

Refinery Worker Training and Certification in High Hazard Facilities

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WAC 296-71-001 Purpose and scope.

This standard applies to training and certification of skilled and trained workforce under RCW 49.80 and establishes a training course approval program, and certification and the issuance of worker certification.

WAC 296-71-003 Definitions.

Unless the context clearly requires otherwise, the definitions in this section apply throughout this standard.

Apprenticeable occupation. An occupation for which an apprenticeship program has been approved by the Washington state apprenticeship and training council pursuant to chapter 49.04 RCW.

Approved. Approved by the department.

Competent Instructor. An instructor who has demonstrated satisfactory performance in the occupation for a minimum of three years beyond the customary learning period for that occupation and who:

- Meets the requirements of the state board for community and technical colleges for a vocational-technical instructor; or
- Is recognized within an industry as having expertise in a specific occupation and is a subject matter expert; and
- Has training in teaching techniques and adult learning styles. The training may be acquired before, or within one year after, the competent instructor begins to provide related supplemental instruction.

Certificate. A certificate issued by the department to a person who has completed the twenty-hour training for workers in high hazard facilities. The certificate must include:

- Name of person awarded the certificate;
- Certificate number;
- Discipline for which certificate was conferred;
- Expiration date; and
- A statement that the person receiving the certificate has completed the training.

Department. The Department of Labor and Industries.

Director. The director of the department of labor and industries or the director's designee.

High Hazard Facility. A stationary source that is engaged in activities described in code 324110 or 325110 of the North American industry classification system.

On-site work. Does not include ship and rail car support activities; environmental inspection and testing; security guard services; work which is performed by an original equipment manufacturer for warranty, repair, or

maintenance on the vendor's equipment if required by the original equipment manufacturer's warranty agreement between the original equipment manufacturer and the owner; industrial cleaning not related to construction; safety services requiring professional safety certification; nonconstruction catalyst loading, regeneration, and removal; chemical purging and cleaning; refinery by-product separation and recovery; inspection services not related to construction; and work performed that is not in an apprenticeable occupation.

Owner/Operator.. The owner or operator of a stationary source that is engaged in activities described in code 324110 or 325110 of the North American industry classification system.

Person. Any individual, partnership, firm, association, corporation, sole proprietorship, or the state of Washington or its political subdivisions.

Registered Apprentice. An apprentice registered in an apprenticeship program approved by the Washington state apprenticeship and training council according to chapter 49.04 RCW.

Revocation. A withdrawal of a certification issued by the department, or department approval.

Skilled and trained workforce. A workforce that meets both of the following criteria:

1. All the workers are either registered apprentices or skilled journeypersons; and
2. The workforce meets the approved advanced safety training requirements established in this chapter, and the apprenticeship graduation established in RCW 49.80.030.

Skilled journeyperson. The worker either graduated from an apprenticeship program for the applicable occupation that was approved by the Washington state apprenticeship and training council according to chapter 49.04 RCW, or has at least as many hours of on-the-job experience in the applicable occupation that would be required to graduate from an apprenticeship program approved by the Washington state apprenticeship and training council according to chapter 49.04 RCW, and who is paid a wage meeting the requirements of RCW 49.80.010(7)(b).

Suspension. A temporary withdrawal of department course approval. No suspension may be less than six months or longer than one year.

WAC 296-71-010 Training Certification.

1. To qualify for an advanced safety training certificate, an individual must:
 - a. Attend and successfully complete an approved twenty-hour advanced safety training course for workers at high hazard facilities.
 - b. Complete an application through an approved training course sponsor.
2. Workers must do the following to renew and continue certification prior to the certificate expiration date:

- a. Attend and successfully complete an approved twenty-hour advanced safety training course for workers at high hazard facilities.
 - b. Complete an application through an approved training course sponsor.
3. Certificates will be issued and mailed to the individual applicants and will be valid for three years from the date of course completion.
 4. The department may suspend or revoke a certificate as provided in WAC 296-71-050.

WAC 296-71-020 Methods of Compliance.

1. All workers in the skilled and trained workforce must have completed within the past three calendar years at least twenty hours of approved advanced safety training for workers at high hazard facilities.
2. The owner/operator must have documentation showing that all workers meet the definition of a "skilled and trained workforce". This documentation must be provided to the department upon request.

WAC 296-71-030 Training course approval.

20-hour training approved by the department.

1. High hazard facilities 20-hour training courses may be sponsored by any person, or other entity having department approval. An approved course must meet the minimum required elements for approved course in Appendix A, including topics and hours.
2. Prior to receiving department approval, each course must be evaluated by the department for the breadth of knowledge and experience required to properly train workers. Course content must be carefully scrutinized for adequacy and accuracy. Training techniques will be evaluated by the department.
3. Sponsors of training courses proposed for approval must submit:
 - a. Background information about course sponsors;
 - b. Course locations and fees;
 - c. Copies of course handouts;
 - d. A detailed description of course content and the amount of time allotted to each major topic. See appendix A for a list of required training topics that must be included;
 - e. A description of teaching methods to be utilized and a list of all audio-visual materials; the department may, in its discretion, request that copies of the materials be provided for review;
 - f. A list of all personnel involved in course preparation and presentation and a description of the background, special training and qualifications of each. Training must be taught by competent instructors. The department may, in its discretion, require proposed instructors to pass an examination on subjects related to their respective topics of instruction;
 - g. A description of student evaluation methods;
 - h. A description of course evaluation methods;
 - i. Any restrictions on attendance (language, class size, affiliation, etc.);

- j. A list of any other states that currently approve the training course;
 - k. The amount and type of hands-on training.
4. Materials may be mailed to (Address, or submitted electronically through the online portal).
5. For timely approval, the initial application for training course approval and course materials must be submitted to the department at least sixty days prior to the requested approval date.
6. The decision to grant or renew approval of a training course must be the sole discretion of the department.
 - a. Following approval of a training course, the department will issue the course sponsor an approval that is valid for three years from the date of issuance.
 - b. Application for renewal must follow the procedures described in subsections (3) and (4) of this section.
7. In recognition that the industry is evolving, the department reserves the right to require additional subjects to be taught and to specify the amount of time which must be allotted to adequately cover required subjects. To ensure adequate coverage of required material, each course sponsor must be provided and required to incorporate into their training course, a detailed outline of subject matter developed by the department.
8. For timely approval, the training course approval renewal must be received by the department no later than thirty days before the approval expiration date.
9. Any changes to a training course must be approved by the department in advance.
10. The course sponsor must provide the department with a roster of all persons who have completed the training course. The list must be provided no later than ten days after course completion and must include the:
 - a. Training course provider name;
 - b. Instructor name(s);
 - c. Course name;
 - d. Dates of class;
 - e. Location of class;
 - f. Student's name;
 - g. Student's mailing address;
 - h. Certificate number (if applicable).
11. The course sponsor must notify the department, in writing, at least fourteen days before a training class is scheduled to begin. The notification must include the date, time, instructor, and address where the training will be conducted.
12. A representative of the department may, at the department's discretion, attend a training course as an observer to verify that the training course is conducted in accordance with the program approved by the department.
 - a. Course sponsors conducting training outside the state of Washington must reimburse the department for reasonable travel

- expenses associated with department audits of the training courses.
- b. Reasonable travel expenses are defined as current state of Washington per diem and travel allowance rates including airfare and/or surface transportation rates. Such reimbursement must be paid within thirty days of receipt of the billing notice.
13. The training course sponsor must limit each class to a maximum of thirty participants.
 14. The instructor to student ratio must not exceed one-to-ten.
 15. Denial, suspension, or revocation of approval will be done in accordance with WAC 296-71-050.
 16. Recordkeeping requirements for training providers: All approved providers of accredited training courses must comply with the following minimum recordkeeping requirements:
 - a. Training course materials. A training provider must retain copies of all instructional materials used in delivery of the classroom training such as student manuals, instructor notebooks and handouts.
 - b. Instructor qualifications. A training provider must retain copies of all instructors' resumes, and the documents approving each instructor issued by the department. Instructors must be approved by the department before teaching courses for accreditation purposes. A training provider must notify the department in advance whenever it changes course instructors. Records must accurately identify the instructors that taught each particular class for each date that a course is offered.
 - c. Training records. The training providers must maintain records that document the names of all persons who have completed training, the disciplines for which training was provided, training dates and training locations.
 - d. Record retention and access. The training provider must maintain the records in a manner that allows verification of the required information via telephone, or other communication.
 - i. The training provider must maintain all required training course materials for a minimum of the duration of the course offering plus four years.
 - ii. The training provider must maintain all required instructor qualification records for the duration of the instructor's employment plus four years.
 - iii. The training provider must maintain all required training records for a minimum of four years. The training provider may find it advantageous to retain these records for a longer period.
 - iv. The training provider must allow reasonable access to all of the records which may be required by the department for the approval of training providers or the accreditation of training courses, to the department, on request.
 - v. If a training provider ceases to conduct training, the training provider must notify the department and give it the

opportunity to take possession of that provider's training records.

WAC 296-71-040 Reciprocity.

1. The department may recognize 20-hour high hazard facilities training certifications issued by another state provided that:
 - a. The worker is in possession of a currently valid certification from the other state; and
 - b. The training was completed within the past 3 years; and
 - c. The department evaluates the other state's qualification procedures and determines the certification to be equivalent to the minimum requirements of this chapter.
2. The department will maintain a list of states with recognized 20-hour high hazard facilities training certifications accessible from the department's website.
3. When the department's evaluation of another state's training and certification procedures identifies deficiencies, the department will require the worker to complete the Washington 20-hour high hazard facilities training before issuing a Washington state certification.

Note: Reciprocity in this section applies only to the 20hr high hazard facilities training requirement. It does not apply to apprenticeship requirements.

WAC 296-71-050 Denial and revocation.

1. The department may deny, suspend, or revoke a course approval for failure of the course sponsor to comply with any requirement of this chapter.
2. The department may deny, suspend or revoke any certificate issued under this chapter if the certificate was obtained through error or fraud.
3. The department may suspend, or revoke the training course approval, if in the department's judgment the sponsor fails to maintain the course content and quality as initially approved, or fails to make changes to a course as required by WAC 296-71-030(7). The minimum criteria for withdrawal of training course approval must include at least one of the following:
 - a. Misrepresentation of the extent of training course approval;
 - b. Failure to submit required information or notification in a timely manner;
 - c. Failure to maintain requisite records;
 - d. Falsification of accreditation records, instructor qualifications, or other accreditation information; or
 - e. Failure to adhere to the training standards and accreditation requirements of this chapter.
4. The criteria for denying, suspending, or revoking a certificate for workers must include at least one of the following:
 - a. Obtaining certification from a training provider that does not have approval to offer training;

- b. Obtaining certification through fraudulent representation of training documents;
 - c. Obtaining training documentation through fraudulent means;
5. Before any course approval or certificate may be denied, suspended, or revoked, the holder thereof must be given written notice of the department's intention to do so, mailed by registered mail, return receipt requested, to the holder's last known address. The notice must give them the opportunity to request a hearing before the department. At such hearing, the department and the holder must have the opportunity to produce witnesses and give testimony. Following such hearing, the department will issue an order.
6. A denial, suspension, or revocation order may be appealed to the department within fifteen working days after the denial, suspension, or revocation order is entered. The notice of appeal must be sent to the department.

Appendix A: Training course content - Mandatory

Topic	Hours and Applicable Codes	Overview of Content
Fundamentals of Petroleum Refining	4.0 hours	
		<input type="checkbox"/> Maintaining clearances around panels <input type="checkbox"/> Using proper protective devices <input type="checkbox"/> Eliminating access to exposed energized parts
Pipefitting	<u>Chapter 296-155 WAC:</u> <ul style="list-style-type: none"> • Part H Welding and Cutting • Part D Fire protection and prevention • Part G Tools - Hand and power • Part L Rigging and Signaling with cranes • Part F-1 Rigging other than with the use of a crane (winch/tugger, chainfall, etc.) 	<input type="checkbox"/> Basic knowledge of pipe safety: including eliminating risk of contamination in process lines through fit, purge, weld techniques and pre & post weld buffing and machining <input type="checkbox"/> Basic knowledge of testing lines e.g.: non-destructive pipe testing techniques Safety regarding fuel and pressure pipes including design, construction, location, leak detection and environmental considerations <input type="checkbox"/> Pressure vessel fabrication certification <input type="checkbox"/> Welding qualifications <input type="checkbox"/> Knowledge and application of relevant standards <input type="checkbox"/> Pipe corrosion

		<input type="checkbox"/> Pipe cracks <input type="checkbox"/> Pipe modifications e.g.: removing; cutting into or destroying existing pipe lines and piping, installing new pipes, maintaining old pipes, etc.
Boilermakers	<u>Chapter 296-155 WAC:</u> <ul style="list-style-type: none"> • Part H Welding and Cutting • Part D Fire protection and prevention • Part G Tools - Hand and power • Part L Rigging and Signaling with cranes • Part F-1 Rigging other than with the use of a crane (winch/tugger, chainfall, etc.) 	<input type="checkbox"/> List the specific hazards associated with the boilermaking field <input type="checkbox"/> Describe the various respiratory hazards encountered by <input type="checkbox"/> boilermakers Discuss the hazards associated with working at height <input type="checkbox"/> Describe the equipment used to work at height and identify the certification requirements <input type="checkbox"/> needed to operate that equipment
Operating Engineers	<u>Chapter 296-155 WAC:</u> <input type="checkbox"/> Part L Rigging and Signaling with cranes	<input type="checkbox"/> Crane principles, rigging signaling <input type="checkbox"/> Forklift principles
Finishing Trades	<u>Chapter 296-155 WAC:</u> <ul style="list-style-type: none"> • Part F General requirements for storage (Brick/block, handling cement/lime) • Part G Tools - Hand and power • Part O Concrete, Concrete forms, Shoring, and Masonry Construction 	<input type="checkbox"/> Lead Renovator, Repair and Painting Program (RRP) Toxic Substance Control Act (TSCA) Section 402/Chapter 365-230 WAC
Cement Masons	<u>Chapter 296-155 WAC:</u> <ul style="list-style-type: none"> • Part F General requirements for storage (Brick/block, handling cement/lime) • Part G Tools - Hand and power • Part O Concrete, Concrete forms, 	<input type="checkbox"/> How Cement Masons work relates to other work performed in the refinery

	Shoring, and Masonry Construction	
Ironworkers	<p><u>Chapter 296-155 WAC:</u></p> <ul style="list-style-type: none"> • Part H Welding and Cutting • Part D Fire protection and prevention • Part G Tools - Hand and power • Part O Concrete, Concrete forms, Shoring, and Masonry Construction (reinforcing) • Part P Steel Erection • Part L Rigging and Signaling with cranes • Part F-1 Rigging other than with the use of a crane (winch/tugger, chainfall, etc.) 	<input type="checkbox"/> How Ironworkers work relates to other work performed in the refinery
Crude oil and its properties	TBD/provider materials	<ul style="list-style-type: none"> • Basic high level as to the hazards of crude, i.e. carcinogenic fractions, temps, flammability and known locations and preventive mitigations • Fundamentals of the petroleum refining industry • Crude oil and its properties • Classes of refinery processes and refinery configurations • Properties of the refinery produced streams • Refinery hazards and emergency response procedures

Classes of refinery processes and refinery configurations	TBD/provider materials	Introduction to the four key refining processes: Heavy Oil, Light Oils, Hydro-processing and the Peripheral Units (Movement/storage, Cooling towers, Sulphur recovery, Flare, Utilities)
Properties of the refinery-produced streams	TBD/provider materials	Fraction weights, units pulling product from and sending product to. The relationship of the units relating to the overall process
Refinery hazards and emergency response procedures	TBD/provider materials	
Refinery Safety Overview	8.0 hours	
Hazard communication	<input type="checkbox"/> Chapter 296-901 WAC	Overview
Emergency action plan awareness	<input type="checkbox"/> WAC 296-800-310	Details of emergency action plan concepts
Process Safety Management for refineries	<input type="checkbox"/> Chapter 296-67 WAC	Overview of the requirements for Process Safety Management, including: workplace assessments, stop work authority, job hazard analysis, contractor and employee participation level, root cause is mentioned in the context of near miss investigations
Emergency response	<ul style="list-style-type: none"> • Chapter 296-824 WAC, Emergency Response • WAC 296-24-567 Employee Emergency Plans and Fire Prevention Plans 	Overview

Fire brigades	<input type="checkbox"/> Chapter 296-811 WAC	Understanding how refinery fire brigades work and limitations
Fire prevention and protection	<ul style="list-style-type: none"> • WAC 296-24-567 (general industry) • WAC 296-155-250 (construction industry) 	Basic overview of fire hazards (hydrocarbons/ignition sources, etc.)
Toxicology	<input type="checkbox"/> Chapter 296-901 WAC	<ul style="list-style-type: none"> • Maintains alignment with Hazard Communication standard, Safety Data Sheets introduced, sections and their use. • Details which common chemicals exist and their locations, methods for identification (operator, signs, supervision) and briefly touch on signs & symptoms based off SDS information
Personal protective equipment (PPE) for refinery work	<ul style="list-style-type: none"> • WAC 296-800-160 (general industry) • WAC 296-155-200 (construction industry) 	<ul style="list-style-type: none"> • Fire resistant clothing • Head protection • Eye protection • Foot protection • Foot protection • Hearing protection • Contaminated clothing
Respiratory protection	<input type="checkbox"/> Chapter 296-842 WAC	Overview
Hearing conservation	<input type="checkbox"/> Chapter 296-817 WAC	Overview
Lockout/Tagout	<input type="checkbox"/> Chapter 296-803 WAC (general industry)	Overview
	<input type="checkbox"/> WAC 296-155-429 (construction industry)	
Confined spaces	<input type="checkbox"/> Chapter 296-809 WAC (general industry) in addition to WAC 296-155-203 (construction industry)	Overview
Heat related illness	<input type="checkbox"/> WAC 296-62-095	Overview
Refinery safe work practices	<input type="checkbox"/> TBD/provider materials	Owner and contractor implemented tools - Stop Work Authority, permitting, hazard identification tools / programs, safety meetings, site audits/ observations.

Refinery process overview	<input type="checkbox"/> TBD/provider materials	Overview of the different types of processes and related hazards
Craft-specific safety training -	8.0 hours	Students will learn about examples of specific interdependencies and relationships of trades for work being performed in the field. Examples will include stacked work, dissimilar trades in direct proximity with each other, dissimilar risks associated with trade types (i.e. electrical energy, product energy, radiation, potential falling objects etc.) job sequencing, and barricading
Hot Work	<ul style="list-style-type: none"> • WAC 296-24-695 Fire prevention and protection (general industry) • WAC 296-155-250 Fire prevention and protection (construction industry) 	
Working at heights	<ul style="list-style-type: none"> • Chapter 296-874 WAC, Scaffolds • Chapter 296-880 WAC, Unified Safety Standards for Fall Protection 	
Electrical	<ul style="list-style-type: none"> • WAC 296-24-957 (general industry) • WAC 296-155-426 (construction industry) 	<ul style="list-style-type: none"> • Understanding electric shock and electrocution • Recognizing potential hazards around work involving electricity
Fundamentals of Petroleum Refining	4.0 hours	
		<ul style="list-style-type: none"> <input type="checkbox"/> Maintaining clearances around panels <input type="checkbox"/> Using proper protective devices <input type="checkbox"/> Eliminating access to exposed energized parts

Pipefitting	<p><u>Chapter 296-155 WAC:</u></p> <ul style="list-style-type: none"> • Part H Welding and Cutting • Part D Fire protection and prevention • Part G Tools - Hand and power • Part L Rigging and Signaling with cranes • Part F-1 Rigging other than with the use of a crane (winch/tugger, chainfall, etc.) 	<ul style="list-style-type: none"> <input type="checkbox"/> Basic knowledge of pipe safety: including eliminating risk of contamination in process lines through fit, purge, weld techniques and pre & post weld buffing and machining <input type="checkbox"/> Basic knowledge of testing lines e.g.: non-destructive pipe testing techniques <input type="checkbox"/> Safety regarding fuel and pressure pipes including design, construction, location, leak detection and environmental considerations <input type="checkbox"/> Pressure vessel fabrication certification <input type="checkbox"/> Welding qualifications <input type="checkbox"/> Knowledge and application of relevant standards <input type="checkbox"/> Pipe corrosion <input type="checkbox"/> Pipe cracks <input type="checkbox"/> Pipe modifications e.g.: removing; cutting into or destroying existing pipe lines and piping, installing new pipes, maintaining old pipes, etc.
Boilermakers	<p><u>Chapter 296-155 WAC:</u></p> <ul style="list-style-type: none"> • Part H Welding and Cutting • Part D Fire protection and prevention • Part G Tools - Hand and power • Part L Rigging and Signaling with cranes • Part F-1 Rigging other than with the use of a crane (winch/tugger, chainfall, etc.) 	<ul style="list-style-type: none"> <input type="checkbox"/> List the specific hazards associated with the boilermaking field <input type="checkbox"/> Describe the various respiratory hazards encountered by boilermakers <input type="checkbox"/> Discuss the hazards associated with working at height <input type="checkbox"/> Describe the equipment used to work at height and identify the certification requirements needed to operate that equipment
Operating Engineers	<p><u>Chapter 296-155 WAC:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Part L Rigging and Signaling with cranes 	<ul style="list-style-type: none"> <input type="checkbox"/> Crane principles, rigging signaling <input type="checkbox"/> Forklift principles

Finishing Trades	<u>Chapter 296-155 WAC:</u> <ul style="list-style-type: none"> • Part F General requirements for storage (Brick/block, handling cement/lime) • Part G Tools - Hand and power • Part O Concrete, Concrete forms, Shoring, and Masonry Construction 	<input type="checkbox"/> Lead Renovator, Repair and Painting Program (RRP) Toxic Substance Control Act (TSCA) Section 402/Chapter 365-230 WAC
Cement Masons	<u>Chapter 296-155 WAC:</u> <ul style="list-style-type: none"> • Part F General requirements for storage (Brick/block, handling cement/lime) • Part G Tools - Hand and power • Part O Concrete, Concrete forms, Shoring, and Masonry Construction 	<input type="checkbox"/> How Cement Masons work relates to other work performed in the refinery
Ironworkers	<u>Chapter 296-155 WAC:</u> <ul style="list-style-type: none"> • Part H Welding and Cutting • Part D Fire protection and prevention • Part G Tools - Hand and power • Part O Concrete, Concrete forms, Shoring, and Masonry Construction (reinforcing) • Part P Steel Erection • Part L Rigging and Signaling with cranes • Part F-1 Rigging other than with the use of a crane (winch/tugger, chainfall, etc.) 	<input type="checkbox"/> How Ironworkers work relates to other work performed in the refinery