

WAC 296-155-174 Cadmium. (1) **Scope.** This standard applies to all occupational exposures to cadmium and cadmium compounds, in all forms, in all construction work where an employee may potentially be exposed to cadmium. Construction work is defined as work involving construction, alteration, and/or repair, including but not limited to the following:

(a) Wrecking, demolition, or salvage of structures where cadmium or materials containing cadmium are present;

(b) Use of cadmium containing-paints and cutting, brazing, burning, grinding, or welding on surfaces that were painted with cadmium-containing paints;

(c) Construction, alteration, repair, maintenance, or renovation of structures, substrates, or portions thereof, that contain cadmium, or materials containing cadmium;

(d) Cadmium welding; cutting and welding cadmium-plated steel; brazing or welding with cadmium alloys;

(e) Installation of products containing cadmium;

(f) Electrical grounding with cadmium-welding, or electrical work using cadmium-coated conduit;

(g) Maintaining or retrofitting cadmium-coated equipment;

(h) Cadmium contamination/emergency cleanup; and

(i) Transportation, disposal, storage, or containment of cadmium or materials containing cadmium on the site or location at which construction activities are performed.

(2) **Definitions.**

Action level (AL). An airborne concentration of cadmium of 2.5 micrograms per cubic meter of air ($2.5 \mu\text{g}/\text{m}^3$), calculated as an 8-hour time-weighted average (TWA).

Authorized person. Any person authorized by the employer and required by work duties to be present in regulated areas or any person authorized by DOSH or regulations issued under it to be in regulated areas.

Competent person. A person designated by the employer to act on the employer's behalf who is capable of identifying existing and potential cadmium hazards in the workplace and the proper methods to control them in order to protect workers, and has the authority necessary to take prompt corrective measures to eliminate or control such hazards. The duties of a competent person include at least the following: Determining prior to the performance of work whether cadmium is present in the workplace; establishing, where necessary, regulated areas and assuring that access to and from those areas is limited to authorized employees; assuring the adequacy of any employee exposure monitoring required by this standard; assuring that all employees exposed to air cadmium levels above the PEL wear appropriate personal protective equipment and are trained in the use of appropriate methods of exposure control; assuring that proper hygiene facilities are provided and that workers are trained to use those facilities; and assuring that the engineering controls required by this standard are implemented, maintained in proper operating condition, and functioning properly.

Director. The director of the department of labor and industries or authorized representative.

Employee exposure and similar language referring to the air cadmium level to which an employee is exposed. The exposure to airborne cadmium that would occur if the employee were not using respiratory protective equipment.

Final medical determination. The written medical opinion of the employee's health status by the examining physician under subsection (12)(c) through (l) of this section or, if multiple physician review under subsection (12)(m) of this section or the alternative physician determination under subsection (12)(n) of this section is invoked, it is the final, written medical finding, recommendation or determination that emerges from that process.

High-efficiency particulate air (HEPA) filter. A filter capable of trapping and retaining at least 99.97 percent of mono-dispersed particles of 0.3 micrometers in diameter.

Regulated area. An area demarcated by the employer where an employee's exposure to airborne concentrations of cadmium exceeds, or can reasonably be expected to exceed the permissible exposure limit (PEL).

This section. This cadmium standard.

(3) **Permissible exposure limit (PEL).** You must assure that no employee is exposed to an airborne concentration of cadmium in excess of 5 micrograms per cubic meter of air ($5 \mu\text{g}/\text{m}^3$), calculated as an 8-hour time-weighted average exposure (TWA).

(4) **Exposure monitoring.**

(a) **General.**

(i) Prior to the performance of any construction work where employees may be potentially exposed to cadmium, you must establish the applicability of this standard by determining whether cadmium is present in the workplace and whether there is the possibility that employee exposures will be at or above the action level. You must designate a competent person who must make this determination. You must use investigation and material testing techniques, as appropriate, in the determination. Investigation must include a review of relevant plans, past reports, safety data sheets, and other available records, and consultations with the property owner and discussions with appropriate individuals and agencies.

(ii) Where cadmium has been determined to be present in the workplace, and it has been determined that there is a possibility the employee's exposure will be at or above the action level, the competent person must identify employees potentially exposed to cadmium at or above the action level.

(iii) Determinations of employee exposure must be made from breathing-zone air samples that reflect the monitored employee's regular, daily 8-hour TWA exposure to cadmium.

(iv) You must determine 8-hour TWA exposures for each employee on the basis of one or more personal breathing-zone air samples reflecting full shift exposure on each shift, for each job classification, in each work area. Where several employees perform the same job tasks, in the same job classification, on the same shift, in the same work area, and the length, duration, and level of cadmium exposures are similar, you may sample a representative fraction of the employees instead of all employees in order to meet this requirement. In representative sampling, you must sample the employee(s) expected to have the highest cadmium exposures.

(b) **Specific.**

(i) Initial monitoring. Except as provided for in (b)(iii) of this subsection, where a determination conducted under (a)(i) of this subsection shows the possibility of employee exposure to cadmium at or above the action level, you must conduct exposure monitoring as soon as practicable that is representative of the exposure for each employ-

ee in the workplace who is or may be exposed to cadmium at or above the action level.

(ii) In addition, if the employee periodically performs tasks that may expose the employee to a higher concentration of airborne cadmium, you must monitor the employee while performing those tasks.

(iii) Where you have objective data, as defined in subsection (14)(b) of this section, demonstrating that employee exposure to cadmium will not exceed airborne concentrations at or above the action level under the expected conditions of processing, use, or handling, you may rely upon such data instead of implementing initial monitoring.

(iv) Where a determination conducted under (a) or (b) of this subsection is made that a potentially exposed employee is not exposed to airborne concentrations of cadmium at or above the action level, you must make a written record of such determination. The record must include at least the monitoring data developed under (b)(i) through (iii) of this subsection, where applicable, and must also include the date of determination, and the name and Social Security number of each employee.

(c) Monitoring frequency (periodic monitoring).

(i) If the initial monitoring or periodic monitoring reveals employee exposures to be at or above the action level, you must monitor at a frequency and pattern needed to assure that the monitoring results reflect with reasonable accuracy the employee's typical exposure levels, given the variability in the tasks performed, work practices, and environmental conditions on the job site, and to assure the adequacy of respiratory selection and the effectiveness of engineering and work practice controls.

(ii) If the initial monitoring or the periodic monitoring indicates that employee exposures are below the action level and that result is confirmed by the results of another monitoring taken at least seven days later, you may discontinue the monitoring for those employees whose exposures are represented by such monitoring.

(d) **Additional monitoring.** You must also institute the exposure monitoring required under (b)(i) and (c) of this subsection whenever there has been a change in the raw materials, equipment, personnel, work practices, or finished products that may result in additional employees being exposed to cadmium at or above the action level or in employees already exposed to cadmium at or above the action level being exposed above the PEL, or whenever the employer or competent person has any reason to suspect that any other change might result in such further exposure.

(e) Employee notification of monitoring results.

(i) No later than 5 working days after the receipt of the results of any monitoring performed under this section, you must notify each affected employee individually in writing of the results. In addition, within the same time period, you must post the results of the exposure monitoring in an appropriate location that is accessible to all affected employees.

(ii) Wherever monitoring results indicate that employee exposure exceeds the PEL, you must include in the written notice a statement that the PEL has been exceeded and a description of the corrective action being taken by the employer to reduce employee exposure to or below the PEL.

(f) **Accuracy of measurement.** You must use a method of monitoring and analysis that has an accuracy of not less than plus or minus 25% ($\pm 25\%$), with a confidence level of 95%, for airborne concentrations

of cadmium at or above the action level and the permissible exposure limit.

(5) **Regulated areas.**

(a) **Establishment.** You must establish a regulated area wherever an employee's exposure to airborne concentrations of cadmium is, or can reasonably be expected to be in excess of the permissible exposure limit (PEL).

(b) **Demarcation.** You must demarcate regulated areas from the rest of the workplace in any manner that adequately establishes and alerts employees of the boundaries of the regulated area, including employees who are or may be incidentally in the regulated areas, and that protects persons outside the area from exposure to airborne concentrations of cadmium in excess of the PEL.

(c) **Access.** You must limit access to regulated areas to authorized persons.

(d) **Provision of respirators.** You must supply each person entering a regulated area with and required to use a respirator, selected in accordance with subsection (7)(b) of this section.

(e) **Prohibited activities.** You must assure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in regulated areas, or carry the products associated with any of these activities into regulated areas or store such products in those areas.

(6) **Methods of compliance.**

(a) **Compliance hierarchy.**

(i) Except as specified in (a)(ii) of this subsection, you must implement engineering and work practice controls to reduce and maintain employee exposure to cadmium at or below the PEL, except to the extent that the employer can demonstrate that such controls are not feasible.

(ii) The requirement to implement engineering controls to achieve the PEL does not apply where the employer demonstrates the following:

(A) The employee is only intermittently exposed; and

(B) The employee is not exposed above the PEL on 30 or more days per year (12 consecutive months).

(iii) Wherever engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, the employer nonetheless must implement such controls to reduce exposures to the lowest levels achievable. The employer must supplement such controls with respiratory protection that complies with the requirements of subsection (7) of this section and the PEL.

(iv) The employer must not use employee rotation as a method of compliance.

(b) **Specific operations.**

(i) **Abrasive blasting.** Abrasive blasting on cadmium or cadmium-containing materials must be conducted in a manner that will provide adequate protection.

(ii) **Heating cadmium and cadmium-containing materials.** Welding, cutting, and other forms of heating of cadmium or cadmium-containing materials must be conducted in accordance with the requirements of WAC 296-155-415 and 296-155-420, where applicable.

(c) **Prohibitions.**

(i) High speed abrasive disc saws and similar abrasive power equipment must not be used for work on cadmium or cadmium-containing materials unless they are equipped with appropriate engineering controls to minimize emissions, if the exposure levels are above the PEL.

(ii) Materials containing cadmium must not be applied by spray methods, if exposures are above the PEL, unless employees are protec-

ted with supplied-air respirators with full facepiece, hood, helmet, suit, operated in positive pressure mode and measures are instituted to limit overspray and prevent contamination of adjacent areas.

(d) **Mechanical ventilation.**

(i) When ventilation is used to control exposure, measurements that demonstrate the effectiveness of the system in controlling exposure, such as capture velocity, duct velocity, or static pressure must be made as necessary to maintain its effectiveness.

(ii) Measurements of the system's effectiveness in controlling exposure must be made as necessary within 5 working days of any change in production, process, or control that might result in a significant increase in employee exposure to cadmium.

(iii) Recirculation of air. If air from exhaust ventilation is recirculated into the workplace, the system must have a high efficiency filter and be monitored to assure effectiveness.

(iv) Procedures must be developed and implemented to minimize employee exposure to cadmium when maintenance of ventilation systems and changing of filters is being conducted.

(e) **Compliance program.**

(i) Where employee exposure to cadmium exceeds the PEL and the employer is required under (a) of this subsection to implement controls to comply with the PEL, prior to the commencement of the job you must establish and implement a written compliance program to reduce employee exposure to or below the PEL. To the extent that engineering and work practice controls cannot reduce exposures to or below the PEL, you must include in the written compliance program the use of appropriate respiratory protection to achieve compliance with the PEL.

(ii) You must review and update written compliance programs as often and as promptly as necessary to reflect significant changes in the employer's compliance status or significant changes in the lowest air cadmium level that is technologically feasible.

(iii) A competent person must review the comprehensive compliance program initially and after each change.

(iv) You must provide written compliance programs upon request for examination and copying to the director, or authorized representatives, affected employees, and designated employee representatives.

(7) **Respirator protection.**

(a) **General.** For employees who use respirators required by this section, the employer must provide each employee with an appropriate respirator that complies with the requirements of this section. Respirators must be used during:

(i) Periods necessary to install or implement feasible engineering and work-practice controls when employee exposures exceed the PEL.

(ii) Maintenance and repair activities, and brief or intermittent operations, for which employee exposures exceed the PEL and engineering and work-practice controls are not feasible or are not required.

(iii) Work operations in regulated areas specified in subsection (5) of this section.

(iv) Work operations for which the employer has implemented all feasible engineering and work-practice controls, and such controls are not sufficient to reduce exposures to or below the PEL.

(v) Emergencies.

(vi) Work operations for which an employee, who is exposed to cadmium at or above the action level, requests a respirator.

(vii) Work operations for which engineering controls are not required under (a)(ii) of this subsection to reduce employee exposures that exceed the PEL.

(b) **Respirator program.**

(i) You must develop, implement, and maintain a respiratory protection program as required by chapter 296-842 WAC, except WAC 296-842-14005, which covers each employee required by this chapter to use a respirator.

(ii) If an employee has breathing difficulty during fit testing or respirator use, the employer must provide the employee with a medical examination as required by subsection (12)(f)(ii) of this section to determine if the employee can use a respirator while performing the required duties.

(iii) No employees must use a respirator when, based on their recent medical examination, the examining physician determines that the employee will be unable to continue to function normally while using a respirator. If the physician determines the employee must be limited in, or removed from, their current job because of the employee's inability to use a respirator, the job limitation or removal must be conducted as required by (k) and (l) of this subsection.

(c) **Respirator selection.** You must:

(i) Select and provide the appropriate respirator as specified in this section and WAC 296-842-13005 in the respirator rule.

- Provide employees with full facepiece respirators when they experience eye irritation.

- Make sure high-efficiency particulate air (HEPA) filters or N-, R-, or P-100 series filters are provided for powered air-purifying respirators (PAPRs) and negative-pressure air-purifying respirators.

(ii) You must provide a powered, air-purifying respirator (PAPR) instead of a negative-pressure respirator when an employee entitled to a respirator chooses to use this type of respirator and such a respirator will provide adequate protection to the employee.

(8) **Emergency situations.** You must develop and implement a written plan for dealing with emergency situations involving substantial releases of airborne cadmium. The plan must include provisions for the use of appropriate respirators and personal protective equipment. In addition, employees not essential to correcting the emergency situation must be restricted from the area and normal operations halted in that area until the emergency is abated.

(9) **Protective work clothing and equipment.**

(a) **Provision and use.** If an employee is exposed to airborne cadmium above the PEL or where skin or eye irritation is associated with cadmium exposure at any level, you must provide at no cost to the employee, and assure that the employee uses, appropriate protective work clothing and equipment that prevents contamination of the employee and the employee's garments. Protective work clothing and equipment includes, but is not limited to:

(i) Coveralls or similar full-body work clothing;

(ii) Gloves, head coverings, and boots or foot coverings; and

(iii) Face shields, vented goggles, or other appropriate protective equipment that complies with WAC 296-155-215.

(b) **Removal and storage.**

(i) You must assure that employees remove all protective clothing and equipment contaminated with cadmium at the completion of the work shift and do so only in change rooms provided in accordance with subsection (10)(a) of this section.

(ii) You must assure that no employee takes cadmium-contaminated protective clothing or equipment from the workplace, except for employees authorized to do so for purposes of laundering, cleaning, maintaining, or disposing of cadmium-contaminated protective clothing

and equipment at an appropriate location or facility away from the workplace.

(iii) You must assure that contaminated protective clothing and equipment, when removed for laundering, cleaning, maintenance, or disposal, is placed and stored in sealed, impermeable bags or other closed, impermeable containers that are designed to prevent dispersion of cadmium dust.

(iv) You must assure that containers of contaminated protective clothing and equipment that are to be taken out of the change rooms or the workplace for laundering, cleaning, maintenance or disposal must bear labels in accordance with subsection (13)(c)(ii) of this section.

(c) Cleaning, replacement, and disposal.

(i) You must provide the protective clothing and equipment required by (a) of this subsection in a clean and dry condition as often as necessary to maintain its effectiveness, but in any event at least weekly. The employer is responsible for cleaning and laundering the protective clothing and equipment required by this subsection to maintain its effectiveness and is also responsible for disposing of such clothing and equipment.

(ii) The employer also is responsible for repairing or replacing required protective clothing and equipment as needed to maintain its effectiveness. When rips or tears are detected while an employee is working they must be immediately mended, or the worksuit must be immediately replaced.

(iii) You must prohibit the removal of cadmium from protective clothing and equipment by blowing, shaking, or any other means that disperses cadmium into the air.

(iv) You must assure that any laundering of contaminated clothing or cleaning of contaminated equipment in the workplace is done in a manner that prevents the release of airborne cadmium in excess of the permissible exposure limit prescribed in subsection (3) of this section.

(v) You must inform any person who launders or cleans protective clothing or equipment contaminated with cadmium of the potentially harmful effects of exposure to cadmium, and that the clothing and equipment should be laundered or cleaned in a manner to effectively prevent the release of airborne cadmium in excess of the PEL.

(10) Hygiene areas and practices.

(a) **General.** For employees whose airborne exposure to cadmium is above the PEL, you must provide clean change rooms, handwashing facilities, showers, and lunchroom facilities that comply with WAC 296-155-140.

(b) **Change rooms.** You must ensure that change rooms are equipped with separate storage facilities for street clothes and for protective clothing and equipment, which are designed to prevent dispersion of cadmium and contamination of the employee's street clothes.

(c) Showers and handwashing facilities.

(i) You must ensure that employees whose airborne exposure to cadmium is above the PEL shower during the end of the work shift.

(ii) You must ensure that employees who are exposed to cadmium above the PEL wash their hands and faces prior to eating, drinking, smoking, chewing tobacco or gum, or applying cosmetics.

(d) Lunchroom facilities.

(i) You must ensure that the lunchroom facilities are readily accessible to employees, that tables for eating are maintained free of

cadmium, and that no employee in a lunchroom facility is exposed at any time to cadmium at or above a concentration of 2.5 µg/m³.

(ii) You must ensure that employees do not enter lunchroom facilities with protective work clothing or equipment unless surface cadmium has been removed from the clothing and equipment by HEPA vacuuming or some other method that removes cadmium dust without dispersing it.

(11) **Housekeeping.**

(a) You must maintain all surfaces as free as practicable of accumulations of cadmium.

(b) You must clean up all spills and sudden releases of material containing cadmium as soon as possible.

(c) You must clean surfaces contaminated with cadmium must, wherever possible, by vacuuming or other methods that minimize the likelihood of cadmium becoming airborne.

(d) You must use HEPA-filtered vacuuming equipment or equally effective filtration methods for vacuuming. You must use the equipment and empty it in a manner that minimizes the reentry of cadmium into the workplace.

(e) Shoveling, dry or wet sweeping, and brushing may be used only where vacuuming or other methods that minimize the likelihood of cadmium becoming airborne have been tried and found not to be effective.

(f) You must not use compressed air to remove cadmium from any surface unless the compressed air is used in conjunction with a ventilation system designed to capture the dust cloud created by the compressed air.

(g) You must collect and dispose of waste, scrap, debris, bags, containers, personal protective equipment, and clothing contaminated with cadmium and consigned for disposal in sealed impermeable bags or other closed, impermeable containers. These bags and containers must be labeled in accordance with subsection (13)(c)(ii) of this section.

(12) **Medical surveillance.**

(a) **General.**

(i) Scope.

(A) Currently exposed - You must institute a medical surveillance program for all employees who are or may be exposed at or above the action level and all employees who perform the following tasks, operations, or jobs: Electrical grounding with cadmium-welding; cutting, brazing, burning, grinding, or welding on surfaces that were painted with cadmium-containing paints; electrical work using cadmium-coated conduit; use of cadmium containing paints; cutting and welding cadmium-plated steel; brazing or welding with cadmium alloys; fusing of reinforced steel by cadmium welding; maintaining or retrofitting cadmium-coated equipment; and, wrecking and demolition where cadmium is present. A medical surveillance program will not be required if the employer demonstrates that the employee:

(I) Is not currently exposed by the employer to airborne concentrations of cadmium at or above the action level on 30 or more days per year (12 consecutive months); and

(II) Is not currently exposed by the employer in those tasks on 30 or more days per year (12 consecutive months).

(B) Previously exposed - You must also institute a medical surveillance program for all employees who might previously have been exposed to cadmium by the employer prior to the effective date of this section in tasks specified under (a)(i)(A) of this subsection, unless the employer demonstrates that the employee did not in the years prior

to the effective date of this section work in those tasks for the employer with exposure to cadmium for an aggregated total of more than 12 months.

(ii) To determine an employee's fitness for using a respirator, you must provide the limited medical examination specified in (f) of this subsection.

(iii) You must ensure that all medical examinations and procedures required by this section are performed by or under the supervision of a licensed physician, who has read and is familiar with the health effects WAC 296-62-07441, Appendix A, the regulatory text of this section, the protocol for sample handling and lab selection in WAC 296-62-07451, Appendix F, and the questionnaire of WAC 296-62-07447, Appendix D.

(iv) You must provide the medical surveillance required by this section, including multiple physician review under (m) of this subsection without cost to employees, and at a time and place that is reasonable and convenient to employees.

(v) You must ensure that the collecting and handling of biological samples of cadmium in urine (CdU), cadmium in blood (CdB), and beta-2 microglobulin in urine (B₂-M) taken from employees under this section is done in a manner that assures their reliability and that analysis of biological samples of cadmium in urine (CdU), cadmium in blood (CdB), and beta-2 microglobulin in urine (B₂-M) taken from employees under this section is performed in laboratories with demonstrated proficiency to perform the particular analysis. (See WAC 296-62-07451, Appendix F.)

(b) **Initial examination.**

(i) For employees covered by medical surveillance under (a)(i) of this subsection, you must provide an initial medical examination. The examination must be provided to those employees within 30 days after initial assignment to a job with exposure to cadmium or no later than 90 days after the effective date of this section, whichever date is later.

(ii) The initial medical examination must include:

(A) A detailed medical and work history, with emphasis on: Past, present, and anticipated future exposure to cadmium; any history of renal, cardiovascular, respiratory, hematopoietic, reproductive, and/or musculo-skeletal system dysfunction; current usage of medication with potential nephrotoxic side-effects; and smoking history and current status; and

(B) Biological monitoring that includes the following tests:

(I) Cadmium in urine (CdU), standardized to grams of creatinine (g/Cr);

(II) Beta-2 microglobulin in urine (B₂-M), standardized to grams of creatinine (g/Cr), with pH specified, as described in WAC 296-62-07451, Appendix F; and

(III) Cadmium in blood (CdB), standardized to liters of whole blood (lwb).

(iii) Recent examination: An initial examination is not required to be provided if adequate records show that the employee has been examined in accordance with the requirements of (b)(ii) of this subsection within the past 12 months. In that case, you must maintain such records as part of the employee's medical record and the prior exam must be treated as if it were an initial examination for the purposes of (c) and (d) of this subsection.

(c) **Actions triggered by initial biological monitoring.**

(i) If the results of the biological monitoring tests in the initial examination show the employee's CdU level to be at or below 3 µg/g Cr, B₂-M level to be at or below 300 µg/g Cr and CdB level to be at or below 5 µg/lwb, then:

(A) For employees who are subject to medical surveillance under (a)(i)(A) of this subsection because of current or anticipated exposure to cadmium, you must provide the minimum level of periodic medical surveillance in accordance with the requirements in (d)(i) of this subsection; and

(B) For employees who are subject to medical surveillance under (a)(i)(B) of this subsection because of prior but not current exposure, you must provide biological monitoring for CdU, B₂-M, and CdB one year after the initial biological monitoring and then you must comply with the requirements of (d)(vi) of this subsection.

(ii) For all employees who are subject to medical surveillance under (a)(i) of this subsection, if the results of the initial biological monitoring tests show the level of CdU to exceed 3 µg/g Cr, the level of B₂-M to be in excess of 300 µg/g Cr, or the level of CdB to be in excess of 5 µg/lwb, you must:

(A) Within two weeks after receipt of biological monitoring results, reassess the employee's occupational exposure to cadmium as follows:

(I) Reassess the employee's work practices and personal hygiene;

(II) Reevaluate the employee's respirator use, if any, and the respirator program;

(III) Review the hygiene facilities;

(IV) Reevaluate the maintenance and effectiveness of the relevant engineering controls;

(V) Assess the employee's smoking history and status;

(B) Within 30 days after the exposure reassessment, specified in (c)(ii)(A) of this subsection, take reasonable steps to correct any deficiencies found in the reassessment that may be responsible for the employee's excess exposure to cadmium; and

(C) Within 90 days after receipt of biological monitoring results, provide a full medical examination to the employee in accordance with the requirements of (d)(ii) of this subsection. After completing the medical examination, the examining physician must determine in a written medical opinion whether to medically remove the employee. If the physician determines that medical removal is not necessary, then until the employee's CdU level falls to or below 3 µg/g Cr, B₂-M level falls to or below 300 µg/g Cr and CdB level falls to or below 5 µg/lwb, you must:

(I) Provide biological monitoring in accordance with (b)(ii)(B) of this subsection on a semiannual basis; and

(II) Provide annual medical examinations in accordance with (d)(ii) of this subsection.

(iii) For all employees who are subject to medical surveillance under (a)(i) of this subsection, if the results of the initial biological monitoring tests show the level of CdU to be in excess of 15 µg/g Cr, or the level of CdB to be in excess of 15 µg/lwb, or the level of B₂-M to be in excess of 1,500 µg/g Cr, you must comply with the requirements of (c)(ii)(A) and (B) of this subsection. Within 90 days after receipt of biological monitoring results, you must provide a full medical examination to the employee in accordance with the requirements of (d)(ii) of this subsection. After completing the medical examination, the examining physician must determine in a written medi-

cal opinion whether to medically remove the employee. However, if the initial biological monitoring results and the biological monitoring results obtained during the medical examination both show that: CdU exceeds 15 µg/g Cr; or CdB exceeds 15 µg/lwb; or B₂-M exceeds 1500 µg/g Cr, and in addition CdU exceeds 3 µg/g Cr or CdB exceeds 5 µg/liter of whole blood, then the physician must medically remove the employee from exposure to cadmium at or above the action level. If the second set of biological monitoring results obtained during the medical examination does not show that a mandatory removal trigger level has been exceeded, then the employee is not required to be removed by the mandatory provisions of this section. If the employee is not required to be removed by the mandatory provisions of this section or by the physician's determination, then until the employee's CdU level falls to or below 3 µg/g Cr, B₂-M level falls to or below 300 µg/g Cr and CdB level falls to or below 5 µg/lwb, you must:

(A) Periodically reassess the employee's occupational exposure to cadmium;

(B) Provide biological monitoring in accordance with (b)(ii)(B) of this subsection on a quarterly basis; and

(C) Provide semiannual medical examinations in accordance with (d)(ii) of this subsection.

(iv) For all employees to whom medical surveillance is provided, beginning on January 1, 1999, and in lieu of (c)(iii) of this subsection, whenever the results of initial biological monitoring tests show the employee's CdU level to be in excess of 7 µg/g Cr, or B₂-M level to be in excess of 750 µg/g Cr, or CdB level to be in excess of 10 µg/lwb, you must comply with the requirements of (c)(ii)(A) and (B) of this subsection. Within 90 days after receipt of biological monitoring results, you must provide a full medical examination to the employee in accordance with the requirements of (d)(ii) of this subsection. After completing the medical examination, the examining physician must determine in a written medical opinion whether to medically remove the employee. However, if the initial biological monitoring results and the biological monitoring results obtained during the medical examination both show that: CdU exceeds 7 µg/g Cr; or CdB exceeds 10 µg/lwb; or B₂-M exceeds 750 µg/g Cr, and in addition CdU exceeds 3 µg/g Cr or CdB exceeds 5 µg/liter of whole blood, then the physician must medically remove the employee from exposure to cadmium at or above the action level. If the second set of biological monitoring results obtained during the medical examination does not show that a mandatory removal trigger level has been exceeded, then the employee is not required to be removed by the mandatory provisions of this section. If the employee is not required to be removed by the mandatory provisions of this section or by the physician's determination, then until the employee's CdU level falls to or below 3 µg/g Cr, B₂-M level falls to or below 300 µg/g Cr and CdB level falls to or below 5 µg/lwb, you must:

(A) Periodically reassess the employee's occupational exposure to cadmium;

(B) Provide biological monitoring in accordance with (b)(ii)(B) of this subsection on a quarterly basis; and

(C) Provide semiannual medical examinations in accordance with (d)(ii) of this subsection.

(d) **Periodic medical surveillance.**

(i) For each employee who is covered by medical surveillance under (a)(i)(A) of this subsection because of current or anticipated ex-

posure to cadmium, you must provide at least the minimum level of periodic medical surveillance, which consists of periodic medical examinations and periodic biological monitoring. A periodic medical examination must be provided within one year after the initial examination required by (b) of this subsection and thereafter at least biennially. You must provide biological sampling at least annually either as part of a periodic medical examination or separately as periodic biological monitoring.

(ii) The periodic medical examination must include:

(A) A detailed medical and work history, or update thereof, with emphasis on: Past, present, and anticipated future exposure to cadmium; smoking history and current status; reproductive history; current use of medications with potential nephrotoxic side-effects; any history of renal, cardiovascular, respiratory, hematopoietic, and/or musculo-skeletal system dysfunction; and as part of the medical and work history, for employees who wear respirators, questions 3 through 11 and 25 through 32 in WAC 296-62-07447, Appendix D;

(B) A complete physical examination with emphasis on: Blood pressure, the respiratory system, and the urinary system;

(C) A 14 inch by 17 inch, or a reasonably standard sized posterior-anterior chest X-ray (after the initial X-ray, the frequency of chest X-rays is to be determined by the examining physician);

(D) Pulmonary function tests, including forced vital capacity (FVC) and forced expiratory volume at one second (FEV1);

(E) Biological monitoring, as required in (b)(ii)(B) of this subsection;

(F) Blood analysis, in addition to the analysis required under (b)(ii)(B) of this subsection, including blood urea nitrogen, complete blood count, and serum creatinine;

(G) Urinalysis, in addition to the analysis required under (b)(ii)(B) of this subsection, including the determination of albumin, glucose, and total and low molecular weight proteins;

(H) For males over 40 years old, prostate palpation, or other at least as effective diagnostic test(s); and

(I) Any additional tests or procedures deemed appropriate by the examining physician.

(iii) Periodic biological monitoring must be provided in accordance with (b)(ii)(B) of this subsection.

(iv) If the results of periodic biological monitoring or the results of biological monitoring performed as part of the periodic medical examination show the level of the employee's CdU, B₂-M, or CdB to be in excess of the levels specified in (c)(ii) and (iii) of this subsection; or, beginning on January 1, 1999, in excess of the levels specified in (c)(ii) or (iv) of this subsection, you must take the appropriate actions specified in (c)(ii) through (iv) of this subsection, respectively.

(v) For previously exposed employees under (a)(i)(B) of this subsection:

(A) If the employee's levels of CdU did not exceed 3 µg/g Cr, CdB did not exceed 5 µg/lwb, and B₂-M did not exceed 300 µg/g Cr in the initial biological monitoring tests, and if the results of the follow-up biological monitoring required by (c)(i)(B) of this subsection one year after the initial examination confirm the previous results, the employer may discontinue all periodic medical surveillance for that employee.

(B) If the initial biological monitoring results for CdU, CdB, or B₂-M were in excess of the levels specified in (c)(i) of this subsection, but subsequent biological monitoring results required by (c)(ii) through (iv) of this subsection show that the employee's CdU levels no longer exceed 3 µg/g Cr, CdB levels no longer exceed 5 µg/lwb, and B₂-M levels no longer exceed 300 µg/g Cr, you must provide biological monitoring for CdU, CdB, and B₂-M one year after these most recent biological monitoring results. If the results of the follow-up biological monitoring specified in this section, confirm the previous results, the employer may discontinue all periodic medical surveillance for that employee.

(C) However, if the results of the follow-up tests specified in (d)(v)(A) or (B) of this subsection indicate that the level of the employee's CdU, B₂-M, or CdB exceeds these same levels, the employer is required to provide annual medical examinations in accordance with the provisions of (d)(ii) of this subsection until the results of biological monitoring are consistently below these levels or the examining physician determines in a written medical opinion that further medical surveillance is not required to protect the employee's health.

(vi) A routine, biennial medical examination is not required to be provided in accordance with (c)(i) and (d) of this subsection if adequate medical records show that the employee has been examined in accordance with the requirements of (d)(ii) of this subsection within the past 12 months. In that case, you must maintain such records as part of the employee's medical record, and the next routine, periodic medical examination must be made available to the employee within two years of the previous examination.

(e) **Actions triggered by medical examinations.** If the results of a medical examination carried out in accordance with this section indicate any laboratory or clinical finding consistent with cadmium toxicity that does not require employer action under (b), (c), or (d) of this subsection, you must take the following steps and continue to take them until the physician determines that they are no longer necessary.

(i) Periodically reassess: The employee's work practices and personal hygiene; the employee's respirator use, if any; the employee's smoking history and status; the respiratory protection program; the hygiene facilities; the maintenance and effectiveness of the relevant engineering controls; and take all reasonable steps to correct the deficiencies found in the reassessment that may be responsible for the employee's excess exposure to cadmium.

(ii) Provide semiannual medical reexaminations to evaluate the abnormal clinical sign(s) of cadmium toxicity until the results are normal or the employee is medically removed; and

(iii) Where the results of tests for total proteins in urine are abnormal, provide a more detailed medical evaluation of the toxic effects of cadmium on the employee's renal system.

(f) **Examination for respirator use.**

(i) To determine an employee's fitness for respirator use, you must provide a medical examination that includes the elements specified in (f)(i)(A) through (D) of this subsection. This examination must be provided prior to the employee's being assigned to a job that requires the use of a respirator or no later than 90 days after this section goes into effect, whichever date is later, to any employee without a medical examination within the preceding 12 months that satisfies the requirements of this section.

(A) A detailed medical and work history, or update thereof, with emphasis on: Past exposure to cadmium; smoking history and current status; any history of renal, cardiovascular, respiratory, hemato-poietic, and/or musculo-skeletal system dysfunction; a description of the job for which the respirator is required; and questions 3 through 11 and 25 through 32 in WAC 296-62-07447, Appendix D;

(B) A blood pressure test;

(C) Biological monitoring of the employee's levels of CdU, CdB and B₂-M in accordance with the requirements of (b)(ii)(B) of this subsection, unless such results already have been obtained within the 12 months; and

(D) Any other test or procedure that the examining physician deems appropriate.

(ii) After reviewing all the information obtained from the medical examination required in (f)(i) of this subsection, the physician must determine whether the employee is fit to wear a respirator.

(iii) Whenever an employee has exhibited difficulty in breathing during a respirator fit test or during use of a respirator, you must, as soon as possible, provide the employee with a periodic medical examination in accordance with (d)(ii) of this subsection to determine the employee's fitness to wear a respirator.

(iv) Where the results of the examination required under (f)(i), (ii), or (iii) of this subsection are abnormal, you must consider medical limitation or prohibition of respirator use. If the employee is allowed to wear a respirator, the employee's ability to continue to do so must be periodically evaluated by a physician.

(g) **Emergency examinations.**

(i) In addition to the medical surveillance required in (b) through (f) of this subsection, you must provide a medical examination as soon as possible to any employee who may have been acutely exposed to cadmium because of an emergency.

(ii) The examination must include the requirements of (d)(ii), of this subsection, with emphasis on the respiratory system, other organ systems considered appropriate by the examining physician, and symptoms of acute overexposure, as identified in Appendix A, WAC 296-62-07441 (2)(b)(i) and (ii) and (4).

(h) **Termination of employment examination.**

(i) At termination of employment, you must provide a medical examination in accordance with (d)(ii) of this subsection, including a chest X-ray where necessary, to any employee to whom at any prior time the employer was required to provide medical surveillance under (a)(i) or (g) of this subsection. However, if the last examination satisfied the requirements of (d)(ii) of this subsection and was less than six months prior to the date of termination, no further examination is required unless otherwise specified in (c) or (e) of this subsection;

(ii) In addition, if the employer has discontinued all periodic medical surveillance under (d)(v) of this subsection, no termination of employment medical examination is required.

(i) **Information provided to the physician.** You must provide the following information to the examining physician:

(i) A copy of this standard and appendices;

(ii) A description of the affected employee's former, current, and anticipated duties as they relate to the employee's occupational exposure to cadmium;

(iii) The employee's former, current, and anticipated future levels of occupational exposure to cadmium;

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

(v) Relevant results of previous biological monitoring and medical examinations.

(j) **Physician's written medical opinion.**

(i) You must promptly obtain a written, signed, medical opinion from the examining physician for each medical examination performed on each employee. This written opinion must contain:

(A) The physician's diagnosis for the employee;

(B) The physician's opinion as to whether the employee has any detected medical condition(s) that would place the employee at increased risk of material impairment to health from further exposure to cadmium, including any indications of potential cadmium toxicity;

(C) The results of any biological or other testing or related evaluations that directly assess the employee's absorption of cadmium;

(D) Any recommended removal from, or limitation on the activities or duties of the employee or on the employee's use of personal protective equipment, such as respirators;

(E) A statement that the physician has clearly and carefully explained to the employee the results of the medical examination, including all biological monitoring results and any medical conditions related to cadmium exposure that require further evaluation or treatment, and any limitation on the employee's diet or use of medications.

(ii) You must promptly obtain a copy of the results of any biological monitoring provided by an employer to an employee independently of a medical examination under (b) and (d) of this subsection, and, in lieu of a written medical opinion, an explanation sheet explaining those results.

(iii) You must instruct the physician not to reveal orally or in the written medical opinion given to the employer specific findings or diagnoses unrelated to occupational exposure to cadmium.

(k) **Medical removal protection (MRP).**

(i) **General.**

(A) You must temporarily remove an employee from work where there is excess exposure to cadmium on each occasion that medical removal is required under (c), (d), or (f) of this subsection and on each occasion that a physician determines in a written medical opinion that the employee should be removed from such exposure. The physician's determination may be based on biological monitoring results, inability to wear a respirator, evidence of illness, other signs or symptoms of cadmium-related dysfunction or disease, or any other reason deemed medically sufficient by the physician.

(B) You must medically remove an employee in accordance with (k) of this subsection regardless of whether at the time of removal a job is available into which the removed employee may be transferred.

(C) Whenever an employee is medically removed under (k) of this subsection, you must transfer the removed employee to a job where the exposure to cadmium is within the permissible levels specified in subsection (12) of this section as soon as one becomes available.

(D) For any employee who is medically removed under the provisions of (k)(i) of this subsection, you must provide follow-up medical examinations semiannually until, in a written medical opinion, the examining physician determines that either the employee may be returned to his/her former job status or the employee must be permanently removed from excess cadmium exposure.

(E) You may not return an employee who has been medically removed for any reason to their former job status until a physician determines in a written medical opinion that continued medical removal is no longer necessary to protect the employee's health.

(ii) Where an employee is found unfit to wear a respirator under (f)(ii) of this subsection, you must remove the employee from work where exposure to cadmium is above the PEL.

(iii) Where removal is based upon any reason other than the employee's inability to wear a respirator, you must remove the employee from work where exposure to cadmium is at or above the action level.

(iv) Except as specified in (k)(v) of this subsection, no employee who was removed because their level of CdU, CdB and/or B₂-M exceeded the trigger levels in (c) or (d) of this subsection may be returned to work with exposure to cadmium at or above the action level until the employee's levels of CdU fall to or below 3 µg/g Cr, CdB fall to or below 5 µg/lwb, and B₂-M fall to or below 300 µg/g Cr.

(v) However, when in the examining physician's opinion continued exposure to cadmium will not pose an increased risk to the employee's health and there are special circumstances that make continued medical removal an inappropriate remedy, the physician must fully discuss these matters with the employee, and then in a written determination may return a worker to their former job status despite what would otherwise be unacceptably high biological monitoring results. Thereafter and until such time as the employee's biological monitoring results have decreased to levels where they could have been returned to their former job status, the returned employee must continue medical surveillance as if they were still on medical removal. Until such time, the employee is no longer subject to mandatory medical removal. Subsequent questions regarding the employee's medical removal must be decided solely by a final medical determination.

(vi) Where an employer, although not required by this section to do so, removes an employee from exposure to cadmium or otherwise places limitations on an employee due to the effects of cadmium exposure on the employee's medical condition, you must provide the same medical removal protection benefits to that employee under (l) of this subsection as would have been provided had the removal been required under (k) of this subsection.

(l) Medical removal protection benefits.

(i) You must provide medical removal protection benefits to an employee for up to a maximum of 18 months each time, and while the employee is temporarily medically removed under (k) of this subsection.

(ii) For purposes of this section, the requirement that the employer provide medical removal protection benefits means that you must maintain the total normal earnings, seniority, and all other employee rights and benefits of the removed employee, including the employee's right to their former job status, as if the employee had not been removed from the employee's job or otherwise medically limited.

(iii) Where, after 18 months on medical removal because of elevated biological monitoring results, the employee's monitoring results have not declined to a low enough level to permit the employee to be returned to their former job status:

(A) You must make available to the employee a medical examination pursuant to this section in order to obtain a final medical determination as to whether the employee may be returned to their former job status or must be permanently removed from excess cadmium exposure; and

(B) You must assure that the final medical determination indicates whether the employee may be returned to their former job status and what steps, if any, should be taken to protect the employee's health.

(iv) You may condition the provision of medical removal protection benefits upon the employee's participation in medical surveillance provided in accordance with this section.

(m) **Multiple physician review.**

(i) If the employer selects the initial physician to conduct any medical examination or consultation provided to an employee under this section, the employee may designate a second physician to:

(A) Review any findings, determinations, or recommendations of the initial physician; and

(B) Conduct such examinations, consultations, and laboratory tests as the second physician deems necessary to facilitate this review.

(ii) You must promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial physician provided by the employer conducts a medical examination or consultation pursuant to this section. The employer may condition its participation in, and payment for, multiple physician review upon the employee doing the following within 15 days after receipt of this notice, or receipt of the initial physician's written opinion, whichever is later:

(A) Informing the employer that they intend to seek a medical opinion; and

(B) Initiating steps to make an appointment with a second physician.

(iii) If the findings, determinations, or recommendations of the second physician differ from those of the initial physician, then the employer and the employee must assure that efforts are made for the two physicians to resolve any disagreement.

(iv) If the two physicians have been unable to quickly resolve their disagreement, then the employer and the employee, through their respective physicians, must designate a third physician to:

(A) Review any findings, determinations, or recommendations of the other two physicians; and

(B) Conduct such examinations, consultations, laboratory tests, and discussions with the other two physicians as the third physician deems necessary to resolve the disagreement among them.

(v) You must act consistently with the findings, determinations, and recommendations of the third physician, unless the employer and the employee reach an agreement that is consistent with the recommendations of at least one of the other two physicians.

(n) **Alternate physician determination.** The employer and an employee or designated employee representative may agree upon the use of any alternate form of physician determination in lieu of the multiple physician review provided by (m) of this subsection, so long as the alternative is expeditious and at least as protective of the employee.

(o) **Information the employer must provide the employee.**

(i) You must provide a copy of the physician's written medical opinion to the examined employee within 5 working days after receipt thereof.

(ii) You must provide the employee with a copy of the employee's biological monitoring results and an explanation sheet explaining the results within 5 working days after receipt thereof.

(iii) Within 30 days after a request by an employee, you must provide the employee with the information the employer is required to provide the examining physician under (i) of this subsection.

(p) **Reporting.** In addition to other medical events that are required to be reported on the OSHA Form No. 300, you must report any abnormal condition or disorder caused by occupational exposure to cadmium associated with employment as specified in Chapter (V)(E) of the Bureau of Labor Statistics Recordkeeping Guidelines for Occupational Injuries and Illnesses.

(13) **Communication of cadmium hazards to employees.**

(a) **Hazard communication.** You must include cadmium in the program established to comply with the requirements of DOSH's Hazard Communication Standard (HCS), WAC 296-901-140. You must ensure that each employee has access to labels on containers of cadmium safety data sheets (SDSs), and is trained in accordance with the provisions of HCS and (d) of this subsection. You must provide information on at least the following hazards: Cancer; lung effects; kidney effects; and acute toxicity effects.

(b) **Warning signs.**

(i) You must provide and display warning signs in regulated areas. In addition, you must post warning signs at all approaches to regulated areas so that an employee may read the signs and take necessary protective steps before entering the area.

(ii) Warning signs required by (b)(i) of this subsection must bear the following legend:

DANGER
CADMIUM
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS AND KIDNEYS
WEAR RESPIRATORY PROTECTION IN THIS AREA
AUTHORIZED PERSONNEL ONLY

(iii) You must ensure that signs required by this section are illuminated, cleaned, and maintained as necessary so that the legend is readily visible.

(iv) Prior to June 1, 2016, employers may use the following legend in lieu of that specified in (b)(i) of this subsection:

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

(c) **Warning labels.**

(i) Shipping and storage containers containing cadmium or cadmium compounds must bear appropriate warning labels, as specified in (a) of this subsection.

(ii) The warning labels for containers of cadmium-contaminated protective clothing, equipment, waste, scrap, or debris must include at least the following information:

DANGER
CONTAINS CADMIUM
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS AND KIDNEYS
AVOID CREATING DUST

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

(iv) Prior to June 1, 2015, employers may include the following information on shipping and storage containers containing cadmium, cadmium compounds, or cadmium-contaminated clothing, equipment, waste, scrap, or debris in lieu of the labeling requirements specified in (c) (i) and (ii) of this subsection:

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

(d) Employee information and training.

(i) You must institute a training program for all employees who are potentially exposed to cadmium, assure employee participation in the program, and maintain a record of the contents of such program.

(ii) You must provide training prior to or at the time of initial assignment to a job involving potential exposure to cadmium and at least annually thereafter.

(iii) You must make the training program understandable to the employee and you must ensure that each employee is informed of the following:

(A) The health hazards associated with cadmium exposure, with special attention to the information incorporated in WAC 296-62-07441, Appendix A;

(B) The quantity, location, manner of use, release, and storage of cadmium in the workplace and the specific nature of operations that could result in exposure to cadmium, especially exposures above the PEL;

(C) The engineering controls and work practices associated with the employee's job assignment;

(D) The measures employees can take to protect themselves from exposure to cadmium, including modification of such habits as smoking and personal hygiene, and specific procedures the employer has implemented to protect employees from exposure to cadmium such as appropriate work practices, emergency procedures, and the provision of personal protective equipment;

(E) The purpose, proper selection, fitting, proper use, and limitations of respirators and protective clothing;

(F) The purpose and a description of the medical surveillance program required by subsection (12) of this section;

(G) The contents of this section and its appendices; and

(H) The employee's rights of access to records under chapter 296-62 WAC, Part B.

(iv) Additional access to information and training program and materials.

(A) You must make a copy of this section and its appendices readily available to all affected employees and you must provide a copy without cost if requested.

(B) Upon request, you must provide to the director or authorized representative, all materials relating to the employee information and the training program.

(e) Multiemployer workplace. In a multiemployer workplace, an employer who produces, uses, or stores cadmium in a manner that may expose employees of other employers to cadmium must notify those employ-

ers of the potential hazard in accordance with WAC 296-901-140 of the hazard communication standard.

(14) **Recordkeeping.**

(a) **Exposure monitoring.**

(i) You must establish and keep an accurate record of all air monitoring for cadmium in the workplace.

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

(A) The monitoring date, shift, duration, air volume, and results in terms of an 8-hour TWA of each sample taken, and if cadmium is not detected, the detection level;

(B) The name, Social Security number, and job classification of all employees monitored and of all other employees whose exposures the monitoring result is intended to represent, including, where applicable, a description of how it was determined that the employee's monitoring result could be taken to represent other employee's exposures;

(C) A description of the sampling and analytical methods used and evidence of their accuracy;

(D) The type of respiratory protective device, if any, worn by the monitored employee and by any other employee whose exposure the monitoring result is intended to represent;

(E) A notation of any other conditions that might have affected the monitoring results;

(F) Any exposure monitoring or objective data that were used and the levels.

(iii) You must maintain this record for at least 30 years, in accordance with chapter 296-802 WAC.

(iv) You must also provide a copy of the results of an employee's air monitoring prescribed in subsection (4) of this section to an industry trade association and to the employee's union, if any, or, if either of such associations or unions do not exist, to another comparable organization that is competent to maintain such records and is reasonably accessible to employers and employees in the industry.

(b) **Objective data for exemption from requirement for initial monitoring.**

(i) For purposes of this section, objective data are information demonstrating that a particular product or material containing cadmium or a specific process, operation, or activity involving cadmium cannot release dust or fumes in concentrations at or above the action level even under the worst-case release conditions. Objective data can be obtained from an industry-wide study or from laboratory product test results from manufacturers of cadmium-containing products or materials. The data the employer uses from an industry-wide survey must be obtained under workplace conditions closely resembling the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

(ii) The employer must maintain the record for at least 30 years of the objective data relied upon.

(c) **Medical surveillance.**

(i) You must establish and maintain an accurate record for each employee covered by medical surveillance under (a)(i) of this subsection.

(ii) The record must include at least the following information about the employee:

(A) Name, Social Security number, and description of duties;

(B) A copy of the physician's written opinions and of the explanation sheets for biological monitoring results;

(C) A copy of the medical history, and the results of any physical examination and all test results that are required to be provided by this section, including biological tests, X-rays, pulmonary function tests, etc., or that have been obtained to further evaluate any condition that might be related to cadmium exposure;

(D) The employee's medical symptoms that might be related to exposure to cadmium; and

(E) A copy of the information provided to the physician as required by subsection (12)(i) of this section.

(iii) You must ensure that this record is maintained for the duration of employment plus 30 years, in accordance with chapter 296-802 WAC.

(iv) At the employee's request, you must promptly provide a copy of the employee's medical record, or update as appropriate, to a medical doctor or a union specified by the employee.

(d) **Training.** You must certify that employees have been trained by preparing a certification record which includes the identity of the person trained, the signature of the employer or the person who conducted the training, and the date the training was completed. The certification records must be prepared at the completion of training and must be maintained on file for one year beyond the date of training of that employee.

(e) **Availability.**

(i) Except as otherwise provided for in this section, access to all records required to be maintained by (a) through (d) of this subsection must be in accordance with the provisions of chapter 296-802 WAC.

(ii) Within 15 days after a request, you must make an employee's medical records required to be kept by (c) of this subsection available for examination and copying to the subject employee, to designated representatives, to anyone having the specific written consent of the subject employee, and after the employee's death or incapacitation, to the employee's family members.

(f) **Transfer of records.** Whenever an employer ceases to do business and there is no successor employer or designated organization to receive and retain records for the prescribed period, you must comply with the requirements concerning transfer of records set forth in chapter 296-802 WAC.

(15) **Observation of monitoring.**

(a) **Employee observation.** You must provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to cadmium.

(b) **Observation procedures.** When observation of monitoring requires entry into an area where the use of protective clothing or equipment is required, you must provide the observer with that clothing and equipment and you must ensure that the observer uses such clothing and equipment and complies with all other applicable safety and health procedures.

(16) **Appendices.**

(a) Compliance with the fit testing requirements in WAC 296-842-15005 are mandatory.

(b) Except where portions of WAC 296-62-07441, 296-62-07443, 296-62-07447, 296-62-07449, and 296-62-07451, Appendices A, B, D, E, and F, respectively, to this section are expressly incorporated in requirements of this section, these appendices are purely informational and are not intended to create any additional obligations not otherwise imposed or to detract from any existing obligations.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060. WSR 16-09-085, § 296-155-174, filed 4/19/16, effective 5/20/16. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060 and 29 C.F.R. 1910 Subpart Z. WSR 14-07-086, § 296-155-174, filed 3/18/14, effective 5/1/14. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060. WSR 09-15-145, § 296-155-174, filed 7/21/09, effective 9/1/09; WSR 07-05-072, § 296-155-174, filed 2/20/07, effective 4/1/07; WSR 05-03-093, § 296-155-174, filed 1/18/05, effective 3/1/05; WSR 04-10-026, § 296-155-174, filed 4/27/04, effective 8/1/04. Statutory Authority: RCW 49.17.010, [49.17].040, and [49.17].050. WSR 01-11-038, § 296-155-174, filed 5/9/01, effective 9/1/01; WSR 99-10-071, § 296-155-174, filed 5/4/99, effective 9/1/99. Statutory Authority: Chapter 49.17 RCW. WSR 94-15-096 (Order 94-07), § 296-155-174, filed 7/20/94, effective 9/20/94; WSR 93-21-075 (Order 93-06), § 296-155-174, filed 10/20/93, effective 12/1/93; WSR 93-07-044 (Order 93-01), § 296-155-174, filed 3/13/93, effective 4/27/93.]