Order 16-35), § 296-307-10815, filed 10/22/2019, effective 02/03/2020.]

WAC 296-307-10820 Definitions.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-10820, filed 02/02/2021, effective 03/08/2021. Statutory Authority: RCW 49.17, RCW 49.17.040, RCW 49.050, and RCW 49.17.280. 19-21-169 (Order 16-35), § 296-307-10820, filed 10/22/2019, effective 02/03/2020.]

WAC 296-307-10825 Agricultural employer duties.

[Statutory Authority: RCW 49.17.010, RCW 49.17.040, RCW 49.17.050, RCW 49.17.060, RCW 49.17.280, RCW 49.17.285. 22-17-124 (Order 22-20), § 296-307-10825, filed 08/23/22, effective 09/26/22. Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-10825, filed 02/02/2021, effective 03/08/2021. Statutory Authority: RCW 49.17, RCW 49.17.040, RCW 49.050, and RCW 49.17.280. 19-21-169 (Order 16-35), § 296-307-10825, filed 10/22/2019, effective 02/03/2020.]

WAC 296-307-10830 Display requirements for pesticide safety information and pesticide application ad hazard information.

[Statutory Authority: RCW 49.17.010, RCW 49.17.040, RCW 49.17.050, RCW 49.17.060, RCW 49.17.280, RCW 49.17.285. 22-17-124 (Order 22-20), § 296-307-10830, filed 08/23/22, effective 09/26/22. Statutory Authority: RCW 49.17, RCW 49.17.040, RCW 49.050, and RCW 49.17.280. 19-21-169 (Order 16-35), § 296-307-10830, filed 10/22/2019, effective 02/03/2020.]

WAC 296-307-10835 Commercial pesticide handler employer duties.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-10835, filed 02/02/2021, effective 03/08/2021. Statutory Authority: RCW 49.17, RCW 49.17.040, RCW 49.050, and RCW 49.17.280. 19-21-169 (Order 16-35), § 296-307-10835, filed 10/22/2019, effective 02/03/2020.]

WAC 296-307-10840 Prohibited actions.

[Statutory Authority: RCW 49.17, RCW 49.17.040, RCW 49.050, and RCW 49.17.280. 19-21-169 (Order 16-35), § 296-307-10840, filed 10/22/2019, effective 02/03/2020.]

WAC 296-307-10845 Violations of this part.

[Statutory Authority: RCW 49.17, RCW 49.17.040, RCW 49.050, and RCW 49.17.280. 19-21-169 (Order 16-35), § 296-307-10845, filed 10/22/2019, effective 02/03/2020.]

WAC 296-307-109 Requirements for protection of agricultural workers.

[Statutory Authority: RCW 49.17, RCW 49.17.040, RCW 49.050, and RCW 49.17.280. 19-21-169 (Order 16-35), § 296-307-109, filed 10/22/2019, effective 02/03/2020.]

WAC 296-307-19005 Training requirements for workers.

[Statutory Authority: RCW 49.17.010, RCW 49.17.040, RCW 49.17.050, RCW 49.17.060, RCW 49.17.280, RCW 49.17.285. 22-17-124 (Order 22-20), § 296-307-10905, filed 08/23/22, effective 09/26/22. Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-10905, filed 02/02/2021, effective 03/08/2021. Statutory Authority: RCW 49.17, RCW 49.17.040, RCW 49.050, and RCW 49.17.280. 19-21-169 (Order 16-35), § 296-307-10905, filed 10/22/2019, effective 02/03/2020.]

WAC 296-307-19010 Establishment-specific information for workers.

[Statutory Authority: RCW 49.17, RCW 49.17.040, RCW 49.050, and RCW 49.17.280. 19-21-169 (Order 16-35), § 296-307-10910, filed 10/22/2019, effective 02/03/2020.]

WAC 296-307-19015 Entry restrictions associate with pesticide applications.

[Statutory Authority: RCW 49.17, RCW 49.17.040, RCW 49.050, and RCW 49.17.280. 19-21-169 (Order 16-35), § 296-307-10915, filed 10/22/2019, effective 02/03/2020. Statutory Authority: RCW 49.17, RCW 49.17.040, RCW 49.050, and RCW 49.17.280. 19-21-169 (Order 16-35), § 296-307-10915, filed 10/22/2019, effective 02/03/2020.]

WAC 296-307-10920 Worker entry restrictions after pesticide applications.

[Statutory Authority: RCW 49.17, RCW 49.17.040, RCW 49.050, and RCW 49.17.280. 19-21-169 (Order 16-35), § 296-307-10920, filed 10/22/2019, effective 02/03/2020.]

WAC 296-307-10925 Oral and posted notification of worker entry restrictions.

[Statutory Authority: RCW 49.17, RCW 49.17.040, RCW 49.050, and RCW 49.17.280. 19-21-169 (Order 16-35), § 296-307-10925, filed 10/22/2019, effective 02/03/2020.]

WAC 296-307-10930 Decontamination supplies for workers.

[Statutory Authority: RCW 49.17.010, .040, .050, 21-04-128 (Order 20-31), § 296-307-10930, filed 02/02/2021, effective 03/08/2021. Statutory Authority: RCW 49.17, RCW 49.17.040, RCW 49.050, and RCW 49.17.280. 19-21-169 (Order 16-35), § 296-307-10930, filed 10/22/2019, effective 02/03/2020.]

WAC 296-307-112 Requirements for protection of agricultural pesticide handlers.

[Statutory Authority: RCW 49.17, RCW 49.17.040, RCW 49.050, and RCW 49.17.280. 19-21-169 (Order 16-35), § 296-307-112, filed 10/22/2019, effective 02/03/2020.]

WAC 296-307-11205 Training requirements for handlers.

[Statutory Authority: RCW 49.17.010, RCW 49.17.040, RCW 49.17.050, RCW 49.17.060, RCW 49.17.280, RCW 49.17.285. 22-17-124 (Order 22-20), § 296-307-11205, filed 08/23/22, effective 09/26/22. Statutory Authority: RCW 49.17.010, .040, .050, 21-04-128 (Order 20-31), § 296-307-11205, filed 02/02/2021, effective 03/08/2021. Statutory Authority: RCW 49.17, RCW 49.17.040, RCW 49.050, and RCW 49.17.280. 19-21-169 (Order 16-35), § 296-307-11205, filed 10/22/2019, effective 02/03/2020.]

WAC 296-307-11210 Knowledge of labeling, application-specific, and establishment-specific knowledge for handlers.

[Statutory Authority: RCW 49.17, RCW 49.17.040, RCW 49.050, and RCW 49.17.280. 19-21-169 (Order 16-35), § 296-307-11210, filed 10/22/2019, effective 02/03/2020.]

WAC 296-307-11215 Requirements during applications to protect handlers, workers, and other persons.

[Statutory Authority: RCW 49.17, RCW 49.17.040, RCW 49.050, and RCW 49.17.280. 19-21-169 (Order 16-35), § 296-307-11215, filed 10/22/2019, effective 02/03/2020.]

WAC 296-307-11220 Personal protective equipment.

[Statutory Authority: RCW 49.17.010, RCW 49.17.040, RCW 49.17.050, RCW 49.17.060, RCW 49.17.280, RCW 49.17.285. 22-17-124 (Order 22-20), § 296-307-11220, filed 08/23/22, effective 09/26/22. Statutory Authority: RCW 49.17.010, .040, .050, 21-04-128 (Order 20-31), § 296-307-11220, filed 02/02/2021, effective 03/08/2021. Statutory Authority: RCW 49.17, RCW 49.17.040, RCW 49.050, and RCW 49.17.280. 19-21-169 (Order 16-35), § 296-307-11220, filed 10/22/2019, effective 02/03/2020.]

WAC 296-307-11225 Decontamination and eye flushing supplies for handlers.

[Statutory Authority: RCW 49.17.010, RCW 49.17.040, RCW 49.17.050, RCW 49.17.060, RCW 49.17.280, RCW 49.17.285. 22-17-124 (Order 22-20), § 296-307-11225, filed 08/23/22, effective 09/26/22. Statutory Authority: RCW 49.17.010, .040, .050, 21-04-128 (Order 20-31), § 296-307-11225, filed 02/02/2021, effective 03/08/2021. Statutory Authority: RCW 49.17, RCW 49.17.040, RCW 49.050, and RCW 49.17.280. 19-21-169 (Order 16-35), § 296-307-11225, filed 10/22/2019, effective 02/03/2020.]

WAC 296-307-114 Exemptions, exceptions and equivalency.

[Statutory Authority: RCW 49.17, RCW 49.17.040, RCW 49.050, and RCW 49.17.280. 19-21-169 (Order 16-35), § 296-307-114, filed 10/22/2019, effective 02/03/2020.]

WAC 296-307-11405 Exemptions.

[Statutory Authority: RCW 49.17, RCW 49.17.040, RCW 49.050, and RCW 49.17.280. 19-21-169 (Order 16-35), § 296-307-11405, filed 10/22/2019, effective 02/03/2020.]

WAC 296-307-11410 Exceptions for entry by workers during restricted-entry intervals.

[Statutory Authority: RCW 49.17, RCW 49.17.040, RCW 49.050, and RCW 49.17.280. 19-21-169 (Order 16-35), § 296-307-11410, filed 10/22/2019, effective 02/03/2020.]

WAC 296-307-11415 Agricultural employer responsibilities to protect workers entering treated areas during a restricted-entry interval.

[Statutory Authority: RCW 49.17.010, RCW 49.17.040, RCW 49.17.050, RCW 49.17.060, RCW 49.17.280, RCW 49.17.285. 22-17-124 (Order 22-20), § 296-307-11415, filed 08/23/22, effective 09/26/22. Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-14015, filed 02/02/2021, effective 03/08/2021. Statutory Authority: RCW 49.17, RCW 49.17.040, RCW 49.050, and RCW 49.17.280. 19-21-169 (Order 16-35), § 296-307-11415, filed 10/22/2019, effective 02/03/2020.]

WAC 296-307-11420 Exceptions to personal protective equipment requirements specified on pesticide product labeling.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-14020, filed 02/02/2021, effective 03/08/2021. Statutory Authority: RCW 49.17, RCW 49.17.040, RCW 49.050, and RCW 49.17.280. 19-21-169 (Order 16-35), § 296-307-11420, filed 10/22/2019, effective 02/03/2020.]

Part J Pesticides Recordkeeping.

WAC 296-307-145 Pesticides recordkeeping.

[Recodified as § 296-307-145. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-145, filed 10/31/96, effective 12/1/96.]

WAC 296-307-14505 Recordkeeping for pesticide applications.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-14505, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 04-13-129 (Order 04-15), § 296-307-14505, filed 06/22/04, effective 08/01/04. Statutory Authority: RCW 49.17.010, .040, .050. 00-17-033 (Order 01-14), § 296-307-14505, filed 08/08/01, effective 09/01/01. Recodified as § 296-307-14505. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-14505, filed 10/31/96, effective 12/1/96.]

WAC 296-307-14510 Sample pesticide storage record.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 04-13-129 (Order 04-15), § 296-307-14510, filed 06/22/04, effective 08/01/04. Statutory Authority: Chapter 49.17 RCW. 96-22-048 (Order 96-10) §296-306A-14510 filed 10/31/96, effective 12/1/96.]

Part J-1 Cholinesterase Monitoring.

WAC 296-307-148 Scope and summary.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-148, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-24-105 (Order 02-05), § 296-307-148, filed 12/03/03, effective 02/01/04].

WAC 296-307-14805 Maintain handling records for covered pesticides.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-14805, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 06-01074 (Order 05-32, § 296-307-14805, filed 12/20/2005, effective 02/01/2006. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-24-105 (Order 02-05), § 296-307-14805, filed 12/03/03, effective 02/01/04].

WAC 296-307-14810 Implement a medical monitoring program.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-14810, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 06-01074 (Order 05-32, § 296-307-14810, filed 12/20/2005, effective 02/01/2006. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-24-105 (Order 02-05), § 296-307-14810, filed 12/03/03, effective 02/01/04].

WAC 296-307-14815 Identify a physician or other licensed health care professional.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-14815, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 06-01074 (Order 05-32, § 296-307-14815, filed 12/20/2005, effective 02/01/2006. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-24-105 (Order 02-05), § 296-307-14815, filed 12/03/03, effective 02/01/04].

WAC 296-307-14820 Make cholinesterase testing available.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-14820, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 06-01074 (Order 05-32, § 296-307-14820, filed 12/20/2005, effective 02/01/2006. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-24-105 (Order 02-05), § 296-307-14820, filed 12/03/03, effective 02/01/04].

WAC 296-307-14825 Respond to depressed cholinesterase levels.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-14825, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 06-01074 (Order 05-32, § 296-307-14825, filed 12/20/2005, effective 02/01/2006. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-24-105 (Order 02-05), § 296-307-14825, filed 12/03/03, effective 02/01/04].

WAC 296-307-14830 Provide medical removal protection benefits.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-14830, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 06-01074 (Order 05-32, § 296-307-14830, filed 12/20/2005, effective 02/01/2006. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-24-105 (Order 02-05), § 296-307-14830, filed 12/03/03, effective 02/01/04].

WAC 296-307-14835 Maintain records.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-14835, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-24-105 (Order 02-05), § 296-307-14835, filed 12/03/03, effective 02/01/04].

WAC 296-307-14840 Provide training.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-14840, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-24-105 (Order 02-05), § 296-307-14840, filed 12/03/03, effective 02/01/04].

WAC 296-307-14845 Implementation Plan.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-14845, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-24-105 (Order 02-05), § 296-307-14845, filed 12/03/03, effective 02/01/04].

Part K Working Near Overhead Lines.

WAC 296-307-150 Employees working near overhead lines.

[Recodified as § 296-307-150. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-150, filed 10/31/96, effective 12/1/96.]

WAC 296-307-15003 Scope.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-15003, filed 10/20/2020, effective 11/20/2020. Statutory Authority: 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-15003, filed 12/08/98, effective 03/01/99. [Recodified as § 296-307-15003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-15003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-15006 Clearance and safeguards required to protect employees working near overhead lines.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-15006, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-15006. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-15006, filed 10/31/96, effective 12/1/96.]

WAC 296-307-15009 Signs an employer must post to warn employees working near overhead lines.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-15009, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Recodified as § 296-307-15009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-15009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-15012 The employer must notify the utility when employees are working near overhead lines.

[Statutory Authority: Statutory Authority: 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-15003, filed 12/08/98, effective 03/01/99. [Recodified as § 296-307-15003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-15003, filed 10/31/96, effective 12/1/96.]

Part L Temporary Worker Housing (TWH)

WAC 296-307-161 Temporary worker housing.

[Statutory Authority: RCW 49.17.010, .040, .050, and RCW 49.17.060.15-13-092 (Order 14-13), § 296-307-161, filed 06/16/15, effective 07/16/15. Statutory Authority: RCW 49.17.010, .040, .050. 00-06-081 (Order 99-28), § 296-307-161, filed 03/01/00, effective 03/01/00.]

WAC 296-307-16101 Purpose and applicability.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-16101, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and RCW 49.17.060.15-13-092 (Order 14-13), § 296-307-16101, filed 06/16/15, effective 07/16/15. Statutory Authority: RCW 49.17.010, .040, .050. 00-06-081 (Order 99-28), § 296-307-16101, filed 03/01/00, effective 03/01/00.]

WAC 296-307-16102 Additional requirements to protect occupants in temporary worker housing from 2019 novel coronavirus (COVID-19) exposure.

[Statutory Authority: RCW 49.17.010, .040, .050, .060, and RCW 49.17.240. WSR 22-04-017 (Order 22-03), § 296-307-16102, filed 01/21/22, effective 01/21/22. Statutory Authority: RCW 49.17.010, .49.17.040, 49.17.050, 49.17.060 and 49.17.240. 21-20-023 (Order 21-38), § 296-307-16102, filed 09/25/21, effective 09/25/21. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060. 21-12-080 (Order 21-17), § 296-307-16102, filed 05/28/2021, effective 05/28/2021. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060. 20-19-049 (Order), § 296-307-16102, filed 09/10/2020, effective 09/10/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 20-11.025 (Order 20-09), § 296-307-16102, filed 05/13/20, effective 05/18/20. Statutory Authority: RCW 49.17.010, .040, .050. 00-06-081 (Order 99-28), § 296-307-16102, filed 03/01/00, effective 03/01/00.]

WAC 296-307 16103 Definitions.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050 and RCW 49.17.060. 23-19-073 (Order 20-24) § 296-307-16103, filed 09/19/23, effective 11/01/23. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-16103, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and RCW 49.17.060.15-13-092 (Order 14-13), § 296-307-16103, filed 06/16/15, effective 07/16/15. Statutory Authority: RCW 49.17.010, .040, .050. 00-06-081 (Order 99-28), § 296-307-16103, filed 03/01/00, effective 03/01/00.]

WAC 296-307-16104 Technical assistance-Notice of violation.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-16104, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and RCW 49.17.060.15-13-092 (Order 14-13), § 296-307-16104, filed 06/16/15, effective 07/16/15.]

WAC 296-307-16115 Maximum capacity for TWH occupants.

[Statutory Authority: RCW 49.17.010, .040, .050, and RCW 49.17.060.15-13-092 (Order 14-13), § 296-307-16115, filed 06/16/15, effective 01/01/16. Statutory Authority: RCW 49.17.010, .040, .050. 00-06-081 (Order 99-28), § 296-307-16115, filed 03/01/00, effective 03/01/00.]

WAC 296-307-16120 Variance and procedure.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-16120, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and RCW 49.17.060.15-13-092 (Order 14-13), § 296-307-16120, filed 06/16/15, effective 07/16/15. Statutory Authority: RCW 49.17.010, .040, .050. 00-06-081 (Order 99-28), § 296-307-16120, filed 03/01/00, effective 03/01/00.]

WAC 296-307-16125 Temporary worker housing sites and cherry harvest campsites.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-16125, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and RCW 49.17.060.15-13-092 (Order 14-13), § 296-307-16125, filed 06/16/15, effective 07/16/15. Statutory Authority: RCW 49.17.010, .040, .050. 00-06-081 (Order 99-28), § 296-307-16125, filed 03/01/00, effective 03/01/00.]

WAC 296-307-16127 TWH management plan.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050 and RCW 49.17.060. 23-19-073 (Order 20-24) § 296-307-16127, filed 09/19/23, effective 11/01/23. RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-16127, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and RCW 49.17.060.15-13-092 (Order 14-13), § 296-307-16127, filed 06/16/15, effective 01/01/16.]

WAC 296-307-16130 Water supply.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-16130, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and RCW 49.17.060.15-13-092 (Order 14-13), § 296-307-16130, filed 06/16/15, effective 07/16/15. Statutory Authority: RCW 49.17.010, .040, .050. 00-06-081 (Order 99-28), § 296-307-16130, filed 03/01/00, effective 03/01/00.]

WAC 296-307-16135 Sewage disposal.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-16135, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and RCW 49.17.060.15-13-092 (Order 14-13), § 296-307-16135, filed 06/16/15, effective 07/16/15. Statutory Authority: RCW 49.17.010, .040, .050. 00-06-081 (Order 99-28), § 296-307-16135, filed 03/01/00, effective 03/01/00.]

WAC 296-307-16140 Electricity and lighting.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-16140, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and RCW 49.17.060.15-13-092 (Order 14-13), § 296-307-16140, filed 06/16/15, effective 01/01/16. Statutory Authority: RCW 49.17.010, .040, .050. 00-06-081 (Order 99-28), § 296-307-16140, filed 03/01/00, effective 03/01/00.]

WAC 296-307-16145 Building requirements and maintenance.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-16145, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and RCW 49.17.060.15-13-092 (Order 14-13), § 296-307-16145, filed 06/16/15, effective 01/01/16. Statutory Authority: RCW 49.17.010, .040, .050. 00-06-081 (Order 99-28), § 296-307-16145, filed 03/01/00, effective 03/01/00.]

WAC 296-307-16146 Ventilation.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050 and RCW 49.17.060. 23-19-073 (Order 20-24) § 296-307-16146, filed 09/19/23, effective 11/01/23.]

WAC 296-307-16147 Tents.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050 and RCW 49.17.060. 23-19-073 (Order 20-24) § 296-307-16147, filed 09/19/23, effective 11/01/23. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-16147, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and RCW 49.17.060.15-13-092 (Order 14-13), § 296-307-16147, filed 06/16/15, effective 01/01/16.]

WAC 296-307-16149 Carbon monoxide alarms, smoke detectors, and fire extinguishers.

[Statutory Authority: RCW 49.17.010, .040, .050, and RCW 49.17.060.15-13-092 (Order 14-13), § 296-307-16149, filed 06/16/15, effective 01/01/16.]

WAC 296-307-16150 Laundry facilities.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-16150, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and RCW 49.17.060.15-13-092 (Order 14-13), § 296-307-16150, filed 06/16/15, effective 07/16/15. Statutory Authority: RCW 49.17.010, .040, .050. 00-06-081 (Order 99-28), § 296-307-16150, filed 03/01/00, effective 03/01/00.]

WAC 296-307-16155 Handwashing and bathing facilities.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-16155, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and RCW 49.17.060.15-13-092 (Order 14-13), § 296-307-16155, filed 06/16/15, effective 01/01/16. Statutory Authority: RCW 49.17.010, .040, .050. 00-06-081 (Order 99-28), § 296-307-16155, filed 03/01/00, effective 03/01/00.]

WAC 296-307-16160 Toilet facilities.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-16160, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and RCW 49.17.060.15-13-092 (Order 14-13), § 296-307-16160, filed 06/16/15, effective 01/01/16. Statutory Authority: RCW 49.17.010, .040, .050. 00-06-081 (Order 99-28), § 296-307-16160, filed 03/01/00, effective 03/01/00.]

WAC 296-307-16165 Cooking and food handling facilities.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-16165, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and RCW 49.17.060.15-13-092 (Order 14-13), § 296-307-16165, filed 06/16/15, effective 01/01/16. Statutory Authority: RCW 49.17.010, .040, .050. 00-06-081 (Order 99-28), § 296-307-16165, filed 03/01/00, effective 03/01/00.]

WAC 296-307-16170 Cots, beds, bedding, and personal storage.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-16170, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and RCW 49.17.060.15-13-092 (Order 14-13), § 296-307-16170, filed 06/16/15, effective 01/01/16. Statutory Authority: RCW 49.17.010, .040, .050. 00-06-081 (Order 99-28), § 296-307-16170, filed 03/01/00, effective 03/01/00.]

WAC 296-307-16175 First aid and safety.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-16175, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and RCW 49.17.060.15-13-092 (Order 14-13), § 296-307-16175, filed 06/16/15, effective 07/16/15. Statutory Authority: RCW 49.17.010, .040, .050. 00-06-081 (Order 99-28), § 296-307-16175, filed 03/01/00, effective 03/01/00.]

WAC 296-307-16180 Refuse waste disposal.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-16180, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and RCW 49.17.060.15-13-092 (Order 14-13), § 296-307-16180, filed 06/16/15, effective 01/01/16. Statutory Authority: RCW 49.17.010, .040, .050. 00-06-081 (Order 99-28), § 296-307-16180, filed 03/01/00, effective 03/01/00.]

WAC 296-307-16185 Insect and rodent control.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-16185, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050. 00-06-081 (Order 99-28), § 296-307-16185, filed 03/01/00, effective 03/01/00.]

WAC 296-307-16190 Disease prevention and control.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050 and RCW 49.17.060. 23-19-073 (Order 20-24) § 296-307-16190, filed 09/19/23, effective 11/01/23. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-16190, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and RCW 49.17.060.15-13-092 (Order 14-13), § 296-307-16190, filed 06/16/15, effective 07/16/15. Statutory Authority: RCW 49.17.010, .040, .050. 00-06-081 (Order 99-28), § 296-307-16190, filed 03/01/00, effective 03/01/00.]

Part M Guarding Tools, Farm Shops, Materials Handling.

WAC 296-307-18005 Guarding fan blades.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-18005, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-18005, filed 12/01/98, effective 03/01/99.]

WAC 296-307-18010 Guarding constant-running drives.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-18010, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-18010, filed 12/01/98, effective 03/01/99.]

WAC 296-307-18015 Training an employer must provide for employees who use agricultural equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-18015, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-18015, filed 12/01/98, effective 03/01/99.]

WAC 296-307-18020 Machine controls.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-18020, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-18020, filed 12/01/98, effective 03/01/99.]

WAC 296-307-18025 Steam pipe guarding.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-18025, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-18025, filed 12/01/98, effective 03/01/99.]

WC 296-307-185 Powered saws.

[Statutory Authority: Recodified as § 296-307-185. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-185, filed 10/31/96, effective 12/1/96.]

WAC 296-307-18503 Powered saws.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-18503, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-18503, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-18503. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-18503, filed 10/31/96, effective 12/1/96.]

WAC 296-307-18506 Guarding band saws.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-18506, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-18506, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-18506. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-18506, filed 10/31/96, effective 12/1/96.]

WAC 296-307-18509 Guarding radial arm saws.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-18509, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-18509, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-18509. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-18509, filed 10/31/96, effective 12/1/96.]

WAC 296-307-18512 Guarding table saws.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-18512, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-18512, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-18512. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-18512, filed 10/31/96, effective 12/1/96.]

WAC 296-307-18515 Guarding circular fuel-wood saws.

[Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-18515, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-18515. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-18515, filed 10/31/96, effective 12/1/96.]

WAC 296-307-190 Guarding bench grinders, abrasive wheels, and portable grinders.

[Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-190, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-190. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-190, filed 10/31/96, effective 12/1/96.]

WAC 296-307-19003 Definitions that apply to this section.

[Statutory Authority: Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-19003, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-19003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-19003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-19006 Guarding abrasive wheels.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-19006, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-19006, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-19006. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-19006, filed 10/31/96, effective 12/1/96.]

WAC 296-307-19009 The use, mounting, and guarding rules for abrasive wheels.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-19009, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-19009, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-19009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-19009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-19012 Flanges.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-19012, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-19012, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-19012. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-19012, filed 10/31/96, effective 12/1/96.]

WAC 296-307-19015 Guarding vertical portable grinders.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-19015, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-19015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-19015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-19018 Guarding other portable grinders.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-19018, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-19018. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-19018, filed 10/31/96, effective 12/1/96.]

WAC 296-307-195 Grounding and “dead man” controls for hand-held portable power tools.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-195, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-195. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-195, filed 10/31/96, effective 12/1/96.]

WAC 296-307-200 Compressed air.

[Recodified as § 296-307-200. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-200, filed 10/31/96, effective 12/1/96.]

WAC 296-307-20005 Compressed air for cleaning.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-20005, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-20005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-20005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-20010 Compressed air tools.

Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-20010, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-20005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-20005, filed 10/31/96, effective 12/1/96.] Recodified as § 296-307-20010. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-20010, filed 10/31/96, effective 12/1/96.]

WAC 296-307-205 Guarding portable powered tools.

[Statutory Authority: Recodified as § 296-307-205. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-205, filed 10/31/96, effective 12/1/96.]

WAC 296-307-20505 Guarding portable powered tools.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-20505, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-20505, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-20505. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-20505, filed 10/31/96, effective 12/1/96.]

WAC 296-307-20510 Switches and controls on portable powered tools.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-20510, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-20510. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-20510, filed 10/31/96, effective 12/1/96.]

WAC 296-307-20515 Pneumatic powered tools and hose.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-20515, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-20515. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-20515, filed 10/31/96, effective 12/1/96.]

WAC 296-307-220 Powered lawnmowers.

[Recodified as § 296-307-220. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-220, filed 10/31/96, effective 12/1/96.]

WAC 296-307-22003 Definitions that apply to this section.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-22003, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-22003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-22003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-22006 Guarding power lawnmowers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-22006, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-22006. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-22006, filed 10/31/96, effective 12/1/96.]

WAC 296-307-22009 Walk-behind and riding rotary mowers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-22009, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-22009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-22009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-22012 Walk-behind rotary mowers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-22012, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-22012, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-22012. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-22012, filed 10/31/96, effective 12/1/96.]

WAC 296-307-22015 Riding rotary mowers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-22015, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-22015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-22015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-225 Jacks.

[Recodified as § 296-307-225. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-225, filed 10/31/96, effective 12/1/96.]

WAC 296-307-22503 Definitions that apply to this section.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-22503, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-22503. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-22503, filed 10/31/96, effective 12/1/96.]

WAC 296-307-22506 The rated load must be marked on a jack.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-22506, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-22506. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-22506, filed 10/31/96, effective 12/1/96.]

WAC 296-307-22509 Operation and maintenance of jacks.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-22509, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-22509, filed 12/01/98, effective 03/01/99. [Recodified as § 296-307-22509. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-22509, filed 10/31/96, effective 12/1/96.]

WAC 296-307-230 General requirements for materials handling and storage.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-230, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-230, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-230. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-230, filed 10/31/96, effective 12/1/96.]

WAC 296-307-232 Conveyors.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-232, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-232, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-232. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-232, filed 10/31/96, effective 12/1/96.]

Part N Sanitation for Indoor Workplaces.

WAC 296-307-240 Sanitation for fixed, indoor workplaces.

[Recodified as § 296-307-240. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-240, filed 10/31/96, effective 12/1/96.]

WAC 296-307-24001 The employer must comply with state health regulations.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-24001, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-24001. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-24001, filed 10/31/96, effective 12/1/96.]

WAC 296-307-24003 Scope.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-24003, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-24003, filed 12/01/98, effective 03/01/99. [Recodified as § 296-307-24003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-24003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-24006 Definitions that apply to this section.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-24006, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-24006. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-24006, filed 10/31/96, effective 12/1/96.]

WAC 296-307-24009 Housekeeping requirements that apply to fixed, indoor workplaces.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-24009, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-24009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-24009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-24012 Maintenance of the potable water supply.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-24012, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-24012. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-24012, filed 10/31/96, effective 12/1/96.]

296-307-24015 Maintenance of nonpotable water supply.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-24015, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-24015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-24015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-24018 Toilet facilities.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-24018, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-24018. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-24018, filed 10/31/96, effective 12/1/96.]

WAC 296-307-24021 Employer provided washing facilities.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-24021, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-24021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-24021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-24024 Lavatories.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-24024, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-24024. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-24024, filed 10/31/96, effective 12/1/96.]

WAC 296-307-24027 Employer provided change rooms.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-24027, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-24027. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-24027, filed 10/31/96, effective 12/1/96.]

WAC 296-307-24030 Consumption of food and beverages in the workplace.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-24030, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-24030. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-24030, filed 10/31/96, effective 12/1/96.]

WAC 296-307-24033 Waste storage and removal.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-24033, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-24033. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-24033, filed 10/31/96, effective 12/1/96.]

WAC 296-307-24036 Employer vermin control programs.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-24036, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-24036. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-24036, filed 10/31/96, effective 12/1/96.]

Part O Walking Working Surfaces, Fixed Industrial Stairs, Aerial Manlifts.

WAC 296-307-250 Walking working surfaces, elevated walkways, and platforms.

[Recodified as § 296-307-250. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-250, filed 10/31/96, effective 12/1/96.]

WAC 296-307-25003 Definitions that apply to this section.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-25003, filed 02/02/2021, effective 03/08/2021. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 20-12-091 (Order 19-05) § 296-307-25003, filed 06/02/2020, effective 10/01/2020. Recodified as § 296-307-25003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-25003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-25006 When railings be omitted.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-25006, filed 02/02/2021, effective 03/08/2021. Recodified as § 296-307-25006. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-25006, filed 10/31/96, effective 12/1/96.]

WAC 296-307-25009 Protection an employer must provide for floor openings.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-25009, filed 02/02/2021, effective 03/08/2021. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 20-12-091 (Order 19-05) § 296-307-25009, filed 06/02/2020, effective 10/01/2020. Recodified as § 296-307-25009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-25009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-25012 Protection an employer must provide for wall openings and holes.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-25012, filed 02/02/2021, effective 03/08/2021. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 20-12-091 (Order 19-05) § 296-307-25012, filed 06/02/2020, effective 10/01/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-25012, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-25012. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-25012, filed 10/31/96, effective 12/1/96.]

WAC 296-307-25015 Protection an employer must provide for open-sided floors, platforms, and runways.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-25015, filed 02/02/2021, effective 03/08/2021. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 20-12-091 (Order 19-05) § 296-307-250015, filed 06/02/2020, effective 10/01/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-25015, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-25015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-25015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-25018 Requirements that apply to stairway railings and guards.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-25018, filed 02/02/2021, effective 03/08/2021. Recodified as § 296-307-25018. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-25018, filed 10/31/96, effective 12/1/96.]

WAC 296-307-25021 Standard railing construction.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-25021, filed 02/02/2021, effective 03/08/2021. Recodified as § 296-307-25021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-25021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-25024 Stair railing construction.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-25024, filed 02/02/2021, effective 03/08/2021. Recodified as § 296-307-25024. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-25024, filed 10/31/96, effective 12/1/96.]

WAC 296-307-25027 Requirements for railing dimensions.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-25027, filed 02/02/2021, effective 03/08/2021. Recodified as § 296-307-25027. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-25027, filed 10/31/96, effective 12/1/96.]

WAC 296-307-25030 Requirements that apply to toeboards.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-25030, filed 02/02/2021, effective 03/08/2021. Recodified as § 296-307-25030. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-25030, filed 10/31/96, effective 12/1/96.]

WAC 296-307-25033 Handrails and railings construction.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-25033, filed 02/02/2021, effective 03/08/2021. Recodified as § 296-307-25033. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-25033, filed 10/31/96, effective 12/1/96.]

WAC 296-307-25036 Materials for floor opening covers.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-25036, filed 02/02/2021, effective 03/08/2021. Recodified as § 296-307-25036. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-25036, filed 10/31/96, effective 12/1/96.]

WAC 296-307-25039 Construction and mounting skylight screens.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-25039, filed 02/02/2021, effective 03/08/2021. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 20-12-091 (Order 19-05) § 296-307-25039, filed 06/02/2020, effective 10/01/2020. Recodified as § 296-307-25039. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-25039, filed 10/31/96, effective 12/1/96.]

WAC 296-307-25042 Protection the employer is required to provide for openings.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-25042, filed 02/02/2021, effective 03/08/2021. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 20-12-091 (Order 19-05) § 296-307-25042, filed 06/02/2020, effective 10/01/2020. Recodified as § 296-307-25042. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-25042, filed 10/31/96, effective 12/1/96.]

WAC 296-307-260 Fixed industrial stairs.

[Recodified as § 296-307-260. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-260, filed 10/31/96, effective 12/1/96.]

WAC 296-307-26003 Scope.

[Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-26003, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-26003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-26003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-26006 Definitions that apply to this section.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-26006, filed 02/02/2021, effective 03/08/2021. Recodified as § 296-307-26006. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-26006, filed 10/31/96, effective 12/1/96.]

WAC 296-307-26009 How to determine if fixed stairs are required.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-26009, filed 02/02/2021, effective 03/08/2021. Recodified as § 296-307-26009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-26009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-26012 Spiral stairs.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-26012, filed 02/02/2021, effective 03/08/2021. Recodified as § 296-307-26012. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-26012, filed 10/31/96, effective 12/1/96.]

WAC 296-307-26015 Strength requirements for fixed stairs.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-26015, filed 02/02/2021, effective 03/08/2021. Recodified as § 296-307-26015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-26015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-26018 Width requirements for fixed stairs.

[Recodified as § 296-307-26018. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-26018, filed 10/31/96, effective 12/1/96.]

WAC 296-307-26021 Angle requirements for installing stairways.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-26021, filed 02/02/2021, effective 03/08/2021. Recodified as § 296-307-26021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-26021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-26024 Requirements that apply to stair treads.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-26024, filed 02/02/2021, effective 03/08/2021. Recodified as § 296-307-26024. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-26024, filed 10/31/96, effective 12/1/96.]

WAC 296-307-26027 Requirements that apply to the length of stairways.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-26027, filed 02/02/2021, effective 03/08/2021. Recodified as § 296-307-26027. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-26027, filed 10/31/96, effective 12/1/96.]

WAC 296-307-26030 Requirements that apply to railings and handrails on fixed stairs.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-26030, filed 02/02/2021, effective 03/08/2021. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-26030, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-26030. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-26030, filed 10/31/96, effective 12/1/96.]

WAC 296-307-26033 Requirements that apply to alternating tread-type stairs.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-26033, filed 02/02/2021, effective 03/08/2021. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-26033, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-26033. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-26033, filed 10/31/96, effective 12/1/96.]

WAC 296-307-26036 Other requirements that apply to fixed stairs.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-26036, filed 02/02/2021, effective 03/08/2021. Recodified as § 296-307-26036. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-26036, filed 10/31/96, effective 12/1/96.]

WAC 296-307-270 Aerial manlift equipment.

[Recodified as § 296-307-270. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-270, filed 10/31/96, effective 12/1/96.]

WAC 296-307-27005 Requirements that apply to aerial manlift equipment.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-27005, filed 02/02/2021, effective 03/08/2021. Recodified as § 296-307-27005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-27005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-27010 Requirements that apply to using aerial manlift equipment.

[Statutory Authority: RCW 49.17.010, .040, .050. 21-04-128 (Order 20-31), § 296-307-27010, filed 02/02/2021, effective 03/08/2021. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-27010, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-27010. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-27010, filed 10/31/96, effective 12/1/96.]

Part P Guarding Power Transmission Machinery

WAC 296-307-280 Guarding power transmission machinery.

Recodified as § 296-307-280. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-280, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28002 Power transmission belts covered by this section.

[Statutory Authority: Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28002, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-28002, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-28002. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28002, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28004 Definition of guarded by location.

[Statutory Authority: Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28004, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-28004. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28004, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28006 General requirements that apply to machine guarding.

[Statutory Authority: Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28006, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-28006, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-28006. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28006, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28014 Requirements that apply to prime-mover guards.

[Statutory Authority: Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28014, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-28014, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-28014. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28014, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28016 Guarding shafting.

[Statutory Authority: Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28016, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-28016, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-28016. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28016, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28018 Guarding pulleys.

[Statutory Authority: Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28018, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-28018, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-28018. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28018, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28020 Guarding horizontal belt, rope, and chain drives.

[Statutory Authority: Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28020, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-28020, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-28020. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28020, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28022 Guarding overhead horizontal belt, rope, and chain drives.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28022, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-28022, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-28022. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28022, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28024 Guarding vertical and inclined belts.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28024, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-28024, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-28024. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28024, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28026 Guarding cone-pulley belts.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28026, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-28026. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28026, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28028 Guarding belt tighteners.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28028, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-28028. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28028, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28030 Guarding gears, sprockets, and chains.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28030, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-28030, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-28030. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28030, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28032 Guarding friction drives.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28032, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-28032. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28032, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28034 Guarding keys, set screws, and other projections.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28034, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-28034. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28034, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28036 Guarding collars and couplings.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28036, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-28036. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28036, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28038 Self-lubricating bearing.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28038, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-28038. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28038, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28040 Guarding clutches, cutoff couplings, and clutch pulleys.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28040, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-28040, filed 12/01/98, effective 03/01/99. [Recodified as § 296-307-28040. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28040, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28042 Guarding belt shifters, clutches, shippers, poles, perches, and fasteners.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28042, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-28042, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-28042. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28042, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28044 Materials required to use standard guards.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28044, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-28044. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28044, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28046 Manufacturing standard guards.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28046, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-28046. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28046, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28048 Disk, shield, and U-guards.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28048, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-28048, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-28048. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28048, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28050 Materials used for guards.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28050, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-28050. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28050, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28052 Wood guards.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28052, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-28052, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-28052. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28052, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28054 Materials used for guarding horizontal overhead belts.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28054, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-28054. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28054, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28056 Clearance maintained between guards and power transmission machinery.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28056, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-28056. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28056, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28058 Construction of overhead rope and chain-drive guards.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28058, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-28058. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28058, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28060 Materials used for guardrails and toeboards.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28060, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-28060, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-28060. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28060, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28062 Shafting maintenance.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28062, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-28062. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28062, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28064 Pulley maintenance.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28064, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-28064. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28064, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28066 Belt maintenance.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28066, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-28066. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28066, filed 10/31/96, effective 12/1/96.]

WAC 296-307-28068 Maintenance for other equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-28068, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-28068. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-28068, filed 10/31/96, effective 12/1/96.]

WAC 296-307-290 Auger conveying equipment.

[Recodified as § 296-307-290. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-290, filed 10/31/96, effective 12/1/96.]

WAC 296-307-29005 Requirements that apply to auger conveying equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-29005, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-29005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-29005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-29010 Other requirements that apply to auger conveying equipment manufactured after October 25, 1976.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-29010, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-29010. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-29010, filed 10/31/96, effective 12/1/96.]

WAC 296-307-300 Guarding farmstead equipment.

[Recodified as § 296-307-300. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-300, filed 10/31/96, effective 12/1/96.]

WAC 296-307-30003 Scope.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-30003, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-30003, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-30003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-30003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-30006 Guarding power takeoff shafts of farmstead equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-30006, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-30006. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-30006, filed 10/31/96, effective 12/1/96.]

WAC 296-307-30009 Guarding other power transmission components of farmstead equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-30009, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-30009, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-30009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-30009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-30012 Guarding functional components of farmstead equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-30012, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-30012. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-30012, filed 10/31/96, effective 12/1/96.]

WAC 296-307-30015 Removing guards on farmstead equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-30015, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-30015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-30015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-30018 Requirements that apply to electrical control used for maintaining and servicing farmstead equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-30018, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-30018, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-30018. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-30018, filed 10/31/96, effective 12/1/96.]

WAC 296-307-30021 Additional guarding requirements that apply to farmstead equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-30021, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-30021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-30021, filed 10/31/96, effective 12/1/96.]

Part Q Control of Hazardous Energy (Lockout-Tagout).

WAC 296-307-320 Control of hazardous energy (lockout-tagout).

[Recodified as § 296-307-320. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-320, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32001 Scope.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-32001, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-32001. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 97-08-051A, § 296-306A-32001, filed 3/31/97, effective 5/1/97; 96-22-048, § 296-306A-32001, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32003 Operations not in scope.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-32003, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-32003, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-32003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-32003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32005 Definitions that apply to this section.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-32005, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-32005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-32005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32007 Required elements of an energy control program.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-32007, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-32007. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-32007, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32009 Employer requirements for determining when to use lockout vs. tagout.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-32009, filed 10/20/2020, effective 11/20/2020. RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-32009, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-32009, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-32009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-32009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32011 Requirements that must be met to substitute tagout for lockout.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-32011, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-32011. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-32011, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32013 Required elements for energy control procedures.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-32013, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-32013. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-32013, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32015 Requirements that apply to lockout and tagout devices and materials.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-32015, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-32015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-32015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32017 Inspecting the energy control procedure.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-32017, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-32017, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-32017. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-32017, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32019 General requirements that apply to energy control program training and communication.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-32019, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-32019. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-32019, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32021 Additional requirements that apply to tagout training and communication.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-32021, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-32021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-32021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32023 Employee retraining.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-32023, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-32023. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-32023, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32025 Retention of training records.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-32025, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-32025. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-32025, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32027 Qualifications to perform lockout or tagout.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-32027, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-32027. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-32027, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32029 Notification of lockout and tagout.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-32029, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-32029. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-32029, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32031 Order of events for lockout or tagout procedures.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-32031, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-32031. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-32031, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32033 Order of events to be followed to remove lockout or tagout devices.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-32033, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-32033. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-32033, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32035 Testing and positioning machines and equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-32035, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-32035, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-32035. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-32035, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32037 Outside servicing contractors.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-32037, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-32037. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-32037, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32039 Group lockout or tagout.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-32039, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-32039, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-32039. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-32039, filed 10/31/96, effective 12/1/96.]

WAC 296-307-32041 Lockout/tagout during shift changes.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-32041, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-32041. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-32041, filed 10/31/96, effective 12/1/96.]

Part R Safety Color Coding; Accident Prevention Signs and Tags.

WAC 296-307-330 Safety color coding; accident prevention signs and tags.

[Recodified as § 296-307-330. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-330, filed 10/31/96, effective 12/1/96.]

WAC 296-307-33001 Definitions.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-33001, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-33001. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-33001, filed 10/31/96, effective 12/1/96.]

WAC 296-307-33003 Use of red in safety color coding.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-33003, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-33003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-33003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-33005 Use of yellow in safety color coding.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-33005, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-33005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-33005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-33007 Use of “danger” versus “caution” on signs and tags.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-33007, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-33007. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-33007, filed 10/31/96, effective 12/1/96.]

WAC 296-307-30009 Design and color specifications for accident prevention signs.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-33009, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-33009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-33009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-33011 Proper uses of accident prevention tags.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-33011, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-33011. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-33011, filed 10/31/96, effective 12/1/96.]

Part S Fire Protection, Exit Routes.

WAC 296-307-340 Portable fire extinguishers.

[Recodified as § 296-307-340. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-340, filed 10/31/96, effective 12/1/96.]

WAC 296-307-34003 Scope.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-34003, filed 10/20/2020, effective 11/20/2020. RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-34003, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-34003, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-34003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-34003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-34006 Exemption from the requirements of this section.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-34006, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-34006, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-34006. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-34006, filed 10/31/96, effective 12/1/96.]

WAC 296-307-34009 Portable fire extinguishers.

[Recodified as § 296-307-34009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-34009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-34012 Selection and distribution of portable fire extinguishers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-34012, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-34012. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-34012, filed 10/31/96, effective 12/1/96.]

WAC 296-307-34015 Inspection, maintenance and testing of portable fire extinguishers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-34015, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-34015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-34015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-34018 Hydrostatic testing.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-34018, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-34018. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-34018, filed 10/31/96, effective 12/1/96.]

WAC 296-307-34021 Training requirements for portable fire extinguishers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-34021, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-34021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-34021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-345 Employee alarm systems.

[Recodified as § 296-307-345. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-345, filed 10/31/96, effective 12/1/96.]

WAC 296-307-34503 Scope.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-34503, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-34503, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-34503. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-34503, filed 10/31/96, effective 12/1/96.]

WAC 296-307-34506 Employee alarm systems.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-34506, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-34506. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-34506, filed 10/31/96, effective 12/1/96.]

WAC 296-307-34509 Installation and restoration requirements for employee alarm systems.

Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-34509, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-34509. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-34509, filed 10/31/96, effective 12/1/96.]

WAC 296-307-34512 Employee alarm systems maintenance and testing.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-34512, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-34512. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-34512, filed 10/31/96, effective 12/1/96.]

WAC 296-307-34515 Location(s) of manually operated devices.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-34515, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-34515. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-307-34515, filed 10/31/96, effective 12/1/96.]

WAC 296-307-350 Exit routes.

[Recodified as § 296-307-350. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-350, filed 10/31/96, effective 12/1/96.]

WAC 296-307-35003 Scope.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-35003, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-35003, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-35003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-35003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-35006 Definitions that apply to this section.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-35006, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-35006. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-35006, filed 10/31/96, effective 12/1/96.]

WAC 296-307-35009 Design requirements for exit routes.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-35009, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, 040, .050, and .060. 11-04-080 Order (10-41), § 296-307-35009, filed 02/01/11, effective 04/01/11. Recodified as § 296-307-35009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-35009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-35012 Operation and maintenance requirements for exit routes.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-35012, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-35012, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-35012. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-35012, filed 10/31/96, effective 12/1/96.]

WAC 296-307-35015 Emergency action plan.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-35015, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-35015, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-35015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-35015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-35018 Fire prevention plan.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-35018, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-35018, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-35018. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-35018, filed 10/31/96, effective 12/1/96.]

Part T Electrical.

WAC 296-307-360 Electrical.

[Recodified as § 296-307-360. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-360, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36005 Scope.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36005, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-36005, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-36005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36010 Definitions that apply to this part.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36010, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36010. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36010, filed 10/31/96, effective 12/1/96.]

WAC 296-307-362 General electrical requirements.

[Recodified as § 296-307-362. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-362, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36203 The following electrical equipment must be approved.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36203, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36203. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36203, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36206 Determining electrical equipment safety.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36206, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36206. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36206, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36209 Guarding live parts.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36209, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36209. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36209, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36212 Workspace that must be provided by the employer.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36212, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36212. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36212, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36215 Splices.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36215, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36215. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36215, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36218 Protection provided against combustible materials.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36218, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36218. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36218, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36221 Marking electrical equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36221, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36221. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36221, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36224 Marking disconnecting means.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36224, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36224. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36224, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36227 Access and working space for electrical equipment of 600 volts, nominal, or less.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36227, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36227. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36227, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36230 Access and working space for electrical equipment over 600 volts, nominal.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36230, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-36230, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-36230. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36230, filed 10/31/96, effective 12/1/96.]

WAC 296-307-364 Electrical installation and maintenance.

[Recodified as § 296-307-364. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-364, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36403 Installation and maintenance of flexible cords and cables.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36403, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36403. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36403, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36406 Installation and maintenance of attachment plugs and receptacles.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36406, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36406. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36406, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36409 Safety measures employees must take when equipment causes electrical shock.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36409, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36409. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36409, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36412 Grounding and bonding requirements that apply to equipment installation and maintenance.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36412, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36412. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36412, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36415 Disconnecting means.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36415, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36415. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36415, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36418 Identification and load rating of electrical equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36418, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36418. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36418, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36421 Installing equipment in wet locations.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36421, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36421. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36421, filed 10/31/96, effective 12/1/96.]

WAC 296-307-366 Wiring design and protection.

[Recodified as § 296-307-366. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-366, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36603 Use and identification of grounded and grounding conductors.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36603, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36603. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36603, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36606 Ampere rating for outlet devices.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36606, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36606. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36606, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36609 Conductors.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36609, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36609. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36609, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36612 Design and protection requirements that apply to service-entrances.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36612, filed 10/20/2020, effective 11/20/2020.

Recodified as § 296-307-36612. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36612, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36615 Overcurrent protection.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36615, filed 10/20/2020, effective 11/20/2020. RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36615, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36615. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36615, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36618 Grounding for premises wiring systems.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36618, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36618. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36618, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36621 Grounding the conductor in AC premises wiring.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36621, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36621. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36621, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36624 General requirements that apply to grounding conductors.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36624, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36624. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36624, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36627 Continuous path to ground.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36627, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36627. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36627, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36630 Grounding supports, enclosures and equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36630, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36630. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36630, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36633 Grounding fixed equipment

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36633, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36633. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36633, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36636 Grounding high voltage systems.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36636, filed 10/20/2020, effective 11/20/2020. Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-36636, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-36636. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36636, filed 10/31/96, effective 12/1/96.]

WAC 296-307-368 Wiring methods, components, and equipment for general use.

[Recodified as § 296-307-368. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-368, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36803 Factory-assembled equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36803, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-36803, filed 12/01/98, effective 03/01/99. [Recodified as § 296-307-36803. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-307-36803, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36806 Temporary wiring.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36806, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36086. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-307-36806, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36809 Cable trays.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36809, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36809. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36809, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36812 Open wiring on insulators.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36812, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36812. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36812, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36815 Wiring requirements that apply to cabinets, boxes, and fittings.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36815, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36815. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36815, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36818 Switches.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36818, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36818. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36818, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36821 Locations of switchboards and panelboards.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36821, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36821. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36821, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36824 Insulating conductors.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36824, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36824. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36824, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36827 Use of flexible cords and cables.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36827, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36827. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36827, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36830 Identification, slicing and termination of flexible cords and cables.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36830, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36830. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36830, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36833 Multiconductor portable cable.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36833, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36833. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36833, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36836 Use of fixture wires.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36836, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36836. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36836, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36839 Wiring for lighting fixtures, lampholders, lamps, and receptacles.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36839, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36839. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36839, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36842 Wiring for receptacles, cord connectors, and attachment plugs (caps).

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36842, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36842. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36842, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36845 Wiring for appliances.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36845, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36845. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36845, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36848 Wiring for motors, motor circuits, and controllers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36848, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36848. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36848, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36851 Wiring for transformers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36851, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36851. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36851, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36854 Wiring for capacitors.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36854, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36854. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36854, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36857 Ventilation for stored batteries.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36857, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36857. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36857, filed 10/31/96, effective 12/1/96.]

WAC 296-307-36860 Miscellaneous requirements that apply to wiring methods.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-36860, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-36860. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-36860, filed 10/31/96, effective 12/1/96.]

WAC 296-307-370 Special purpose equipment and installations.

[Recodified as § 296-307-370. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-370, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37003 Cranes, hoists, and runways.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37003, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-37003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37006 Elevators, dumbwaiters, escalators, and moving walks.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37006, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-37006. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37006, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37009 Disconnecting means for electric welders.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37009, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-37009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37012 Electrically driven or controlled irrigation machines.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37012, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-37012. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37012, filed 10/31/96, effective 12/1/96.]

WAC 296-307-372 Hazardous (classified) locations.

[Recodified as § 296-307-372. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-372, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37203 Scope.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37203, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-37203, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-37203. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37203, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37206 Classifications that apply to this section.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37206, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-37206. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37206, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37209 Equipment, wiring methods, and installations in hazardous locations.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37209, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-37209, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-37209. 97-09-013, filed 4/7/97, effective 4/7/97.

Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37209, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37212 Installing conduit in hazardous locations.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37212, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-37212. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37206, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37215 Equipment to be used in Division 1 and 2 locations.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37215, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-37215. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37215, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37218 Motors and generators used in hazardous locations.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37218, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-37218. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37218, filed 10/31/96, effective 12/1/96.]

WAC 296-307-374 Special systems.

[Recodified as § 296-307-374. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-374, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37403 Systems over 600 volts, nominal.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37403, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-37403. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37403, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37406 Emergency power systems.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37406, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-37406. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37406, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37409 Classification of Class 1, Class 2, and Class 3 remote control, signaling, and power-limited circuits.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37409, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-37409. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37409, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37412 Fire protective signaling systems.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37412, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-37412. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37412, filed 10/31/96, effective 12/1/96.]

WAC 296-307-376 Working on or near exposed energized parts.

[Recodified as § 296-307-376. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-376, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37603 Scope.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37603, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-37603, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-37603. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37603, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37606 Qualified person working on energized parts.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37606, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-37606, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-37606. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37606, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37609 Working near low voltage lines.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37609, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-37609. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37609, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37612 Qualified persons working near overhead lines.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37612, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-37612. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37609, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37615 Vehicles and mechanical equipment near overhead lines.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37615, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-37615, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-37615. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37615, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37618 Lighting for employees working near exposed energized parts.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37618, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-37618. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37618, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37621 Working near exposed energized parts in confined spaces.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37621, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-37621. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37621, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37624 Housekeeping requirements that apply to working near exposed energized parts.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37624, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-37624. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37624, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37627 Qualified persons that may defeat an electrical safety interlock.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37627, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-37627. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37627, filed 10/31/96, effective 12/1/96.]

WAC 296-307-378 Safety-related work practices.

[Recodified as § 296-307-378. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-378, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37801 Scope.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37801, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-37801, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-37801. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37801, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37803 Training employees on safety practices.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37803, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-37803, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-37803. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37803, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37805 Information and use of safety-related work practices.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37805, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-37805. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37805, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37807 Work on exposed deenergized parts.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37807, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-37807, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-37807. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37807, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37809 An employer must have a written copy of lockout-tagout procedures.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37809, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-37809, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-37809. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37809, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37811 Deenergizing equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37811, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-37811. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37811, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37813 Application of locks and tags.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37813, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-37813. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37813, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37815 Verifying deenergization.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37815, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-37815. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37815, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37817 Reenergizing equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37817, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-37817. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37817, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37819 Portable electric equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37819, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-37819. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37819, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37821 Electric power and lighting circuits.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37821, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-37821. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37821, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37823 Test instruments and equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37823, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-37823. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37823, filed 10/31/96, effective 12/1/96.]

WAC 296-307-37825 Flammable materials.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-37825, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-37825, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-37825. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-37825, filed 10/31/96, effective 12/1/96.]

WAC 296-307-380 Electrical protective equipment.

[Recodified as § 296-307-380. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-380, filed 10/31/96, effective 12/1/96.]

WAC 296-307-38003 Use of protective equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-38003, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-38003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-38003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-38006 General protective equipment and tools.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-38006, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-38006, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-38006. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-38006, filed 10/31/96, effective 12/1/96.]

WAC 296-307-38009 Manufacturing and marking requirements that apply to electrical protective devices.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-38009, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-38009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-38009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-38012 Electrical requirements that apply to electrical protective devices.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-38012, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-38012, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-38012. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-38012, filed 10/31/96, effective 12/1/96.]

WAC 296-307-38015 Workmanship and finish requirements that apply to electrical protective devices.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-38015, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-38015, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-38015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-38015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-38018 Use and maintenance of electrical protective devices.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-38018, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-38018. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-38018, filed 10/31/96, effective 12/1/96.]

PART U-1 Hazardous Materials-Anhydrous Ammonia.

WAC 296-307-400 Anhydrous ammonia.

[Recodified as § 296-307-400. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.050 and [49.17.]060. 96-22-048, § 296-306A-400, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40001 Scope.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-40001, filed 10/20/2020, effective 11/20/2020. Statutory Authority: 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-40001, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-40001. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40001, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40003 Definitions that apply to this section.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-40003, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-40003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40005 Storage and handling of anhydrous ammonia.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-40005, filed 10/20/2020, effective 11/20/2020. Statutory Authority: 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-40005, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-40005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40007 Systems mounted on farm wagons (implements of husbandry) for the transportation of ammonia.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-40007, filed 10/20/2020, effective 11/20/2020. Statutory Authority: 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-40007, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-40007. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40007, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40009 Systems mounted on farm wagons (implements of husbandry) for the application of ammonia.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-40009, filed 10/20/2020, effective 11/20/2020. Statutory Authority: 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-40009, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-40009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40011 Approved anhydrous ammonia equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-40011, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-40011. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40011, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40013 Construction, original test, and requalification of nonrefrigerated containers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-40013, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-40013, filed 05/06/03, effective 08/01/03. Statutory Authority: 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-40013, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-40013. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40013, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40015 Marking nonrefrigerated containers and systems (other than DOT containers).

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-40015, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-40015, filed 05/06/03, effective 08/01/03. Statutory Authority: 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-40015, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-40015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40017 Locations for anhydrous ammonia containers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-40017, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-40017. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.]050 and [49.17.]060. 96-22-048, § 296-306A-40017, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40019 Container accessories.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-40019, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-40019. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-40019, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40021 Piping, tubing, and fittings.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-40021, filed 10/20/2020, effective 11/20/2020. Statutory Authority: 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-40021, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-40021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-40021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40023 Specification for hoses.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-40023, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-40023, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-40023. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-40023, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40025 Safety-relief devices.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-40025, filed 10/20/2020, effective 11/20/2020. Statutory Authority: 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-40025, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-40025. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-40025, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40027 Emergency precautions when handling anhydrous ammonia.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-40027, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-40027, filed 05/06/03, effective 08/01/03. Recodified as § 296-307-40027. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-40027, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40029 Filling densities.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-40029, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-40029. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-40029, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40031 Transfer of liquids.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-40031, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-40031. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-40031, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40033 Tank car unloading points and operations.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-40033, filed 10/20/2020, effective 11/20/2020. Statutory Authority: 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-40033, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-40033. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-40033, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40035 Liquid-level gauging device.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-40035, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-40035. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-40035, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40037 Maintenance of aboveground uninsulated containers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-40037, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-40037. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-40037, filed 10/31/96, effective 12/1/96.]

WAC 296-307-40039 Electrical equipment and wiring.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-40039, filed 10/20/2020, effective 11/20/2020. Statutory Authority: 49.17.040 RCW. 98-24-096 (Order 98-13), § 296-307-40039, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-40039. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-40039, filed 10/31/96, effective 12/1/96.]

PART U-2 Hazardous Materials-Liquefied Petroleum Gas.

WAC 296-307-410 Storage and handling of liquefied petroleum gases.

[Recodified as § 296-307-410. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-410, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41001 Scope.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41001, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-41001, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-41001. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41001, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41003 LP-gas installations not covered by this part.

[Statutory Authority: Statutory Authority: Recodified as § 296-307-41003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41005 Definitions that apply to this part.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41005, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Recodified as § 296-307-41005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41007 Odorizing LP-gas.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41007, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-41007. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41007, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41009 Approval of LP-gas containers and equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41009, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-41009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41011 Construction and test requirements for containers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41011, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-41011. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41011, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41013 Welding containers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41013, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-41013. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41013, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41015 Marking containers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41015, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-41015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41017 Container locations.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41017, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-41017, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-41017. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41017, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41019 Valves and accessories.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-410, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-41019. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41019, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41021 Piping, tubing, and fittings.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41021, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-41021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41023 Specifications for hoses.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41023, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-41023. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41023, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41025 Safety devices.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41025, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-41025, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-41025. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41025, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41027 Construction and installation of indirect fired vaporizers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41027, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-41027, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-41027. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41027, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41029 Construction and installation of atmospheric vaporizers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41029, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-41029. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41029, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41031 Construction and installation of direct gas-fired vaporizers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41031, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-41031, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-41031. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41031, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41033 Construction and installation of direct gas-fired tank heaters.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41033, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-41033. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41033, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41035 Construction and installation of dehydrators.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41035, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-41035. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41035, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41037 Maximum filling densities.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41037, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-41037. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41037, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41039 LP-gas in buildings.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41039, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-41039, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-41039. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41039, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41041 Transferring of liquids.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41041, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-41041, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-41041. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41041, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41043 Training for workers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41043, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-41043. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41043, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41045 Fire protection for LP-gas installations.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41045, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-41045. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41045, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41047 Electrical requirements that apply to LP-gas installations.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41047, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-41047, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-41047. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41047, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41049 Liquid-level gauging devices.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41049, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-41049, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-41049. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41049, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41051 Requirements that apply to appliances.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41051, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-41051. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41051, filed 10/31/96, effective 12/1/96.]

WAC 296-307-415 Cylinder systems.

[Recodified as § 296-307-415. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-415, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41501 Scope.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41501, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-41501, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-41501. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41501, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41503 Cylinder system.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41503, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-41503. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41503, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41505 Marking containers used in cylinder systems.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41505, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-41505. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41505, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41507 Additional requirements that apply to cylinder systems installed outdoors.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41507, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-41507, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-41507. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41507, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41509 Additional requirements that apply to cylinder system installed indoors.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41509, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-41509. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41509, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41511 Valves and accessories.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41511, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-41511. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41511, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41513 Safety devices for cylinder systems.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41513, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-41513, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-41513. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41513, filed 10/31/96, effective 12/1/96.]

WAC 296-307-41515 Other requirements that apply to cylinder systems.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-41515, filed 10/20/2020, effective 11/20/2020. Statutory Recodified as § 296-307-41515. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-41515, filed 10/31/96, effective 12/1/96.]

WAC 296-307-420 Systems using non-DOT containers.

[Recodified as § 296-307-420. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-420, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42001 Scope.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-42001, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-42001, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-42001. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-42001, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42003 Design and classification of non-DOT containers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-42003, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-42003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-42003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42005 Valves and accessories, filler pipes, and discharge pipes for non-DOT containers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-42005, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-42005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-42005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42007 Additional requirements that apply to safety devices for non-DOT containers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-42007, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-42007, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-42007. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-42007, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42009 Reinstallation of non-DOT containers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-42009, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-42009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-42009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42011 Maximum capacity non-DOT containers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-42011, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-42011. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-42011, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42013 Installing non-DOT containers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-42013, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-42013, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-42013. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-42013, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42015 Protecting non-DOT containers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-42015, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-42015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-42015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42017 Non-DOT containers in industrial plants.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-42017, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-42017. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-42017, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42019 Container-charging plants.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-42019, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-42019. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-42019, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42021 Fire protection for non-DOT containers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-42021, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-42021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-42021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42023 Other requirements that apply to non-DOT containers.

[Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-42023, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-42023. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-42023, filed 10/31/96, effective 12/1/96.]

WAC 296-307-425 LP-gas as a motor fuel.

[Recodified as § 296-307-425. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-425, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42501 Scope.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-42501, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-42501, filed 12/01/98, effective 03/01/99. [Recodified as § 296-307-42501. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-42501, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42503 Using LP-gas as a motor fuel.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-42523, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-42503, filed 12/01/98, effective 03/01/99. [Recodified as § 296-307-42503. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-42503, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42505 Design and classification of fuel containers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-42505, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-42505. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-42505, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42507 Installing fuel containers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-42507, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-42507. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-42507, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42509 Valves and accessories.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-42509, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-42509. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-42509, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42511 Piping, tubing, and fittings.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-42511, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-42511. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-42511, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42513 Safety devices.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-42513, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-42513. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-42513, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42515 Vaporizers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-42515, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-42515. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-42515, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42517 Gas regulating and mixing equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-42517, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-42517. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-42517, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42519 Maximum container capacity.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-42519, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-42519, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-42519. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-42519, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42521 Stationary engines used indoors.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-42521, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-42521, filed 12/01/98, effective 03/01/99. [Recodified as § 296-307-42521. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-42521, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42523 Portable engines used indoors.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-42523, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-42523, filed 12/01/98, effective 03/01/99. [Recodified as § 296-307-42523. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-42523, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42525 Industrial trucks used indoors.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-42525, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-42525. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-42525, filed 10/31/96, effective 12/1/96.]

WAC 296-307-42527 LP-gas fueled vehicles to be garaged.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-42527, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-42527. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-42527, filed 10/31/96, effective 12/1/96.]

WAC 296-307-430 Storage of containers awaiting use or resale.

[Recodified as § 296-307-430. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-430, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43001 Scope.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-43001, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-43001, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-43001. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-43001, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43003 Storage of containers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-43003, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-43003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-43003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43005 Containers stored within buildings frequented by the public.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-43005, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-43005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-43005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43007 Containers stored within special not frequented by the public.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-43007, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-43007. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-43007, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43009 Containers stored within special buildings or rooms.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-43009, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-43009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-43009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43011 Containers stored outdoors.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-43011, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-43011. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-43011, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43013 Fire protection provided for stored containers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-43013, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-43013. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-43013, filed 10/31/96, effective 12/1/96.]

WAC 296-307-435 LP-gas system installations on commercial vehicles.

[Recodified as § 296-307-435. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-435, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43501 Scope.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-43501, filed 10/20/2020, effective 11/20/2020. Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-43501, filed 12/01/98, effective 03/01/99. [Recodified as § 296-307-43501. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-43501, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43503 Container construction.

[RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-43503, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-43503, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-43503. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-43503, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43505 Maximum capacity allowed for LP-gas installations on commercial vehicles.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-43505, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-43505. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-43505, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43507 Location of systems.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-43507, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-43507. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-43507, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43509 Valves and accessories.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-43509, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-43509, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-43509. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-43509, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43511 Safety devices.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-43511, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-43511, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-43511. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-43511, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43513 Systems used on commercial vehicles.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-43513, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-43513. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-43513, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43515 Enclosures and mounting.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-43515, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-43515, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-43515. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-43515, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43517 Piping, tubing, and fittings.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-43517 RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-43501, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-43517. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-43517, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43519 Appliances.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-43519, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-43519. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-43519, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43521 General precautions the employer must follow for LP-gas system installations on commercial vehicles.

[Statutory Authority: Recodified as § 296-307-43521. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-43521, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43523 Containers to be charged.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-43523, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-43523. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-43523, filed 10/31/96, effective 12/1/96.]

WAC 296-307-43525 Fire protection for mobile cook units.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-43525, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-43525. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-43525, filed 10/31/96, effective 12/1/96.]

WAC 296-307-440 LP-gas service stations.

[Recodified as § 296-307-440. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-440, filed 10/31/96, effective 12/1/96.]

WAC 296-307-44001 Scope.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-44001, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-44001, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-44001. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-44001, filed 10/31/96, effective 12/1/96.]

WAC 296-307-44003 Design and classification of storage containers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-44003, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-44003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-44003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-44005 Valves and accessories.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-44005, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-44005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-44005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-44007 Safety devices.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-44007, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-44007, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-44007. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-44007, filed 10/31/96, effective 12/1/96.]

WAC 296-307-44009 Maximum capacity allowed for containers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-44009, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-44009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-44009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-44011 Installation of storage containers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-44011, filed 10/20/2020, effective 11/20/2020.

Recodified as § 296-307-44011. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-44011, filed 10/31/96, effective 12/1/96.]

WAC 296-307-44013 Protecting equipment against tampering.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-44013, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-44013. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-44013, filed 10/31/96, effective 12/1/96.]

WAC 296-307-44015 Transport truck unloading point.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-44015, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-44015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-44015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-44017 Piping, valves, and fittings.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-44017, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-44017. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-44017, filed 10/31/96, effective 12/1/96.]

WAC 296-307-44019 Pumps and accessory equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-44019, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-44019. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-44019, filed 10/31/96, effective 12/1/96.]

WAC 296-307-44021 LP-gas dispensing devices.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-44021, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-44021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-44021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-44023 Smoking is prohibited at LP-gas service stations.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-44033, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-44023. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-44023, filed 10/31/96, effective 12/1/96.]

WAC 296-307-44025 Fire protection at LP-gas service stations.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-44035, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-44025. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-44025, filed 10/31/96, effective 12/1/96.]

PART U-3 Other Hazardous Materials-Dipping and Coating Operations (Dip Tanks).

WAC 296-307-445 Scope.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-445, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-445, filed 05/06/03, effective 08/01/03.]

WAC 296-307-450 General requirements.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-450, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-450, filed 05/06/03, effective 08/01/03. Recodified as § 296-307-450. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-450, filed 10/31/96, effective 12/1/96.]

WAC 296-307-45005 Construct safe dip tanks.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-45005, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45005, filed 05/06/03, effective 08/01/03. Recodified as § 296-307-45005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-45005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-45010 Provide proper ventilation for the vapor area.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-45010, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-45010, filed 12/21/04, effective 04/02/05. Statutory Authority: RCW 49.17.010, .040, .050, and .060. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45010, filed 05/06/03, effective 08/01/03.]

WAC 296-307-45015 Additional precautions if recirculating ventilation system exhausts air into the workplace.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-45015, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45015, filed 05/06/03, effective 08/01/03. Recodified as § 296-307-45015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-45015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-45020 Take additional precautions when using an exhaust hood.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-45020, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45020, filed 05/06/03, effective 08/01/03.]

WAC 296-307-45025 Periodically inspect dip tanks and associated equipment and correct any deficiencies.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-45025, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45025, filed 05/06/03, effective 08/01/03. Recodified as § 296-307-45025. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW

WAC 296-307-45030 Make sure employees working near dip tanks know appropriate first-aid procedures.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-45030, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45030, filed 05/06/03, effective 08/01/03.]

WAC 296-307-45035 Prepare dip tanks before cleaning.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-45035, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-45035, filed 12/21/04, effective 04/02/05. Statutory Authority: RCW 49.17.010, .040, .050, and .060. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45035, filed 05/06/03, effective 08/01/03.]

WAC 296-307-45045 Protect employees during welding, burning, or other work using open flames.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-45045, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-45035, filed 12/21/04, effective 04/02/05. Statutory Authority: RCW 49.17.010, .040, .050, and .060. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45045, filed 05/06/03, effective 08/01/03.]

WAC 296-307-45050 Protect employees that use liquids that may burn, irritate, or otherwise harm skin.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-45050, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45050, filed 05/06/03, effective 08/01/03.]

WAC 296-307-455 Additional requirements for dip tanks using flammable or combustible liquids.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-455, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-455, filed 05/06/03, effective 08/01/03.]

WAC 296-307-45505 Additional safeguards when constructing dip tanks.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-45505, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45505, filed 05/06/03, effective 08/01/03.]

WAC 296-307-45510 Provide overflow pipes.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-45510, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45510, filed 05/06/03, effective 08/01/03.]

WAC 296-307-45515 Provide bottom drains.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-45515, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45515, filed 05/06/03, effective 08/01/03.]

WAC 296-307-45520 Fire protection in the vapor area.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-45520, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45520, filed 05/06/03, effective 08/01/03.]

WAC 296-307-45525 Additional fire protection for large dip tanks.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-45525, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45525, filed 05/06/03, effective 08/01/03.]

WAC 296-307-45535 Prevention of static electric sparks or arcs when adding liquids to a dip tank.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-45535, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45535, filed 05/06/03, effective 08/01/03.]

WAC 296-307-45540 Control ignition sources.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-45540, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45540, filed 05/06/03, effective 08/01/03.]

WAC 296-307-45545 Provide safe electrical wiring and equipment where the liquid can drip or splash.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-45545, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45545, filed 05/06/03, effective 08/01/03.]

WAC 296-307-45550 Keep the area around dip tanks clear of combustible material and properly dispose of waste.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-45550, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45550, filed 05/06/03, effective 08/01/03.]

WAC 296-307-45555 Make sure heating the liquid in dip tanks does not cause a fire.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-45555, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45555, filed 05/06/03, effective 08/01/03.]

WAC 296-307-45560 Make sure a heating system used for drying objects does not cause a fire.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-45560, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45560, filed 05/06/03, effective 08/01/03.]

WAC 296-307-45565 Make sure conveyor systems are safe.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-45565, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-45565, filed 05/06/03, effective 08/01/03.]

WAC 296-307-460 Additional requirements for dip tanks used for specific purposes.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-460, filed 05/06/03, effective 08/01/03.]

WAC 296-307-46005 Meet specific requirements if using a hardening or tempering tank.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-46005, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-46005, filed 05/06/03, effective 08/01/03.]

WAC 296-307-46025 Provide additional safeguards for vapor degreasing tanks.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-46025, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-46025, filed 05/06/03, effective 08/01/03.]

WAC 296-307-46030 Control liquid spray over an open surface cleaning or degreasing tank.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-46030, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-46030, filed 05/06/03, effective 08/01/03.]

WAC 296-307-465 Definitions.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-465, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 03-10-068 (Order 03-05), § 296-307-465, filed 05/06/03, effective 08/01/03.]

PART V Welding.

WAC 296-307-475 Welding, cutting, and brazing.

[Recodified as § 296-307-475. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A -475, filed 10/31/96, effective 12/1/96.]

WAC 296-307-47501 Definitions that apply to this part.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-47501, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-47501. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-47501, filed 10/31/96, effective 12/1/96.]

WAC 296-307-480 Installation and operation of oxygen fuel gas systems for welding and cutting.

[Recodified as § 296-307-480. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-480, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48001 Oxygen fuel gas systems.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48001, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-48001. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48001, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48003 Portable cylinders.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48003, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-48003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48005 Storing compressed gas cylinders.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48005, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-48005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48007 Storing fuel-gas cylinders.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48007, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-48007. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48007, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48009 Storing oxygen cylinders.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48009, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-48009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48011 Working with cylinders and containers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48011, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-48011. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48011, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48013 Safety devices on cylinders.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48013, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-48013. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48013, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48015 Transporting cylinders.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48015, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-48015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48017 Handling cylinders.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48017, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-48017. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48017, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48019 Cylinder valves.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48019, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-48019. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48019, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48021 Cylinder regulators.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48021, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-48021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48023 Fuel-gas manifolds.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48023, filed 10/20/2020, effective 11/20/2020. Statutory Authority: 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-48023, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-48023. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48023, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48025 High pressure oxygen manifolds.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48025, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-48025. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48025, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48027 Low pressure oxygen manifolds.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48027, filed 10/20/2020, effective 11/20/2020. Statutory Authority: 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-48027, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-48027. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48027, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48029 Manifolding portable outlet headers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48029, filed 10/20/2020, effective 11/20/2020. Statutory Authority: 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-48029, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-48029. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48029, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48031 Operating procedures for cylinder manifolds.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48031, filed 10/20/2020, effective 11/20/2020. Statutory Authority: 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-48031, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-48031. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48031, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48033 Design of service piping systems.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48033, filed 10/20/2020, effective 11/20/2020. Statutory Authority: 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-48033, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-48033. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48033, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48035 Piping joints.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48035, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-48035. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48035, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48037 Installation of service piping systems.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48037, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-48037. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48037, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48039 Painting and marking service piping systems.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48039, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-48039. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48039, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48041 Testing service piping systems.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48041, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-48041. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48041, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48043 Equipment installation.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48043, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-48043. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48043, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48045 Protecting piping systems.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48045, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-48045. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48045, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48047 Piping protective equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48047, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-48047. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48047, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48049 Station outlet protective equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48049, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-48049. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48049, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48051 Hose and hose connections.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48051, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-48051. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48051, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48053 Pressure reducing regulators.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48053, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-48053. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48053, filed 10/31/96, effective 12/1/96.]

WAC 296-307-485 Installation and operation of resistance welding equipment.

[Recodified as § 296-307-485. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-485, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48501 Resistance welding equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48501, filed 10/20/2020, effective 11/20/2020. Statutory Authority: 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-48501, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-48501. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48501, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48503 Portable welding machines.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48503, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-48503. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48503, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48505 Flash welding equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48505, filed 10/20/2020, effective 11/20/2020. Statutory Authority: 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-48505, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-48505. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48505, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48507 Job hazard analysis.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48507, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-48507. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48507, filed 10/31/96, effective 12/1/96.]

WAC 296-307-48509 Maintenance of resistance welding equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-48509, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-48509. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-48509, filed 10/31/96, effective 12/1/96.]

WAC 296-307-490 Application, installation, and operation of arc welding and cutting equipment.

[Recodified as § 296-307-490. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-490, filed 10/31/96, effective 12/1/96.]

WAC 296-307-49001 Environmental conditions required to be taken into account when selecting arc welding equipment.

WAC 296-307-49001 Environmental conditions required to be taken into account when selecting arc welding equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-49001, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-49001. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-49001, filed 10/31/96, effective 12/1/96.]

WAC 296-307-49003 Voltages when using arc welding equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-49003, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-49003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-49003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-49005 Designing arc welding equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-49005, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-49005, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-49005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-49005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-49007 Installing arc welding equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-49007, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-49007, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-49007. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-49007, filed 10/31/96, effective 12/1/96.]

WAC 296-307-49009 Grounding arc welding equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-49009, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-49009, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-49009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-49009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-49011 Supply connections and conductors.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-49011, filed 10/20/2020, effective 11/20/2020. RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-49011, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-49011, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-49011. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-49011, filed 10/31/96, effective 12/1/96.]

WAC 296-307-49013 Operating arc welding equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-49013, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-49013, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-49013. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-49013, filed 10/31/96, effective 12/1/96.]

WAC 296-307-49015 Maintaining arc welding equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-49015, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-49015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-49015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-495 Fire prevention and protection.

[Recodified as § 296-307-495. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-495, filed 10/31/96, effective 12/1/96.]

WAC 296-307-49501 Basic fire prevention precautions.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-49501, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-49501, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-49501. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-49501, filed 10/31/96, effective 12/1/96.]

WAC 296-307-49503 Special fire prevention precautions.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-49503, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-49503, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-49503. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-49503, filed 10/31/96, effective 12/1/96.]

WAC 296-307-49505 Precautions to be taken when welding or cutting containers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-49505, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-49505. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-49505, filed 10/31/96, effective 12/1/96.]

WAC 296-307-49507 Precautions to be taken when welding in confined spaces.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-49507, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-49507. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-49507, filed 10/31/96, effective 12/1/96.]

WAC 296-307-500 Protection of employees.

[Recodified as § 296-307-500. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-500, filed 10/31/96, effective 12/1/96.]

WAC 296-307-50001 Eye protection.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-50001, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-50001. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-50001, filed 10/31/96, effective 12/1/96.]

WAC 296-307-50003 Specifications for eye protection.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-50003, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-50003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-50003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-50005 Protective clothing for workers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-50005, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-50005, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-50005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-50005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-50007 Other requirements that apply to employee protection.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-50007, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-50007. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-50007, filed 10/31/96, effective 12/1/96.]

WAC 296-307-50009 Employee protection for work in confined spaces.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-50009, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-50009, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-50009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-50009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-50011 General requirements that apply to welding ventilation.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-50011, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-50011, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-50011. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-50011, filed 10/31/96, effective 12/1/96.]

WAC 296-307-50013 Ventilation must be provided for general welding and cutting.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-50013, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-50013, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-50013. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-50013, filed 10/31/96, effective 12/1/96.]

WAC 296-307-50015 Local exhaust hoods and booths.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-50015, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-50015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-50015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-50017 Ventilation must be provided in confined spaces.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-50017, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-50017. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-50017, filed 10/31/96, effective 12/1/96.]

WAC 296-307-50019 Welding fluorine compounds.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-50019, filed 10/20/2020, effective 11/20/2020. RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-50019, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-50019, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-50019. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-50019, filed 10/31/96, effective 12/1/96.]

WAC 296-307-50021 Welding zinc.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-50021, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-50021, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-50021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-50021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-50023 Welding lead.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-50023, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-50023, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-50023. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-50023, filed 10/31/96, effective 12/1/96.]

WAC 296-307-50025 Welding Beryllium.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-50025, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-50025, filed 12/21/04, effective 04/02/05. Recodified as § 296-307-50025. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-50025, filed 10/31/96, effective 12/1/96.]

WAC 296-307-50027 Welding cadmium.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-50027, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-50027, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-50027. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-50027, filed 10/31/96, effective 12/1/96.]

WAC 296-307-50029 Welding mercury.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-50029, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-50029, filed 12/21/04, effective 04/02/05. Recodified as § 296-307-50029. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-50029, filed 10/31/96, effective 12/1/96.]

PART W Powered Industrial Trucks (Forklifts).**WAC 296-307-520 Powered industrial trucks (forklifts).**

[Recodified as § 296-307-520. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-520, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52001 Scope.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-52001, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-52001, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-52001. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-52001, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52003 Powered industrial truck.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-52003, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-52003, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-52003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-52003, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52005 Manufacturer's requirements that apply to powered industrial trucks.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-52005, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050. 00-01-176 (Order 99-18), § 296-307-52005, filed 12/21/99, effective 03/01/2000. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-52005, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-52005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-52005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52007 Classification of powered industrial trucks.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-52007, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050. 00-01-176 (Order 99-18), § 296-307-52007, filed 12/21/99, effective 03/01/2000. Recodified as § 296-307-52007. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-52007, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52009 The employer must considering the following before choosing a powered industrial truck.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-52009, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-52009, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-52009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-52009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52011 Requirements for determining which trucks to use in specific hazardous environments.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-52011, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.101, .040, .050. 00-01-176 (Order 99-18), § 296-307-52011, filed 12/21/99, effective 03/01/2000. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-52011, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-52011. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-52011, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52013 Using converted trucks.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-52013, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-52013, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-52013. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-52013, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52015 Overhead safety guards.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-52015, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-52015, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-52015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-52015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52017 Load backrests.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-52017, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-52017, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-52017. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-52017, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52019 Requirements that apply to fuel handling and storage.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-52019, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050. 00-01-176 (Order 99-18), § 296-307-52019, filed 12/21/99, effective 03/01/2000. Recodified as § 296-307-52019. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-52019, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52021 Lighting for operating areas.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-52021, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050. 00-01-176 (Order 99-18), § 296-307-52021, filed 12/21/99, effective 03/01/2000. Recodified as § 296-307-52021. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-52021, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52023 Carbon monoxide gas levels.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-52023, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050. (00-01-176 (Order 99-18), § 296-307-52023, filed 12/21/99, effective 03/01/2000. Recodified as § 296-307-52023. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-52023, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52025 Dockboards (bridge plates).

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-52025, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-52025. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-52025, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52027 Loading trucks, trailers, and railroad cars with powered industrial trucks.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-52027, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-52027. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-52027, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52029 Operator training requirements for powered industrial trucks.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-52029, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050. 00-01-176 (Order 99-18), § 296-307-52029, filed 12/21/99, effective 03/01/2000. Recodified as § 296-307-52-52029. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-52029, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52030 Additional (nonmandatory) information that may assist with powered industrial truck operator training.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-52030, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050. 00-01-176 (Order 99-18), § 296-307-52030, filed 12/21/99, effective 03/01/2000.]

WAC 296-307-52031 Operating powered industrial trucks.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-52031, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050. 00-01-176 (Order 99-18), § 296-307-52031, filed 12/21/99, effective 03/01/2000. Recodified as § 296-307-52031. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-52031, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52033 Use of trucks to open or close freight car doors.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-52033, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-52033. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-52033, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52035 Lifting employees on the forks of trucks.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-52035, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-52035. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-52035, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52037 Using platforms for hoisting employees.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-52037, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-52037. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-52037, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52039 Traveling in powered industrial truck.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-52039, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050. 00-01-176 (Order 99-18), § 296-307-52039, filed 12/21/99, effective 03/01/2000. Recodified as § 296-307-52039. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-52039, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52041 Traveling speeds of powered of industrial trucks.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-52041, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-52041. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-52041, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52043 Loading powered industrial trucks.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-52043, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-52043. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-52043, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52045 Servicing powered industrial trucks.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-52045, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-52045. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-52045, filed 10/31/96, effective 12/1/96.]

WAC 296-307-52047 Maintaining powered industrial trucks.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-52047, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050. 00-01-176 (Order 99-18), § 296-307-52047, filed 12/21/99, effective 03/01/2000. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-52047, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-52047. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-52047, filed 10/31/96, effective 12/1/96.]

PART X Rim Wheel Servicing.

WAC 296-307-530 Rim wheel servicing.

[Recodified as § 296-307-530. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and

WAC 296-307-53001 Scope.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-53001, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-53001, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-53001. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-53001, filed 10/31/96, effective 12/1/96.]

WAC 296-307-53003 Definitions that apply to rim wheel servicing.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-53003, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Recodified as § 296-307-53003. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: Chapter 49.17 RCW. 96-22-048 (Order 96-10) §296-306A-53003 filed 10/31/96, effective 12/1/96.]

WAC 296-307-53005 Employer provided training for employees who service rim wheels.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-53005, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Chapter 49.17.040 RCW. 98-24-096 (Order 98-13) § 296-307-53005, filed 12/01/98, effective 03/01/99. Recodified as § 296-307-53005. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-53005, filed 10/31/96, effective 12/1/96.]

WAC 296-307-53007 Restraining devices.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-53007, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Recodified as § 296-307-53007. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-53007, filed 10/31/96, effective 12/1/96.]

WAC 296-307-53009..Equipment an employer must provide for rim wheel servicing.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-53009, filed 10/20/2020, effective 11/20/2020. Statutory Authority: Recodified as § 296-307-53009. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-53009, filed 10/31/96, effective 12/1/96.]

WAC 296-307-53011 Wheel component assembly.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-53011 filed 10/20/2020, effective 11/20/2020. Statutory Authority: Recodified as § 296-307-53011. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-53011, filed 10/31/96, effective 12/1/96.]

WAC 296-307-53013 Safe operating procedures for servicing multi-piece rim wheels.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-53013, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-53013. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-53013, filed 10/31/96, effective 12/1/96.]

WAC 296-307-53015 Safe operating procedures for servicing single-piece rim wheels.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-53015, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-53015. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-53015, filed 10/31/96, effective 12/1/96.]

WAC 296-307-53017 Ordering the OSHA charts.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-53017, filed 10/20/2020, effective 11/20/2020. Recodified as § 296-307-53017. 97-09-013, filed 4/7/97, effective 4/7/97. Statutory Authority: RCW 49.17.040, [49.17.] 050 and [49.17.] 060. 96-22-048, § 296-306A-53017, filed 10/31/96, effective 12/1/96.]

PART Y-3 Lighting.

WAC 296-307-570 Lighting rule.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-570, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050. 00-17-033 (Order 01-14), § 296-307-570, filed 08/08/01, effective 09/01/01.]

WAC 296-307-57005 Provide and maintain adequate lighting.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-57005, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050. 00-17-033 (Order 01-14), § 296-307-57005, filed 08/08/01, effective 09/01/01.]

PART Y-4 Environmental Tobacco Smoke in the office.

WAC 296-307-590 Environmental tobacco smoke in the office--Summary.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-590, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 06-22-023 (Order 06-26), § 296-307-590, filed 10/24/06, effective 12/01/06. Statutory Authority: RCW 49.17.010, .040, .050. 00-17-033 (Order 01-14), § 296-307-590, filed 08/08/01, effective 09/01/01.]

WAC 296-307-59005 Prohibit tobacco smoke in the office work environment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-59005, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 06-22-023 (Order 06-26), § 296-307-59005, filed 10/24/06, effective 12/01/06. Statutory Authority: RCW 49.17.010, .040, .050. 00-17-033 (Order 01-14), § 296-307-59005, filed 08/08/01, effective 09/01/01.]

PART Y-5 Respirators

WAC 296-307-594 Scope.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-594, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-594, filed 12/21/04, effective 04/02/05.]

WAC 296-307-596 Respirator program administrator.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-596, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-596, filed 12/21/04, effective 04/02/05.]

WAC 296-307-59605 Designate a program administrator.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-59605, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-59605, filed 12/21/04, effective 04/02/05.]

WAC 296-307-598 Voluntary respirator use requirements.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-598, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-598, filed 12/21/04, effective 04/02/05.]

WAC 296-307-59805 Make sure voluntary use of respirators is safe.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-59805, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-59805, filed 12/21/04, effective 04/02/05.]

WAC 296-307-59810 Keep voluntary use program records.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-59810, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-59810, filed 12/21/04, effective 04/02/05.]

WAC 296-307-600 Written respirator program and recordkeeping.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-600, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-600, filed 12/21/04, effective 04/02/05.]

WAC 296-307-60005 Develop and maintain a written program.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-60005, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-60005, filed 12/21/04, effective 04/02/05.]

WAC 296-307-60010 Keep respirator program records.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-60010, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-60010, filed 12/21/04, effective 04/02/05.]

WAC 296-307-602 Respirator selection.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-602, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-602, filed 12/21/04, effective 04/02/05.]

WAC 296-307-60205 Select and provide appropriate respirators.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-60205, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-60205, filed 12/21/04, effective 04/02/05.]

WAC 296-307-604 Medical evaluations.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-604, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-604, filed 12/21/04, effective 04/02/05.]

WAC 296-307-60405 Provide medical evaluations.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-60405, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-60405, filed 12/21/04, effective 04/02/05.]

WAC 296-307-606 Fit testing.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-606, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-606, filed 12/21/04, effective 04/02/05.]

WAC 296-307-60605 Conduct fit testing.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-60605, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-60605, filed 12/21/04, effective 04/02/05.]

WAC 296-307-608 Training.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-608, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-608, filed 12/21/04, effective 04/02/05.]

WAC 296-307-60805 Provide effective training.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-60805, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-60805, filed 12/21/04, effective 04/02/05.]

WAC 296-307-610 Maintenance.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-610, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-610, filed 12/21/04, effective 04/02/05.]

WAC 296-307-61005 Maintain respirators in a clean and reliable condition.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-61005, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-61005, filed 12/21/04, effective 04/02/05.]

WAC 296-307-61010 Store respirators properly.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-61010, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-61010, filed 12/21/04, effective 04/02/05.]

WAC 296-307-61015 Inspect and repair respirators.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-61015, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-61015, filed 12/21/04, effective 04/02/05.]

WAC 296-307-612 Safe use and removal of respirators.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-612, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-612, filed 12/21/04, effective 04/02/05.]

WAC 296-307-61205 Prevent sealing problems with tight-fitting respirators.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-61205, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-61205, filed 12/21/04, effective 04/02/05.]

WAC 296-307-61210 Make sure employees leave the use area before removing respirators.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-61210, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-61210, filed 12/21/04, effective 04/02/05.]

WAC 296-307-614 Standby requirements for immediately dangerous to life or health (IDLH) conditions.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-614, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-614, filed 12/21/04, effective 04/02/05.]

WAC 296-307-61405 Provide standby assistance in immediately dangerous to life or health (IDLH) conditions.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-61405, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-61405, filed 12/21/04, effective 04/02/05.]

WAC 296-307-616 Air quality for self-contained breathing apparatus (SCBA) and air-line respirators.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-616, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-616, filed 12/21/04, effective 04/02/05.]

WAC 296-307-61605 Make sure breathing air and oxygen meet established specifications.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-61605, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-61605, filed 12/21/04, effective 04/02/05.]

WAC 296-307-61610 Prevent conditions that could create a hazardous breathing air supply.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-61610, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-61610, filed 12/21/04, effective 04/02/05.]

WAC 296-307-61615 Make sure compressors do not create a hazardous breathing air supply.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-61615, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-61615, filed 12/21/04, effective 04/02/05.]

WAC 296-307-618 Labeling of air-purifying respirator filters, cartridges, and canisters.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-618, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-618, filed 12/21/04, effective 04/02/05.]

WAC 296-307-61805 Keep labels readable on respirator filters, cartridges, and canisters during use.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-61805, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-61805, filed 12/21/04, effective 04/02/05.]

WAC 296-307-620 Required procedures for respiratory protection program.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-620, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-620, filed 12/21/04, effective 04/02/05.]

WAC 296-307-62005 Use this medical questionnaire for medical evaluations.

[Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-62005, filed 12/21/04, effective 04/02/05.]

WAC 296-307-62010 Follow these fit-testing procedures for tight-fitting respirators.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-62010, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-62010, filed 12/21/04, effective 04/02/05.]

WAC 296-307-62015 Follow procedures established for cleaning and disinfecting respirators.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-62015, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-62015, filed 12/21/04, effective 04/02/05.]

WAC 296-307-62020 Follow procedures established for seal checking respirators.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-62020, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-62020, filed 12/21/04, effective 04/02/05.]

WAC 296-307-622 Definitions.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-62020, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-622: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-62020, filed 622, filed 12/21/04, effective 04/02/05.]

PART Y-6 Respiratory Hazards

WAC 296-307-624 Scope.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-624, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 06-08-087 (Order 05-12), § 296-307-624, filed 04/04/06, effective 09/01/06. Statutory Authority: RCW 49.19.010, .040, .050, and .060. 05-01-066 (Order 04-19), § 296-307-624, filed 12/21/04, effective 04/02/05.]

WAC 296-307-626 Evaluate and control employee exposures.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-626, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.19.010, .040, .050, and .060. 05-01-066 (Order 04-19), § 296-307-626, filed 12/21/04, effective 04/02/05.]

WAC 296-307-62605 Identify and evaluate respiratory hazards.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-62605, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.19.010, .040, .050, and .060. 05-01-066 (Order 04-19), § 296-307-62605, filed 12/21/04, effective 04/02/05.]

WAC 296-307-62610 Control employee exposures.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-62610, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.19.010, .040, .050, and .060. 05-01-066 (Order 04-19), § 296-307-62610, filed 12/21/04, effective 04/02/05.]

WAC 296-307-62615 Use respirators.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-62615, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.19.010, .040, .050, and .060. 05-01-066 (Order 04-19), § 296-307-62615, filed 12/21/04, effective 04/02/05.]

WAC 296-307-62620 Notify employees.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-62620, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.19.010, .040, .050, and .060. 05-01-066 (Order 04-19), § 296-307-62620, filed 12/21/04, effective 04/02/05.]

WAC 296-307-62625 Permissible exposure limits of air contaminants.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-62625, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 18-17-156 (Order 17-07, § 296-307-62625, filed 08/21/2018, effective 12/12/2018. Statutory Authority: Chapter RCW 49.17.010, .040, .050, and .060. 18-07-098 (Order 16-20), § 296-307-62625 filed 03/20/2018, effective 04/23/2018.] Statutory Authority: RCW 49.17.010, .040, .050, and .060. 06-08-087 (Order 05-12), § 296-307-62625, filed 04/04/06, effective 09/01/06. Statutory Authority: RCW 49.19.010, .040, .050, and .060. 05-01-066 (Order 04-19), § 296-307-62625, filed 12/21/04, effective 04/02/05.]

(WAC 296-307-628 Definitions.

Statutory Authority: RCW 49.19.010, .040, .050, and .060. 05-01-066 (Order 04-19), § 296-307-628, filed 12/21/04, effective 04/02/05.]

PART Y-7 Hearing Loss Prevention (Noise)

WAC 296-307-630 Scope.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-630, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-630, filed 12/21/04, effective 04/02/05.]

WAC 296-307-632 Summary.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-632, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-632, filed 12/21/04, effective 04/02/05.]

WAC 296-307-63205 Conduct employee noise exposure monitoring.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-63205, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-63205, filed 12/21/04, effective 04/02/05.]

WAC 296-307-63210 Control employee noise exposures that equal or exceed 90 dBA TWA₈.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-63210, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-63210, filed 12/21/04, effective 04/02/05.]

WAC 296-307-63215 Make sure employees use hearing protection when their noise exposure equals or exceeds 85 dBA TWA₈.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-63215, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-63215, filed 12/21/04, effective 04/02/05.]

WAC 296-307-63220 Make sure exposed employees receive training about noise and hearing protection.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-63220, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-63220, filed 12/21/04, effective 04/02/05.]

WAC 296-307-63225 Make sure warning signs are posted for areas where noise levels equal or exceed 115 dBA.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-63225, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-63225, filed 12/21/04, effective 04/02/05.]

WAC 296-307-63230 Arrange for oversight of audiometric testing.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-63230, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-63230, filed 12/21/04, effective 04/02/05.]

WAC 296-307-63235 Identify and correct deficiencies in your hearing loss prevention program.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-63235, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-63235, filed 12/21/04, effective 04/02/05.]

WAC 296-307-63240 Document your hearing loss prevention activities.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-63240, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-63240, filed 12/21/04, effective 04/02/05.]

WAC 296-307-634 Summary.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-634, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-634, filed 12/21/04, effective 04/02/05.]

WAC 296-307-63405 Make sure that noise-measuring equipment meets recognized standards.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-63405, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-63405, filed 12/21/04, effective 04/02/05.]

WAC 296-307-63410 Measure employee noise exposure.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-63410, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-63410, filed 12/21/04, effective 04/02/05.]

WAC 296-307-63415 Use these equations when estimating full-day noise exposure from sound level measurements.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-63415, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-63415, filed 12/21/04, effective 04/02/05.]

WAC 296-307-636 Summary.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-636, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-636, filed 12/21/04, effective 04/02/05.]

WAC 296-307-63605 Provide audiometric testing at no cost to employees.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-63605, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-63605, filed 12/21/04, effective 04/02/05.]

WAC 296-307-63610 Establish a baseline audiogram for each exposed employee.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-63610, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-63610, filed 12/21/04, effective 04/02/05.]

WAC 296-307-63615 Conduct annual audiograms.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-63615, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-63615, filed 12/21/04, effective 04/02/05.]

WAC 296-307-63620 Review audiograms that indicate a standard threshold shift.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-63620, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-63620, filed 12/21/04, effective 04/02/05.]

WAC 296-307-63625 Keep the baseline audiogram without revision, unless annual audiograms indicate a persistent threshold shift or a significant improvement in hearing.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-63625, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-63625, filed 12/21/04, effective 04/02/05.]

WAC 296-307-63630 Make sure a record is kept of audiometric tests.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-63630, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-63630, filed 12/21/04, effective 04/02/05.]

WAC 296-307-63635 Make sure audiometric testing equipment meets these requirements.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-63635, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-63635, filed 12/21/04, effective 04/02/05.]

WAC 296-307-638 Summary.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-638, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-638, filed 12/21/04, effective 04/02/05.]

WAC 296-307-63805 Conduct hearing protection audits at least quarterly.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-63805, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-63805, filed 12/21/04, effective 04/02/05.]

WAC 296-307-63810 Make sure staff conducting audits are properly trained.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-63810, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-63810, filed 12/21/04, effective 04/02/05.]

WAC 296-307-63815 Assess the hearing protection used by each employee during audits.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-63815, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-63815, filed 12/21/04, effective 04/02/05.]

WAC 296-307-63820 Document hearing protection audits.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-63820, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-63820, filed 12/21/04, effective 04/02/05.]

WAC 296-307-63825 Make sure third-party hearing loss prevention programs meet the following requirements.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-63825, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-63825, filed 12/21/04, effective 04/02/05.]

WAC 296-307-640 Noise definitions.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-640, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-640, filed 12/21/04, effective 04/02/05.]

PART Y-8 Confined Spaces

WAC 296-307-642 Scope.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-642, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-642, filed 12/21/04, effective 04/02/05.]

WAC 296-307-644 Identifying and controlling permit-required confined spaces.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-644, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-644, filed 12/21/04, effective 04/02/05.]

WAC 296-307-64402 Identify permit-required confined spaces.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-64402, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-64402, filed 12/21/04, effective 04/02/05.]

WAC 296-307-64404 Inform employees and control entry to permit-required confined spaces.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-64404, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-64404, filed 12/21/04, effective 04/02/05.]

WAC 296-307-64406 The employer must follow these requirements when contracting with another employer to enter its confined space.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-64406, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-64406, filed 12/21/04, effective 04/02/05.]

WAC 296-307-646 Summary.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-646, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-646, filed 12/21/04, effective 04/02/05.]

WAC 296-307-64602 Develop a written permit-required confined space program.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-64602, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-64602, filed 12/21/04, effective 04/02/05.]

WAC 296-307-64604 Meet these additional requirements if employees enter another employer's confined space.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-64604, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-64604, filed 12/21/04, effective 04/02/05.]

WAC 296-307-648 Summary.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-648, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-648, filed 12/21/04, effective 04/02/05.]

WAC 296-307-64802 Provide employee training.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-64802, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-64802, filed 12/21/04, effective 04/02/05.]

WAC 296-307-64804 Certify employee proficiency.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-64804, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-64804, filed 12/21/04, effective 04/02/05.]

WAC 296-307-650 Summary.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-650, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-650, filed 12/21/04, effective 04/02/05.]

WAC 296-307-65002 Implement procedures for entry permits.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-65002, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-65002, filed 12/21/04, effective 04/02/05.]

WAC 296-307-65004 Use an entry permit that contains all required information.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-65004, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-65004, filed 12/21/04, effective 04/02/05.]

WAC 296-307-65006 Keep and review entry permits.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-65006, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-65006, 12/21/04, effective 04/02/05.]

WAC 296-307-65008 Prevent unauthorized entry.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-65008, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-65008, filed 12/21/04, effective 04/02/05.]

WAC 296-307-65010 Provide, maintain, and use proper equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-65010, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-65010, filed 12/21/04, effective 04/02/05.]

WAC 296-307-65012 Evaluate and control hazards for safe entry.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-65012, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-65012, filed 12/21/04, effective 04/02/05.]

WAC 296-307-65014 Make sure adequate rescue and emergency services are available.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-65014, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-65014, filed 12/21/04, effective 04/02/05.]

WAC 296-307-65016 Use nonentry rescue systems or methods whenever possible.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-65016, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-65016, filed 12/21/04, effective 04/02/05.]

WAC 296-307-65018 Make sure entry supervisors perform their responsibilities and duties.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-65018, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-65018, filed 12/21/04, effective 04/02/05.]

WAC 296-307-65020 Provide an attendant outside the permit-required confined space.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-65020, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-65020, filed 12/21/04, effective 04/02/05.]

WAC 296-307-65022 Make sure entrants know the hazardous conditions and their duties.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-65022, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-65022, filed 12/21/04, effective 04/02/05.]

WAC 296-307-65024 Implement procedures for ending entry.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-65024, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-65024, filed 12/21/04, effective 04/02/05.]

WAC 296-307-652 Alternate entry procedures.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-652, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-652, filed 12/21/04, effective 04/02/05.]

WAC 296-307-65202 Make sure the following conditions are met if using alternate entry procedures.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-65202, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-65202, filed 12/21/04, effective 04/02/05.]

WAC 296-307-65204 Follow these alternate entry procedures for permit-required confined spaces.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-65204, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-65204, filed 12/21/04, effective 04/02/05.]

WAC 296-307-654 Nonpermit confined spaces requirements.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-654, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-654, filed 12/21/04, effective 04/02/05.]

WAC 296-307-65402 Follow these requirements when classifying a confined space as a nonpermit confined space.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-65402, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-65402, filed 12/21/04, effective 04/02/05.]

WAC 296-307 65404 Reevaluate nonpermit confined spaces if hazards develop.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-65404, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-65404, filed 12/21/04, effective 04/02/05.]

WAC 296-307-656 Definitions.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-656, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-656, filed 12/21/04, effective 04/02/05.]

PART Y-10 EMERGENCY RESPONSE**WAC 296-307-704 Scope.**

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-704, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 06-02-060 (Order 05-19), § 296-307-704, filed 01/03/06, effective 04/01/06. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-704, filed 12/21/04, effective 04/02/05.]

WAC 296-307-70410 Planning.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-70410, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-70410, filed 12/21/04, effective 04/02/05.]

WAC 296-307-70415 Training.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-70415, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-70415, filed 12/21/04, effective 04/02/05.]

WAC 296-307-70420 Medical Surveillance. Provide medical surveillance to employees.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-70420, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-70420, filed 12/21/04, effective 04/02/05.]

WAC 296-307-70425 Keep records.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-70425, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-70425, filed 12/21/04, effective 04/02/05.]

WAC 296-307-70430 Incident requirements. Recognize emergencies and initiate a response.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-70430, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-70430, filed 12/21/04, effective 04/02/05.]

WAC 296-307-70435 Implement and maintain an incident command system (ICS).

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-70435, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-70435, filed 12/21/04, effective 04/02/05.]

WAC 296-307-70440 Prepare skilled support personnel.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-70440, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-70440, filed 12/21/04, effective 04/02/05.]

WAC 296-307-70445 Make sure the incident commander oversees activities during response.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-70445, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-70445, filed 12/21/04, effective 04/02/05.]

WAC 296-307-70450 Use the buddy system in danger areas.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-70450, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-70450, filed 12/21/04, effective 04/02/05.]

WAC 296-307-70455 Provide rescue and medical assistance.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-70455, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-70455, filed 12/21/04, effective 04/02/05.]

WAC 296-307-70460 Personal protective equipment.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-70460, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-70460, filed 12/21/04, effective 04/02/05.]

WAC 296-307-70465 Control hazards created by personal protective equipment (PPE).

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-70465, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-70465, filed 12/21/04, effective 04/02/05.]

WAC 296-307-70470 Use personal protective equipment (PPE) properly.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-70470, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-70470, filed 12/21/04, effective 04/02/05.]

WAC 296-307-70475 Postemergency response.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-70475, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-307-70475, filed 12/21/04, effective 04/02/05.]

WAC 296-307-70480 Definitions.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and RCW 49.17.060. 20-21-091 (Order 20-19), § 296-307-70480, filed 10/20/2020, effective 11/20/2020. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 05-01-166 (Order 04-19), § 296-07-70480, filed 12/21/04, effective 04/02/05.]