

WSR 23-03-092
EXPEDITED RULES
DEPARTMENT OF
LABOR AND INDUSTRIES
[Filed January 17, 2023, 8:58 a.m.]

Title of Rule and Other Identifying Information: Chapter 296-850 WAC, Beryllium.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: The department of labor and industries' (L&I) division of occupational safety and health (DOSH) is proposing amendments to chapter 296-850 WAC, Beryllium, necessary to align with the federal Occupational Safety and Health Administration (OSHA) Final Rule Revising the Beryllium Standard for General Industry, 29 C.F.R. 1910.1024, and OSHA Final Rule Occupational Exposure to Beryllium and Beryllium Compounds in Construction and Shipyard Sectors, 29 C.F.R. 1915.1024 and 1926.1124.

Reasons Supporting Proposal: As an OSHA state plan, DOSH must ensure that Washington Industrial Safety and Health Act rules under Title 296 WAC are "at-least-as-effective-as" federal OSHA standards, and where practical state rules that are identical or substantively similar to federal rules help to reduce confusion and aid compliance among the regulated community.

This proposal includes only changes that will bring chapter 296-850 WAC, Beryllium, into alignment with OSHA's recently updated 29 C.F.R. 1910.1024, 1915.1024, and 1926.1124, and does not include any additional requirements for employers. OSHA's final rule eliminated some requirements for construction and maritime that remain in chapter 296-850 WAC because the Washington rule covers all industries, and this proposed rule making adds clarifying language to that effect where appropriate.

OSHA's stated purpose for the changes contained within their most recent final rules pertaining to Beryllium is "to clarify certain provisions and simplify or improve compliance." OSHA further asserts that, "the revisions in this final rule are designed to maintain or enhance worker protections overall by ensuring that the rule is well understood and compliance is more straightforward."

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

Statute Being Implemented: Chapter 49.17 RCW.

Rule is necessary because of federal law, federal OSHA regulation 29 C.F.R. 1910, 1915, and 1926.

Name of Proponent: L&I, governmental.

Name of Agency Personnel Responsible for Drafting: Teri Neely, Tumwater, Washington, 360-902-6652; Implementation and Enforcement: Craig Blackwood, Tumwater, Washington, 360-902-5828.

Agency Comments or Recommendations, if any, as to Statutory Language, Implementation, Enforcement, and Fiscal Matters: Not applicable.

This notice meets the following criteria to use the expedited adoption process for these rules:

Adopts or incorporates by reference without material change federal statutes or regulations, Washington state statutes, rules of other Washington state agencies, shoreline master programs other than those programs governing shorelines of statewide significance, or, as referenced by Washington state law, national consensus codes that generally establish

industry standards, if the material adopted or incorporated regulates the same subject matter and conduct as the adopting or incorporating rule.

Corrects typographical errors, makes address or name changes, or clarifies language of a rule without changing its effect.

Explanation of the Reason the Agency Believes the Expedited Rule-Making Process is Appropriate: The expedited rule-making process is appropriate due to no material change occurring from OSHA regulations, which fits within the parameters of RCW 34.05.353 Expedited rule making.

NOTICE

THIS RULE IS BEING PROPOSED UNDER AN EXPEDITED RULE-MAKING PROCESS THAT WILL ELIMINATE THE NEED FOR THE AGENCY TO HOLD PUBLIC HEARINGS, PREPARE A SMALL BUSINESS ECONOMIC IMPACT STATEMENT, OR PROVIDE RESPONSES TO THE CRITERIA FOR A SIGNIFICANT LEGISLATIVE RULE. IF YOU OBJECT TO THIS USE OF THE EXPEDITED RULE-MAKING PROCESS, YOU MUST EXPRESS YOUR OBJECTIONS IN WRITING AND THEY MUST BE SENT TO Kevin Walder, L&I, DOSH, P.O. Box 44620, Olympia, WA 98504-4620, phone 360-902-6681, fax 360-902-5619, email Kevin.Walder@Lni.wa.gov, AND RECEIVED BY March 20, 2023.

January 17, 2023
Joel Sacks
Director

OTS-4073.3

AMENDATORY SECTION (Amending WSR 18-17-156, filed 8/21/18, effective 12/12/18)

WAC 296-850-090 Definitions. For the purposes of this section the following definitions apply:

(1) **Action level** - A concentration of airborne beryllium of 0.1 micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$) calculated as an 8-hour time-weighted average (TWA).

(2) **Airborne exposure and airborne exposure to beryllium** - The exposure to airborne beryllium that would occur if the employee were not using a respirator.

(3) **Beryllium lymphocyte proliferation test (BeLPT)** - The measurement of blood lymphocyte proliferation in a laboratory test when lymphocytes are challenged with a soluble beryllium salt.

(4) **Beryllium work area** - Any work area (÷

~~(a) Containing a process or operation that can release beryllium and involves material that contains at least 0.1 percent beryllium by weight; and~~

~~(b) Where employees are, or can reasonably be expected to be, exposed to airborne beryllium at any level or where there is the potential for dermal contact with beryllium)) where materials that contain at least 0.1 percent beryllium by weight are processed either:~~

~~(a) During any of the operations listed in Appendix A of this standard; or~~

(b) Where employees are, or can reasonably be expected to be, exposed to airborne beryllium at or above the action level.

(5) CBD diagnostic center - A medical diagnostic center that has ~~((an on-site))~~ a pulmonary specialist and on-site facilities to perform a clinical evaluation for the presence of chronic beryllium disease (CBD). ~~((This evaluation must include))~~ The CBD diagnostic center must have the capacity to perform pulmonary function testing (as outlined by the American Thoracic Society criteria), bronchoalveolar lavage (BAL), and transbronchial biopsy. The CBD diagnostic center must also have the capacity to transfer BAL samples to a laboratory for appropriate diagnostic testing within ~~((twenty-four))~~ 24 hours. The on-site pulmonary specialist must be able to interpret the biopsy pathology and the BAL diagnostic test results.

(6) Chronic beryllium disease (CBD) - A chronic granulomatous (inflammatory) disease primarily of the lung, caused by exposure to beryllium, that meets the diagnostic criteria published in the department of labor and industries clinical guideline for the *Diagnosis of Beryllium Sensitization and Chronic Beryllium Disease*.

(7) Competent person - An individual who is capable of identifying existing and foreseeable beryllium hazards in the workplace and who has authorization to take prompt corrective measures to eliminate or minimize them. The competent person must have the knowledge, ability, and authority necessary to fulfill the responsibilities set forth in WAC 296-850-125. This term is applicable in construction work conducted under contract with a building or facility owner or other building representative.

(8) Confirmed positive - The person tested has beryllium sensitization, as indicated by two abnormal BeLPT test results, an abnormal and a borderline test result, or three borderline test results, or any cases confirmed by the criteria published in the department of labor and industries clinical guideline for the *Diagnosis of Beryllium Sensitization and Chronic Beryllium Disease*. It also means the result of a more reliable and accurate test indicating a person has been identified as having beryllium sensitization.

(9) Construction work - All or any part of excavation, construction, erection, alteration, repair, demolition, and dismantling, of buildings and other structures and all operations in connection therewith; the excavation, construction, alteration and repair of sewers, trenches, caissons, conduits, pipe lines, roads and all operations pertaining thereto; the moving of buildings and other structures, and to the construction, alteration, repair, or removal of wharfs, docks, bridges, culverts, trestles, piers, abutments or any other construction, alteration, repair or removal work related thereto.

(10) Contaminated with beryllium and beryllium-contaminated - Contaminated with dust, fumes, mists, or solutions containing beryllium in concentrations greater than or equal to 0.1 percent by weight.

(11) Dermal contact with beryllium - Skin exposure to:

- (a) Soluble beryllium compounds containing beryllium in concentrations greater than or equal to 0.1 percent by weight;
- (b) Solutions containing beryllium in concentrations greater than or equal to 0.1 percent by weight; or
- (c) Visible dust, fumes, or mists containing beryllium in concentrations greater than or equal to 0.1 percent by weight.

Note: The handling of beryllium materials in nonparticulate solid form that are free from visible dust containing beryllium in concentrations greater than or equal to 0.1 percent by weight is not considered dermal contact under the standard.

(12) Emergency - Any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equip-

ment, which may or does result in an uncontrolled and unintended release of airborne beryllium that presents a significant hazard.

(13) High-efficiency particulate air (HEPA) filter - A filter that is at least 99.97 percent efficient in removing particles 0.3 micrometers in diameter.

(14) Objective data - Information, such as air monitoring data from industry-wide surveys or calculations based on the composition of a substance, demonstrating airborne exposure to beryllium associated with a particular product or material or a specific process, task, or activity. The data must reflect workplace conditions closely resembling or with a higher airborne exposure potential than the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

(15) Physician or other licensed health care professional (PLHCP) - An individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows the individual to independently provide or be delegated the responsibility to provide some or all of the health care services required by WAC 296-850-155.

(16) Regulated area - An area, including temporary work areas where maintenance or nonroutine tasks are performed, where an employee's airborne exposure exceeds, or can reasonably be expected to exceed, either the time-weighted average (TWA) permissible exposure limit (PEL) or short term exposure limit (STEL).

(17) Ship breaking - Breaking down a vessel's structure to scrap the vessel, including the removal of gear, equipment or any component part of a vessel.

(18) Ship building - Construction of a vessel, including the installation of machinery and equipment.

(19) Ship repairing - Repair of a vessel including, but not limited to, alterations, conversions, installations, cleaning, painting, and maintenance.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060, and chapter 49.17 RCW. WSR 18-17-156, § 296-850-090, filed 8/21/18, effective 12/12/18.]

AMENDATORY SECTION (Amending WSR 18-17-156, filed 8/21/18, effective 12/12/18)

WAC 296-850-130 Methods of compliance. (1) Written exposure control plan.

(a) The employer must establish, implement, and maintain a written exposure control plan, which must contain:

(i) A list of operations and job titles reasonably expected to involve airborne exposure to or dermal contact with beryllium;

(ii) A list of operations and job titles reasonably expected to involve airborne exposure at or above the action level;

(iii) A list of operations and job titles reasonably expected to involve airborne exposure above the TWA PEL or STEL;

(iv) Procedures for minimizing cross-contamination, including ((preventing)) the transfer of beryllium between surfaces, equipment, clothing, materials, and articles within beryllium work areas;

(v) Procedures for keeping surfaces as free as practicable of beryllium;

(vi) Procedures for minimizing the migration of beryllium from beryllium work areas to other locations within or outside the workplace. For construction and shipyard work, procedures used to ensure the integrity of each containment used to minimize exposures to employees outside the containment are sufficient;

(vii) A list of engineering controls, work practices, and respiratory protection required by subsection (2) of this section engineering and work practice controls, of this rule;

(viii) A list of personal protective clothing and equipment required by WAC 296-850-140 Personal protective clothing and equipment, of this rule;

(ix) Procedures for removing, laundering, storing, leaning, repairing, and disposing of beryllium-contaminated personal protective clothing and equipment, including respirators; and

(x) For construction work, procedures used to restrict access to work areas when airborne exposures are, or can reasonably be expected to be, above the TWA PEL or STEL, to minimize the number of employees exposed to airborne beryllium and their level of exposure, including exposures generated by other employers or sole proprietors.

(b) The employer must review and evaluate the effectiveness of each written exposure control plan at least annually and update it, as necessary, when:

(i) Any change in production processes, materials, equipment, personnel, work practices, or control methods results, or can reasonably be expected to result, in new or additional airborne exposure to beryllium;

(ii) The employer is notified that an employee is eligible for medical removal in accordance with WAC 296-850-160, referred for evaluation at a CBD diagnostic center, or shows signs or symptoms associated with ((airborne)) exposure to ((~~or dermal contact with~~)) beryllium; or

(iii) The employer has any reason to believe that new or additional airborne exposure is occurring or will occur.

(c) The employer must make a copy of the written exposure control plan accessible to each employee who is, or can reasonably be expected to be, exposed to airborne beryllium in accordance with chapter 296-802 WAC, Employee medical and exposure records.

(2) Engineering and work practice controls.

(a) The employer must use engineering and work practice controls to reduce and maintain employee airborne exposure to beryllium to or below the PEL and STEL, unless the employer can demonstrate that such controls are not feasible. Wherever the employer demonstrates that it is not feasible to reduce airborne exposure to or below the PELs with engineering and work practice controls, the employer must implement and maintain engineering and work practice controls to reduce airborne exposure to the lowest levels feasible and supplement these controls using respiratory protection in accordance with WAC 296-850-135 Respiratory protection.

(b) Where exposures are, or can reasonably be expected to be, at or above the action level, the employer must ensure that at least one of the following is in place to reduce airborne exposure:

(i) Material and/or process substitution;

(ii) Isolation, such as ventilated partial or full enclosures;

(iii) Local exhaust ventilation, such as at the points of operation, material handling, and transfer; or

(iv) Process control, such as wet methods and automation.

(c) An employer is exempt from using these controls to the extent that:

- (i) The employer can establish that such controls are not feasible; or
- (ii) The employer can demonstrate that airborne exposure is below the action level, using no fewer than two representative personal breathing zone samples taken at least seven days apart, for each affected operation.

(3) **Prohibition of rotation.** The employer must not rotate employees to different jobs to achieve compliance with the PELs.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060, and chapter 49.17 RCW. WSR 18-17-156, § 296-850-130, filed 8/21/18, effective 12/12/18.]

AMENDATORY SECTION (Amending WSR 18-17-156, filed 8/21/18, effective 12/12/18)

WAC 296-850-140 Personal protective clothing and equipment. (1) **Provision and use.** The employer must provide at no cost, and ensure that each employee uses, appropriate personal protective clothing and equipment in accordance with the written exposure control plan required under subsection (1) of this section and other applicable requirements for personal protective equipment. (WAC 296-800-160 Summary personal protective equipment (PPE). Chapter 296-155 WAC, Part C, Personal protective and lifesaving equipment. WAC 296-304-090 Personal protective equipment (PPE)—General requirements.):

(a) Where airborne exposure exceeds, or can reasonably be expected to exceed, the TWA PEL or STEL; or

(b) Where there is a reasonable expectation of dermal contact with beryllium.

(2) **Removal and storage.**

(a) The employer must ensure that each employee removes all beryllium-contaminated personal protective clothing and equipment at the end of the work shift, at the completion of all tasks involving beryllium, or when personal protective clothing or equipment becomes visibly contaminated with beryllium, whichever comes first.

(b) The employer must ensure that each employee removes beryllium-contaminated personal protective clothing and equipment as specified in the written exposure control plan required by WAC 296-850-130(1).

(c) The employer must ensure that each employee stores and keeps beryllium-contaminated personal protective clothing and equipment separate from street clothing and that storage facilities prevent cross-contamination as specified in the written exposure control plan required by WAC 296-850-130(1).

(d) The employer must ensure that no employee removes beryllium-contaminated personal protective clothing or equipment from the workplace, except for employees authorized to do so for the purposes of laundering, cleaning, maintaining or disposing of beryllium-contaminated personal protective clothing and equipment at an appropriate location or facility away from the workplace.

(e) When personal protective clothing or equipment required by this standard is removed from the workplace for laundering, cleaning,

maintenance or disposal, the employer must ensure that personal protective clothing and equipment are stored and transported in sealed bags or other closed containers that are impermeable and are labeled in accordance with WAC 296-850-165(3) and chapter 296-901 WAC, Globally harmonized system for hazard communication.

(3) **Cleaning and replacement.**

(a) The employer must ensure that all reusable personal protective clothing and equipment required by this standard is cleaned, laundered, repaired, and replaced as needed to maintain its effectiveness.

(b) The employer must ensure that beryllium is not removed from beryllium-contaminated personal protective clothing and equipment by blowing, shaking or any other means that disperses beryllium into the air.

(c) The employer must inform in writing the persons or the business entities who launder, clean or repair the personal protective clothing or equipment required by this standard of the potentially harmful effects of ((airborne)) exposure to ((and dermal contact with)) beryllium and that the personal protective clothing and equipment must be handled in accordance with this standard.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060, and chapter 49.17 RCW. WSR 18-17-156, § 296-850-140, filed 8/21/18, effective 12/12/18.]

AMENDATORY SECTION (Amending WSR 18-17-156, filed 8/21/18, effective 12/12/18)

WAC 296-850-145 Hygiene areas and practices. (1) **General.** For each employee working in a beryllium work area, who can reasonably be expected to have dermal contact with beryllium, or who is required to use personal protective clothing or equipment by this rule in construction work, ship breaking, ship building, or ship repairing, the employer must:

(a) Provide readily accessible washing facilities in accordance with this standard and other applicable sanitation standards (WAC 296-800-230 Summary (drinking water, bathrooms, washing facilities and waste disposal); WAC 296-155-140 Sanitation; WAC 296-304-06002 Sanitation) to remove beryllium from the hands, face, and neck; and

(b) Ensure that employees who have dermal contact with beryllium wash any exposed skin at the end of the activity, process, or work shift and prior to eating, drinking, smoking, chewing tobacco or gum, applying cosmetics, or using the toilet.

(2) **Change rooms.** In addition to the requirements of subsection (1)(a) of this section, the employer must provide employees who ((work in a beryllium work area)) are required to use personal protective clothing or equipment under WAC 296-850-140 (1)(b) with a designated change room in accordance with this standard and other applicable sanitation standards (WAC 296-800-230 Summary (drinking water, bathrooms, washing facilities and waste disposal); WAC 296-155-140 Sanitation; WAC 296-304-06002 Sanitation) where employees are required to remove their personal clothing.

(3) **Showers.**

(a) The employer must provide showers in accordance with other applicable sanitation standards (WAC 296-800-230 Summary (drinking wa-

ter, bathrooms, washing facilities and waste disposal); WAC 296-155-140 Sanitation; WAC 296-304-06002 Sanitation) where:

(i) Airborne exposure exceeds, or can reasonably be expected to exceed, the TWA PEL or STEL; and

(ii) Employees' hair or body parts other than hands, face, and neck can reasonably be expected to become contaminated with beryllium.

(b) Employers required to provide showers must ensure that each employee showers at the end of the work shift or work activity if:

(i) The employee reasonably could have had airborne exposure above the TWA PEL or STEL; and

(ii) The employee's hair or body parts other than hands, face, and neck could reasonably have become contaminated with beryllium.

(4) **Eating and drinking areas.** Wherever the employer allows employees to consume food or beverages at a worksite where beryllium is present, the employer must ensure that:

(a) Beryllium-contaminated surfaces in eating and drinking areas are as free as practicable of beryllium;

(b) No employees enter any eating or drinking area with beryllium-contaminated personal protective clothing or equipment unless, prior to entry, ~~((surface))~~ it is cleaned, as necessary, to be as free as practicable of beryllium ~~((has been removed from the clothing or equipment))~~ by methods that do not disperse beryllium into the air or onto an employee's body; and

(c) Eating and drinking facilities provided by the employer are in accordance with other applicable sanitation standards (WAC 296-800-230 Summary (drinking water, bathrooms, washing facilities and waste disposal); WAC 296-155-140 Sanitation; WAC 296-304-06002 Sanitation).

(5) **Prohibited activities.** The employer must ensure that no employees eat, drink, smoke, chew tobacco or gum, or apply cosmetics in regulated areas and other work areas where there is a reasonable expectation of exposure above the TWA PEL or STEL.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060, and chapter 49.17 RCW. WSR 18-17-156, § 296-850-145, filed 8/21/18, effective 12/12/18.]

AMENDATORY SECTION (Amending WSR 18-17-156, filed 8/21/18, effective 12/12/18)

WAC 296-850-150 Housekeeping. (1) General.

(a) The employer must maintain all surfaces in beryllium work areas and regulated areas as free as practicable of beryllium and in accordance with the written exposure control plan required under WAC 296-850-130(1) and the cleaning methods required under this subsection;

(b) In construction work, ship breaking, ship building or ship repairing, when cleaning beryllium-contaminated areas, the employer must follow the written exposure control plan required under WAC 296-850-130(1); and

(c) The employer must ensure that all spills and emergency releases of beryllium are cleaned up promptly and in accordance with the written exposure control plan required under WAC 296-850-130(1) and the cleaning methods required under this subsection.

(2) Cleaning methods.

(a) The employer must ensure that surfaces in beryllium work areas and regulated areas are cleaned by HEPA-filtered vacuuming or other methods that minimize the likelihood and level of airborne exposure.

(b) The employer must not allow dry sweeping or brushing for cleaning surfaces in beryllium-work areas or regulated areas unless HEPA-filtered vacuuming or other methods that minimize the likelihood and level of airborne exposure are not safe or effective.

(c) The employer must not allow the use of compressed air for cleaning beryllium-contaminated surfaces unless the compressed air is used in conjunction with a ventilation system designed to capture the particulates made airborne by the use of compressed air.

(d) Where employees use dry sweeping, brushing, or compressed air to clean beryllium-contaminated surfaces, the employer must provide, and ensure that each employee uses, respiratory protection and personal protective clothing and equipment in accordance with WAC 296-850-135 Respiratory protection, and WAC 296-850-140 Personal protective clothing and equipment.

(e) The employer must ensure that cleaning equipment is handled and maintained in a manner that minimizes the likelihood and level of airborne exposure and the reentrainment of airborne beryllium in the workplace.

(3) **Disposal ((and)), recycling, and reuse.** ((For materials that contain beryllium in concentrations of 0.1 percent by weight or more or are contaminated with beryllium, the employer must ensure that:

~~(a) Materials designated for disposal are disposed of in sealed, impermeable enclosures, such as bags or containers, that are labeled in accordance with WAC 296-850-165(3) warning labels.~~

~~(b) Materials designated for recycling are cleaned to be as free as practicable of surface beryllium contamination and labeled in accordance with WAC 296-850-165(3), or placed in sealed, impermeable enclosures, such as bags or containers, that are labeled in accordance with WAC 296-850-165(3).)~~

(a) Except for intra-plant transfers, when the employer transfers materials that contain at least 0.1 percent beryllium by weight or are contaminated with beryllium for disposal, recycling, or reuse, the employer must label the materials in accordance with WAC 296-850-165(3) Warning labels;

(b) Except for intra-plant transfers, materials designated for disposal that contain at least 0.1 percent beryllium by weight or are contaminated with beryllium must be cleaned to be as free as practicable of beryllium or placed in enclosures that prevent the release of beryllium-containing particulate or solutions under normal conditions of use, storage, or transport, such as bags or containers; and

(c) Except for intra-plant transfers, materials designated for recycling or reuse that contain at least 0.1 percent beryllium by weight or are contaminated with beryllium must be cleaned to be as free as practicable of beryllium or placed in enclosures that prevent the release of beryllium-containing particulate or solutions under normal conditions of use, storage, or transport, such as bags or containers.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060, and chapter 49.17 RCW. WSR 18-17-156, § 296-850-150, filed 8/21/18, effective 12/12/18.]

AMENDATORY SECTION (Amending WSR 18-17-156, filed 8/21/18, effective 12/12/18)

WAC 296-850-155 Medical surveillance. (1) General.

(a) The employer must make medical surveillance required by this section available at no cost to the employee, and at a reasonable time and place, to each employee:

(i) Who is or is reasonably expected to be exposed at or above the action level for more than (~~(thirty)~~) 30 days per year;

(ii) Who shows signs or symptoms of CBD or other beryllium-related health effects;

(iii) Who is exposed to beryllium during an emergency; or

(iv) Whose most recent written medical opinion required by this section recommends periodic medical surveillance.

(b) The employer must ensure that all medical examinations and procedures required by this standard are performed by, or under the direction of, a licensed physician.

(c) When requested by an employee who provides the employer with an abnormal or borderline finding for a single blood BeLPT or two borderline blood BeLPT, the employer must arrange for medical examinations and procedures to be performed at a CBD diagnostic center that is mutually agreed upon by the employer and the employee, or at the CBD diagnostic center requested by the employee, when the center is recognized by the department as a center for research and clinical assessment of chemically related illness (see RCW 51.32.360).

(2) **Frequency.** The employer must provide a medical examination:

(a) Within (~~(thirty)~~) 30 days after determining that:

(i) An employee meets the criteria of subsection (1)(a)(i) of this section, unless the employee has received a medical examination, provided in accordance with this standard, within the last two years; (~~(or who shows signs or symptoms of CBD or other beryllium-related health effects,)~~) or

(ii) An employee meets the criteria of subsection (1)(a)(ii) (~~(or (iii))~~) of this section.

(b) At least every two years thereafter for each employee who continues to meet the criteria of subsection (1)(a)(i), (ii), or (iv) of this section.

(c) At the termination of employment for each employee who meets any of the criteria of subsection (1)(a) of this section at the time the employee's employment terminates, unless an examination has been provided in accordance with this standard during the six months prior to the date of termination. Each employee who meets the criteria of subsection (1)(a)(iii) of this section and who has not received an examination since exposure to beryllium during the emergency must be provided an examination at the time the employee's employment terminates.

(d) For an employee who meets the criteria of subsection (1)(a)(iii) of this section:

(i) If that employee has not received a medical examination within the previous two years pursuant to subsection (1)(a) of this section, then within 30 days after the employee meets the criteria of subsection (1)(a)(iii) of this section; or

(ii) If that employee has received a medical examination within the previous two years pursuant to subsection (1)(a) of this section, then at least one year but no more than two years after the employee meets the criteria of subsection (1)(a)(iii) of this section.

(3) **Contents of examination.**

(a) The employer must ensure that the PLHCP conducting the examination advises the employee of the risks and benefits of participating in the medical surveillance program and the employee's right to opt out of any or all parts of the medical examination.

(b) The employer must ensure that the employee is offered a medical examination that includes:

(i) A medical and work history, with emphasis on past and present airborne exposure to or dermal contact with beryllium, smoking history, and any history of respiratory system dysfunction;

(ii) A physical examination with emphasis on the respiratory system;

(iii) A physical examination for skin rashes;

(iv) Pulmonary function tests, performed in accordance with the guidelines established by the American Thoracic Society including forced vital capacity (FVC) and forced expiratory volume in one second (FEV1);

(v) A standardized BeLPT or equivalent test, upon the first examination and at least every two years thereafter, unless the employee is confirmed positive. If the results of the BeLPT are other than normal, follow-up BeLPT testing must be offered within (~~thirty~~) 30 days, unless the employee has been confirmed positive or unless the employee requests a medical examination as according to subsection (1)(c) of this section. Samples must be analyzed in a laboratory certified under the College of American Pathologists/Clinical Laboratory Improvement Amendments (CLIA) guidelines to perform the BeLPT;

(vi) A low dose computed tomography (LDCT) scan, when recommended by the PLHCP after considering the employee's history of exposure to beryllium along with other risk factors, such as smoking history, family medical history, sex, age, and presence of existing lung disease; and

(vii) Any other test deemed appropriate by the PLHCP.

(4) **Information provided to the PLHCP.** The employer must ensure that the examining PLHCP (and the evaluating CBD diagnostic center, if an evaluation is required under subsection (7) of this section) has a copy of this rule and must provide the following information, if known:

(a) A description of the employee's former and current duties that relate to the employee's airborne exposure to and dermal contact with beryllium;

(b) The employee's former and current levels of airborne exposure;

(c) A description of any personal protective clothing and equipment, including respirators, used by the employee, including when and for how long the employee has used that personal protective clothing and equipment; and

(d) Information from records of employment-related medical examinations previously provided to the employee, currently within the control of the employer, after obtaining written consent from the employee.

(5) **Licensed physician's written medical report for the employee.**

Exception: When the PLHCP assists the worker in filing a claim under Title 51 RCW, Industrial insurance, the PLHCP does not need to prepare a separate report for the employee if all the information required in this section is entered into the claim record, the report is directly shared with the employee, and the PLHCP explains the results of the examination to the employee. The PLHCP may provide additional reports or notes to make sure the employee understands the results of the examination and recommendations.

The employer must ensure that the employee receives a written medical report from the licensed physician within (~~forty-five~~) 45 days of the examination (including any follow-up BeLPT required under subsec-

tion (3)(b)(v) of this section) and that the PLHCP explains the results of the examination to the employee. The written medical report must contain:

(a) A statement indicating the results of the medical examination, including the licensed physician's opinion as to whether the employee has:

(i) Any detected medical condition, such as CBD or beryllium sensitization (i.e., the employee is confirmed positive, as defined in WAC 296-850-090), that may place the employee at increased risk from further airborne exposure; and

(ii) Any medical conditions related to airborne exposure that require further evaluation or treatment.

(b) Any recommendations on:

(i) The employee's use of respirators, protective clothing, or equipment; or

(ii) Limitations on the employee's airborne exposure to beryllium.

(c) If the employee is confirmed positive or diagnosed with CBD or if the licensed physician otherwise deems it appropriate, the written report must also contain a referral for an evaluation at a CBD diagnostic center.

(d) If the employee is confirmed positive or diagnosed with CBD, the written report must also contain a recommendation for continued periodic medical surveillance.

(e) If the employee is confirmed positive or diagnosed with CBD, the written report must also contain a recommendation for medical removal from airborne exposure to beryllium, as described in WAC 296-850-160.

(6) Licensed physician's written medical opinion for the employer.

Exception: When a claim has been initiated the PLHCP does not need to prepare a separate report for the employer if all information required in this section is entered into the claim record. As part of initiating a claim, the employee agrees to share all of the relevant medical records, and the limits on information reported to the employer in this section do not apply.

(a) The employer must obtain a written medical opinion from the licensed physician within (~~forty-five~~) 45 days of the medical examination (including any follow-up BeLPT required under subsection (3)(b)(v) of this section). The written medical opinion must contain only the following:

(i) The date of the examination;

(ii) A statement that the examination has met the requirements;

(iii) Any recommended limitations on the employee's use of respirators, protective clothing, or equipment; and

(iv) A statement that the PLHCP has explained the results of the medical examination to the employee, including any tests conducted, any medical conditions related to airborne exposure that require further evaluation or treatment, and any special provisions for use of personal protective clothing or equipment.

(b) If the employee provides written authorization, the written opinion must also contain any recommended limitations on the employee's airborne exposure to beryllium.

(c) If the employee is confirmed positive or diagnosed with CBD or if the licensed physician otherwise deems it appropriate, and the employee provides written authorization, the written opinion must also contain a referral for an evaluation at a CBD diagnostic center.

(d) If the employee is confirmed positive or diagnosed with CBD and the employee provides written authorization, the written opinion

must also contain a recommendation for continued periodic medical surveillance.

(e) If the employee is confirmed positive or diagnosed with CBD and the employee provides written authorization, the written opinion must also contain a recommendation for medical removal from airborne exposure to beryllium, as described in WAC 296-850-160.

(f) The employer must ensure that each employee receives a copy of the written medical opinion described in this subsection within ~~((forty-five))~~ 45 days of any medical examination (including any follow-up BeLPT required under subsection (3)(b)(v) of this section) performed for that employee.

(7) CBD diagnostic center.

(a) The employer must provide an evaluation at no cost to the employee at a CBD diagnostic center that is mutually agreed upon by the employer and the employee, or at the CBD diagnostic center requested by the employee, when the center is recognized by the department as a center for research and clinical assessment of chemically related illness (see RCW 51.32.360). The examination must be ~~((provided))~~ scheduled within ~~((thirty))~~ 30 days, and must occur within a reasonable time, of:

(i) The employer's receipt of a physician's written medical opinion to the employer that recommends referral to a CBD diagnostic center; or

(ii) The employee presenting to the employer a physician's written medical report indicating that the employee has been confirmed positive or diagnosed with CBD, or recommending referral to a CBD diagnostic center.

(b) The employer must ensure that, as part of the evaluation, the employee is offered any tests deemed appropriate by the examining physician at the CBD diagnostic center, such as pulmonary function testing (as outlined by the American Thoracic Society criteria), bronchoalveolar lavage (BAL), and transbronchial biopsy. If any of the tests deemed appropriate by the examining physician are not available at the CBD diagnostic center, they may be performed at another location that is mutually agreed upon by the employer and the employee.

(c) The employer must ensure that the employee receives a written medical report from the CBD diagnostic center that contains all the information required in subsection (5)(a), (b), (c), and (e) of this section and that the PLHCP explains the results of the examination to the employee within ~~((thirty))~~ 30 days of the examination.

~~((e))~~ (d) The employer must obtain a written medical opinion from the CBD diagnostic center within ~~((thirty))~~ 30 days of the medical examination. The written medical opinion must contain only the information in subsection (6)(a) of this section, as applicable, unless the employee provides written authorization to release additional information. If the employee provides written authorization, the written opinion must also contain the information from subsection (6)(b), (d), and (e) of this section, if applicable.

~~((d))~~ (e) The employer must ensure that each employee receives a copy of the written medical opinion from the CBD diagnostic center described in this subsection within ~~((thirty))~~ 30 days of any medical examination performed for that employee.

~~((e))~~ (f) After an employee has received the initial clinical evaluation at a CBD diagnostic center described in (a) of this subsection, the employee may choose to have any subsequent medical examinations for which the employee is eligible under this section performed at a CBD diagnostic center mutually agreed upon by the employer and

the employee, or at the CBD diagnostic center requested by the employee, when the center is recognized by the department as a center for research and clinical assessment of chemically related illness (see RCW 51.32.360). The employer must provide such examinations at no cost to the employee.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060, and chapter 49.17 RCW. WSR 18-17-156, § 296-850-155, filed 8/21/18, effective 12/12/18.]

AMENDATORY SECTION (Amending WSR 18-17-156, filed 8/21/18, effective 12/12/18)

WAC 296-850-160 Medical removal. (1) An employee is eligible for medical removal, if the employee works in a job with airborne exposure at or above the action level and either:

- (a) The employee provides the employer with:
 - (i) An abnormal or borderline finding for a single blood BeLPT test, until confirmatory testing is completed; or
 - (ii) A written medical report indicating a confirmed positive finding or CBD diagnosis; or
 - (iii) A written medical report recommending removal from airborne exposure to beryllium in accordance with WAC 296-850-155 (5)(e) or (7) ~~((b))~~ (c); or
- (b) The employer receives a written medical opinion recommending removal from airborne exposure to beryllium in accordance with WAC 296-850-155 (6)(e) or (7) ~~((e))~~ (d).

(2) If an employee is eligible for medical removal, the employer must provide the employee with the employee's choice of:

- (a) Removal as described in subsection (3) of this section; or
- (b) Remaining in a job with airborne exposure at or above the action level, provided that the employer provides, and ensures that the employee uses, respiratory protection that complies with WAC 296-850-135 Respiratory protection, of this rule whenever airborne exposures are at or above the action level.

(3) If the employee chooses removal:

- (a) If a comparable job is available where airborne exposures to beryllium are below the action level, and the employee is qualified for that job or can be trained within one month, the employer must remove the employee to that job. The employer must maintain for six months from the time of removal the employee's base earnings, seniority, and other rights and benefits that existed at the time of removal.
- (b) If comparable work is not available, the employer must maintain the employee's base earnings, seniority, and other rights and benefits that existed at the time of removal for six months or until such time that comparable work described in (a) of this subsection becomes available, whichever comes first.

(4) The employer's obligation to provide medical removal protection benefits to a removed employee shall be reduced to the extent that the employee receives compensation for earnings lost during the period of removal from a publicly or employer-funded compensation program, or receives income from another employer made possible by virtue of the employee's removal.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060, and chapter 49.17 RCW. WSR 18-17-156, § 296-850-160, filed 8/21/18, effective 12/12/18.]

AMENDATORY SECTION (Amending WSR 18-17-156, filed 8/21/18, effective 12/12/18)

WAC 296-850-165 Communication of hazards. (1) General.

(a) Chemical manufacturers, importers, distributors, and employers must comply with all requirements of chapter 296-901 WAC, Globally harmonized system for hazard communication, for beryllium.

(b) In classifying the hazards of beryllium, at least the following hazards must be addressed: Cancer; lung effects (CBD and acute beryllium disease); beryllium sensitization; skin sensitization; and skin, eye, and respiratory tract irritation.

(c) Employers must include beryllium in the hazard communication program established to comply with the HCS. Employers must ensure that each employee has access to labels on containers of beryllium and to safety data sheets, and is trained in accordance with the requirements of chapter 296-901 WAC, Globally harmonized system for hazard communication, and subsection (4) of this section.

(2) Warning signs.

(a) **Posting.** The employer must provide and display warning signs at each approach to a regulated area so that each employee is able to read and understand the signs and take necessary protective steps before entering the area.

(b) Sign specification.

(i) The employer must ensure that the warning signs required by (a) of this subsection are legible and readily visible.

(ii) The employer must ensure each warning sign required by (a) of this subsection bears the following legend:

DANGER
REGULATED AREA
BERYLLIUM
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
AUTHORIZED PERSONNEL ONLY
WEAR RESPIRATORY PROTECTION AND PERSONAL
PROTECTIVE CLOTHING AND EQUIPMENT IN THIS AREA

(3) **Warning labels.** Consistent with chapter 296-901 WAC, Globally harmonized system for hazard communication, the employer must label each (~~bag and~~) immediate container of clothing, equipment, and materials contaminated with beryllium, and must, at a minimum, include the following on the label:

DANGER
CONTAINS BERYLLIUM
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
AVOID CREATING DUST
DO NOT GET ON SKIN

(4) Employee information and training.

(a) For each employee who has, or can reasonably be expected to have, airborne exposure to or dermal contact with beryllium:

(i) The employer must provide information and training in accordance with chapter 296-901 WAC, Globally harmonized system for hazard communication;

(ii) The employer must provide initial training to each employee by the time of initial assignment; and

(iii) The employer must repeat the training required under this standard annually for each employee.

(b) The employer must ensure that each employee who is, or can reasonably be expected to be, exposed to airborne beryllium can demonstrate knowledge and understanding of the following:

(i) The health hazards associated with airborne exposure to and dermal contact with beryllium, including the signs and symptoms of CBD;

(ii) The written exposure control plan, with emphasis on the location(s) of beryllium work areas, including any regulated areas, and the specific nature of operations that could result in airborne exposure, especially airborne exposure above the TWA PEL or STEL;

(iii) The purpose, proper selection, fitting, proper use, and limitations of personal protective clothing and equipment, including respirators;

(iv) Applicable emergency procedures;

(v) Measures employees can take to protect themselves from airborne exposure to and dermal contact with beryllium, including personal hygiene practices;

(vi) The purpose and a description of the medical surveillance program required by WAC 296-850-155 including risks and benefits of each test to be offered;

(vii) The purpose and a description of the medical removal protection provided under WAC 296-850-160;

(viii) The contents of the standard; and

(ix) The employee's right of access to records under chapter 296-802 WAC, Employee medical and exposure records.

(c) When a workplace change (such as modification of equipment, tasks, or procedures) results in new or increased airborne exposure that exceeds, or can reasonably be expected to exceed, either the TWA PEL or the STEL, the employer must provide additional training to those employees affected by the change in airborne exposure.

(d) Employee information. The employer must make a copy of this rule and its appendices readily available at no cost to each employee and designated employee representative(s).

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060, and chapter 49.17 RCW. WSR 18-17-156, § 296-850-165, filed 8/21/18, effective 12/12/18.]

AMENDATORY SECTION (Amending WSR 18-17-156, filed 8/21/18, effective 12/12/18)

WAC 296-850-170 Recordkeeping. (1) Air monitoring data.

(a) The employer must make and maintain a record of all exposure measurements taken to assess airborne exposure as prescribed in WAC 296-850-115 Exposure assessment.

(b) This record must include at least the following information:

- (i) The date of measurement for each sample taken;
- (ii) The task that is being monitored;
- (iii) The sampling and analytical methods used and evidence of their accuracy;
- (iv) The number, duration, and results of samples taken;
- (v) The type of personal protective clothing and equipment, including respirators, worn by monitored employees at the time of monitoring; and
- (vi) The name (~~(, Social Security number,)~~) and job classification of each employee represented by the monitoring, indicating which employees were actually monitored.

(c) The employer must ensure that exposure records are maintained and made available in accordance with chapter 296-802 WAC, Employee medical and exposure records.

(2) Objective data.

(a) Where an employer uses objective data to satisfy the exposure assessment requirements under WAC 296-850-115, the employer must make and maintain a record of the objective data relied upon.

(b) This record must include at least the following information:

- (i) The data relied upon;
- (ii) The beryllium-containing material in question;
- (iii) The source of the objective data;
- (iv) A description of the process, task, or activity on which the objective data were based; and
- (v) Other data relevant to the process, task, activity, material, or airborne exposure on which the objective data were based.

(c) The employer must ensure that objective data are maintained and made available in accordance with chapter 296-802 WAC, Employee medical and exposure records.

(3) Medical surveillance.

(a) The employer must make and maintain a record for each employee covered by medical surveillance under WAC 296-850-155.

(b) The record must include the following information about each employee:

- (i) Name (~~(, Social Security number,)~~) and job classification;
- (ii) A copy of all licensed physicians' written medical opinions for each employee; and
- (iii) A copy of the information provided to the PLHCP as required by WAC 296-850-155(4).

(c) The employer must ensure that medical records are maintained and made available in accordance with chapter 296-802 WAC, Employee medical and exposure records.

(4) Training.

(a) At the completion of any training required by this standard, the employer must prepare a record that indicates the name (~~(, Social Security number,)~~) and job classification of each employee trained, the date the training was completed, and the topic of the training.

(b) This record must be maintained for three years after the completion of training.

(5) **Access to records.** The employer shall ensure records are maintained and made available in accordance with chapter 296-802 WAC, Employee medical and exposure records.

(6) **Transfer of records.** The employer must comply with the requirements involving transfer of records set forth in chapter 296-802 WAC, Employee medical and exposure records.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060, and chapter 49.17 RCW. WSR 18-17-156, § 296-850-170, filed 8/21/18, effective 12/12/18.]

AMENDATORY SECTION (Amending WSR 18-17-156, filed 8/21/18, effective 12/12/18)

WAC 296-850-180 Appendix A—(~~Control strategies to minimize beryllium exposure of this standard is nonmandatory.~~) Operations for establishing beryllium work areas. (~~WAC 296-850-130(2) of this chapter requires employers to use one or more of the control methods listed in WAC 296-850-130(2) to minimize worker exposure in each operation in a beryllium work area, unless the operation is exempt under WAC 296-850-130(2)(b). This appendix sets forth a nonexhaustive list of control options that employers could use to comply with WAC 296-850-130(2) for a number of specific beryllium operations.~~)

Table A.1: Exposure Control Recommendations

Operation	Minimal Control Strategy*	Application Group
Beryllium Oxide Forming (e.g., pressing, extruding)	<p>For pressing operations:</p> <ul style="list-style-type: none"> (1) Install local exhaust ventilation (LEV) on oxide press tables, oxide feed drum breaks, press tumblers, powder rollers, and die set disassembly stations; (2) Enclose the oxide presses; and (3) Install mechanical ventilation (make-up air) in processing areas. <p>For extruding operations:</p> <ul style="list-style-type: none"> (1) Install LEV on extruder powder loading hoods, oxide supply bottles, rod breaking operations, centerless grinders, rod laydown tables, dieing operations, surface grinders, discharge end of extrusion presses; (2) Enclose the centerless grinders; and (3) Install mechanical ventilation (make-up air) in processing areas. 	Primary Beryllium Production; Beryllium Oxide Ceramics and Composites
Chemical Processing Operations (e.g., leaching, pickling, degreasing, etching, plating)	<p>For medium and high gassing operations:</p> <ul style="list-style-type: none"> (1) Perform operation with a hood having a maximum of one open side; and (2) Design process so as to minimize spills; if accidental spills occur, perform immediate cleanup. 	Primary Beryllium Production; Beryllium Oxide Ceramics and Composites; Copper Rolling, Drawing and Extruding
Finishing (e.g., grinding, sanding, polishing, deburring)	<ul style="list-style-type: none"> (1) Perform portable finishing operations in a ventilated hood. The hood should include both downdraft and backdraft ventilation, and have at least two sides and a top. (2) Perform stationary finishing operations using a ventilated and enclosed hood at the point of operation. The grinding wheel of the stationary unit should be enclosed and ventilated. 	Secondary Smelting; Fabrication of Beryllium Alloy Products; Dental Labs

Operation	Minimal Control Strategy*	Application Group
Furnace Operations (e.g., Melting and Casting)	(1) Use LEV on furnaces, pelletizer; are furnace ingot machine discharge; pellet sampling; are furnace bins and conveyors; beryllium hydroxide drum dumper and dryer; furnace rebuilding; furnace tool holders; are furnace tundish and tundish skimming, tundish preheat hood, and tundish cleaning hoods; dross handling equipment and drums; dross recycling; and tool repair station, charge make-up station, oxide screener, product sampling locations, drum changing stations, and drum cleaning stations. (2) Use mechanical ventilation (make-up air) in furnace building.	Primary Beryllium Production; Beryllium Oxide Ceramics and Composites; Nonferrous Foundries; Secondary Smelting
Machining	Use: (1) LEV consistent with ACGIH® ventilation guidelines on deburring hoods, wet surface grinder enclosures, belt sanding hoods, and electrical discharge machines (for operations such as polishing, lapping, and buffing); (2) High velocity low volume hoods or ventilated enclosures on lathes, vertical mills, CNC mills, and tool grinding operations; (3) For beryllium oxide ceramics, LEV on lapping, dicing, and laser cutting; and (4) Wet methods (e.g., coolants).	Primary Beryllium Production; Beryllium Oxide Ceramics and Composites; Copper Rolling, Drawing, and Extruding; Precision Turned Products
Mechanical Processing (e.g., material handling (including scrap), sorting, crushing, screening, pulverizing, shredding, pouring, mixing, blending)	(1) Enclose and ventilate sources of emission; (2) Prohibit open handling of materials; and (3) Use mechanical ventilation (make-up air) in processing areas.	Primary Beryllium Production; Beryllium Oxide Ceramics and Composites; Aluminum and Copper Foundries; Secondary Smelting
Metal Forming (e.g., rolling, drawing, straightening, annealing, extruding)	(1) For rolling operations, install LEV on mill stands and reels such that a hood extends the length of the mill; (2) For point and chamfer operations, install LEV hoods at both ends of the rod; (3) For annealing operations, provide an inert atmosphere for annealing furnaces, and LEV hoods at entry and exit points; (4) For swaging operations, install LEV on the cutting head; (5) For drawing, straightening, and extruding operations, install LEV at entry and exit points; and (6) For all metal forming operations, install mechanical ventilation (make-up air) for processing areas.	Primary Beryllium Production; Copper Rolling, Drawing, and Extruding; Fabrication of Beryllium Alloy Products

Operation	Minimal Control Strategy*	Application Group
Welding	<p>For fixed welding operations: (1) Enclose work locations around the source of fume generation and use local exhaust ventilation; and (2) Install close capture hood enclosure designed so as to minimize fume emission from the enclosure welding operation.</p> <p>For manual operations: (1) Use portable local exhaust and general ventilation.</p>	Primary Beryllium Production; Fabrication of Beryllium Alloy Products; Welding

* All LEV specifications should be in accordance with the ACGIH® Publication No. 2094, "Industrial Ventilation—A Manual of Recommended Practice" (wherever applicable.)

This standard defines a beryllium work area as any work area where materials that contain at least 0.1 percent beryllium by weight are processed (1) during any of the operations listed in Appendix A of this standard, or (2) where employees are, or can reasonably be expected to be, exposed to airborne beryllium at or above the action level. Table A.1 in this appendix sets forth the operations that, where performed under the circumstances described in the column heading above the particular operations, trigger the requirement for a beryllium work area.

Table A.1—Operations for Establishing Beryllium Work Areas Where Processing Materials Containing at Least 0.1 Percent Beryllium by Weight

Beryllium metal alloy operations (generally <10% beryllium by weight)	Beryllium composite operations (generally >10% beryllium by weight) and beryllium metal operations	Beryllium oxide operations
<u>Abrasive Blasting.</u>	<u>Abrasive Blasting.</u>	<u>Abrasive Blasting.</u>
<u>Abrasive Processing.</u>	<u>Abrasive Processing.</u>	<u>Abrasive Processing.</u>
<u>Abrasive Sawing.</u>	<u>Abrasive Sawing.</u>	<u>Abrasive Sawing.</u>
<u>Annealing.</u>	<u>Annealing.</u>	<u>Boring.</u>
<u>Bright Cleaning.</u>	<u>Atomizing.</u>	<u>Brazing (>1,100°C).</u>
<u>Brushing.</u>	<u>Attritioning.</u>	<u>Broaching with green ceramic.</u>
<u>Buffing.</u>	<u>Blanking.</u>	<u>Brushing.</u>
<u>Burnishing.</u>	<u>Bonding.</u>	<u>Buffing.</u>
<u>Casting.</u>	<u>Boring.</u>	<u>Centerless Grinding.</u>
<u>Centerless Grinding.</u>	<u>Breaking.</u>	<u>Chemical Cleaning.</u>
<u>Chemical Cleaning.</u>	<u>Bright Cleaning.</u>	<u>Chemical Etching.</u>
<u>Chemical Etching.</u>	<u>Broaching.</u>	<u>CNC Machining.</u>
<u>Chemical Milling.</u>	<u>Brushing.</u>	<u>Cold Isostatic Pressing (CIP).</u>
<u>Dross Handling.</u>	<u>Buffing.</u>	<u>Crushing.</u>
<u>Deburring (grinding).</u>	<u>Burnishing.</u>	<u>Cutting.</u>
<u>Electrical Chemical Machining (ECM).</u>	<u>Casting.</u>	<u>Deburring (grinding).</u>
<u>Electrical Discharge Machining (EDM).</u>	<u>Centerless Grinding.</u>	<u>Deburring (nongrinding).</u>
<u>Extrusion.</u>	<u>Chemical Cleaning.</u>	<u>Destructive Testing.</u>
<u>Forging.</u>	<u>Chemical Etching.</u>	<u>Dicing.</u>
<u>Grinding.</u>	<u>Chemical Milling.</u>	<u>Drilling.</u>
<u>Heat Treating (in air).</u>	<u>CNC Machining.</u>	<u>Dry/Wet Tumbling.</u>

<u>Beryllium metal alloy operations (generally <10% beryllium by weight)</u>	<u>Beryllium composite operations (generally >10% beryllium by weight) and beryllium metal operations</u>	<u>Beryllium oxide operations</u>
<u>High Speed Machining (>10,000 rpm).</u>	<u>Cold Isostatic Pressing.</u>	<u>Extrusion.</u>
<u>Hot Rolling.</u>	<u>Cold Pilger.</u>	<u>Filing by Hand.</u>
<u>Lapping.</u>	<u>Crushing.</u>	<u>Firing of Green Ceramic.</u>
<u>Laser Cutting.</u>	<u>Cutting.</u>	<u>Firing of Refractory Metallization (>1,100°C).</u>
<u>Laser Machining.</u>	<u>Deburring.</u>	<u>Grinding.</u>
<u>Laser Scribing.</u>	<u>Dicing.</u>	<u>Honing.</u>
<u>Laser Marking.</u>	<u>Drawing.</u>	<u>Hot Isostatic Pressing (HIP).</u>
<u>Melting.</u>	<u>Drilling.</u>	<u>Lapping.</u>
<u>Photo-Etching.</u>	<u>Dross Handling.</u>	<u>Laser Cutting.</u>
<u>Pickling.</u>	<u>Electrical Chemical Machining (ECM).</u>	<u>Laser Machining.</u>
<u>Point and Chamfer.</u>	<u>Electrical Discharge Machining (EDM).</u>	<u>Laser Scribing.</u>
<u>Polishing.</u>	<u>Extrusion.</u>	<u>Laser Marking.</u>
<u>Torch Cutting (i.e., oxy-acetylene).</u>	<u>Filing by Hand.</u>	<u>Machining.</u>
<u>Tumbling.</u>	<u>Forging.</u>	<u>Milling.</u>
<u>Water-Jet Cutting.</u>	<u>Grinding.</u>	<u>Piercing.</u>
<u>Welding.</u>	<u>Heading.</u>	<u>Mixing.</u>
<u>Sanding.</u>	<u>Heat Treating.</u>	<u>Plasma Spray.</u>
<u>Slab Milling.</u>	<u>Honing.</u>	<u>Polishing.</u>
	<u>Hot Isostatic Pressing (HIP).</u>	<u>Powder Handling.</u>
	<u>Lapping.</u>	<u>Powder Pressing.</u>
	<u>Laser Cutting.</u>	<u>Reaming.</u>
	<u>Laser Machining.</u>	<u>Sanding.</u>
	<u>Laser Scribing.</u>	<u>Sectioning.</u>
	<u>Laser Marking.</u>	<u>Shearing.</u>
	<u>Machining.</u>	<u>Sintering of Green Ceramic.</u>
	<u>Melting.</u>	<u>Sintering of Refractory Metallization (>1,100°C).</u>
	<u>Milling.</u>	<u>Snapping.</u>
	<u>Mixing.</u>	<u>Spray Drying.</u>
	<u>Photo-Etching.</u>	<u>Tape Casting.</u>
	<u>Pickling.</u>	<u>Turning.</u>
	<u>Piercing.</u>	<u>Water-Jet Cutting.</u>
	<u>Pilger.</u>	
	<u>Plasma Spray.</u>	
	<u>Point and Chamfer.</u>	
	<u>Polishing.</u>	
	<u>Powder Handling.</u>	
	<u>Powder Pressing.</u>	
	<u>Pressing.</u>	
	<u>Reaming.</u>	
	<u>Roll Bonding.</u>	
	<u>Rolling.</u>	

<u>Beryllium metal alloy operations (generally <10% beryllium by weight)</u>	<u>Beryllium composite operations (generally >10% beryllium by weight) and beryllium metal operations</u>	<u>Beryllium oxide operations</u>
	<u>Sanding.</u>	
	<u>Sawing (tooth blade).</u>	
	<u>Shearing.</u>	
	<u>Sizing.</u>	
	<u>Skiving.</u>	
	<u>Slitting.</u>	
	<u>Snapping.</u>	
	<u>Sputtering.</u>	
	<u>Stamping.</u>	
	<u>Spray Drying.</u>	
	<u>Tapping.</u>	
	<u>Tensile Testing.</u>	
	<u>Torch Cutting (i.e., oxy-acetylene).</u>	
	<u>Trepanning.</u>	
	<u>Tumbling</u>	
	<u>Turning.</u>	
	<u>Vapor Deposition.</u>	
	<u>Water-Jet Cutting.</u>	
	<u>Welding.</u>	

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060, and chapter 49.17 RCW. WSR 18-17-156, § 296-850-180, filed 8/21/18, effective 12/12/18.]