

**SUPPORTING STATEMENT FOR
THE INFORMATION COLLECTION REQUIREMENTS
IN THE OCCUPATIONAL EXPOSURE TO BERYLLIUM AND BERYLLIUM
COMPOUNDS STANDARD IN THE SHIPYARD SECTOR (29 CFR 1915.1024)¹
OMB CONTROL NUMBER 1218-0272
(March 2024)**

The agency is requesting an extension of a currently approved data collection.

A. JUSTIFICATION

1. Explain the circumstances that make the collection of information necessary. Identify any legal or administrative requirements that necessitate the collection. Attach a copy of the appropriate section of each statute and regulation mandating or authorizing the collection of information.

The main objective of the Occupational Safety and Health Act (“OSH Act” or “Act”) is to “assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources” (29 U.S.C. 651(a)). To achieve this objective, the OSH Act specifically authorizes “the development and promulgation of occupational safety and health standards” (29 U.S.C. 651(b)(9)). The Act further states that “[t]he Secretary . . . shall . . . prescribe such rules and regulations as [he/she] may deem necessary to carry out [his/her] responsibilities under this Act, including rules and regulations dealing with the inspection of an employer’s establishment” (29 U.S.C. 657(g)(2)).

To protect worker health, the OSH Act authorizes the Secretary of Labor (Secretary) to develop standards that provide for “monitoring or measuring employee exposure” to occupational hazards and to “prescribe the type and frequency of medical examinations or other tests which shall be made available, by the employer or at [the employer’s] cost, to employees exposed to such hazards in order to most effectively determine whether the health of such employees is adversely affected by such exposure” (29 U.S.C. 655(b)(7)). Moreover, the Act directs the Secretary to “issue regulations requiring employers to maintain accurate records of employee exposures to potentially toxic materials or harmful physical agents which are required to be monitored or measured,” and further requires that such regulations provide “for each employee or former employee to have access to such records as will indicate [the employee’s] own exposure to toxic materials or harmful physical agents” as appropriate (29 U.S.C. 657(c)(3)). In addition, the OSH Act mandates that “[e]ach employer shall make, keep and preserve, and make available to the Secretary . . . such records regarding [his/her] activities relating to this Act as the Secretary . . . may prescribe by regulation as necessary or appropriate for the enforcement of this

¹ The purpose of this Supporting Statement is to analyze and describe the burden hours and costs associated with provisions of the standard that contain collections of information (paperwork) requirements. This Supporting Statement does not provide information or guidance on how to comply with, or how to enforce, these provisions.

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Act or for developing information regarding the causes and prevention of occupational accidents and illnesses” (29 U.S.C. 657(c)(1)).

Section 6(b)(7) of the Act, 29 U.S.C. 655(b)(7), further specifies that “[a]ny standard promulgated under this subsection shall prescribe the use of labels or other appropriate forms of warning as are necessary to ensure that employees are apprised of all hazards to which they are exposed, relevant symptoms and appropriate emergency treatment, and proper conditions and precautions of safe use or exposure.”

Under the authority granted by the OSH Act, the Secretary, through the Occupational Safety and Health Administration (“OSHA” or “the agency”) issued a standard to protect workers from the occupational exposure to beryllium and beryllium compounds for the shipyard sector (29 CFR 1915.1024). Items 2 and 12 below describe in detail the specific information collection requirements of the Standard.

2. Indicate how, by whom, and for what purpose the information is to be used. Except for a new collection, indicate the actual use the agency has made of the information received from the current collection.

Each collection of information requirement contained in the beryllium standard for the shipyard sector is described in detail below.

§ 1915.1024(d) -- Exposure Assessment

§ 1915.1024(d)(2) Performance Option.

(2) Performance option. The employer must assess the 8-hour time-weighted average (TWA) exposure and the 15-minute short-term exposure for each employee on the basis of any combination of air monitoring data and objective data sufficient to accurately characterize airborne exposure to beryllium.

Purpose: The general purposes of requiring an assessment of airborne exposure to beryllium include: determination of the extent and degree of exposure at the worksite; identification and prevention of employee overexposure; identification of the sources of exposure; collection of exposure data so that the employer can select the proper control methods to be used; and evaluation of the effectiveness of those selected methods. Assessment enables employers to meet their legal obligation to ensure that their employees are not exposed in excess of the permissible exposure limit (PEL) and to ensure employees have access to accurate information about their exposure levels, as required by section 8(c)(3) of the Act, 29 U.S.C. 657(c)(3). In addition, exposure data enables the physicians or other licensed health care professionals (PLHCP) performing medical examinations to be informed of the extent of occupational exposures.

The performance option is intended to allow employers flexibility in assessing the beryllium exposures of their employees. Under this option, the employer can use any combination of

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objective data and air monitoring data. Where employers want a more structured approach for meeting their exposure assessment obligations, OSHA also provides the scheduled monitoring option. OSHA takes the burden for the collection of information under the scheduled monitoring option in paragraph (d)(3).

§ 1915.1024(d)(3) Scheduled Monitoring Option.

Initial Monitoring § 1915.1024(d)(3)(i), (ii) & (iii).

(i) The employer must perform initial monitoring to assess the 8-hour TWA exposure for each employee on the basis of one or more personal breathing zone air samples that reflect the airborne exposure of employees on each shift, for each job classification, and in each work area.

(ii) The employer must perform initial monitoring to assess the short-term exposure from 15-minute personal breathing zone air samples measured in operations that are likely to produce airborne exposure above the STEL for each work shift, for each job classification, and in each work area.

(iii) Where several employees perform the same tasks on the same shift and in the same work area, the employer may sample a representative fraction of these employees in order to meet the requirements of paragraph (d)(3). In representative sampling, the employer must sample the employee(s) expected to have the highest airborne exposure to beryllium.

Purpose: The purpose of initial monitoring is to determine the extent and degree of beryllium exposure at the worksite; identify and prevent employee overexposure; identify the sources of exposure to beryllium; collect exposure data so that the employer can select the proper control methods to be used; and evaluate the effectiveness of those selected methods. Exposure assessment enables employers to meet their legal obligation to ensure that their employees are not exposed to beryllium in excess of the permissible exposure limits and to notify employees of their exposure levels, including any overexposures as required by section 8(c)(3) of the Act (29 U.S.C. § 657(c)(3)). In addition, the availability of exposure data enables PLHCPs performing medical examinations to be informed of the extent of an employee's occupational exposures.

Periodic Monitoring - § 1915.1024(d)(3)(v), (vi), (vii) & (viii).

(v) Where the most recent exposure monitoring indicates that airborne exposure is at or above the action level but at or below the TWA PEL, the employer must repeat such monitoring within six months of the most recent monitoring.

(vi) Where the most recent exposure monitoring indicates that airborne exposure is above the TWA PEL, the employer must repeat such monitoring within three months of the most recent 8-hour TWA exposure monitoring.

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(vii) Where the most recent (non-initial) exposure monitoring indicates that airborne exposure is below the action level, the employer must repeat such monitoring within six months of the most recent monitoring until two consecutive measurements, taken seven or more days apart, are below the action level, at which time the employer may discontinue 8-hour TWA exposure monitoring for those employees whose exposure is represented by such monitoring, except as otherwise provided in paragraph (d)(4) of this standard.

(viii) Where the most recent exposure monitoring indicates that airborne exposure is above the STEL, the employer must repeat such monitoring within three months of the most recent short-term exposure monitoring until two consecutive measurements, taken seven or more days apart, are below the STEL, at which time the employer may discontinue short-term exposure monitoring for those employees whose exposure is represented by such monitoring, except as otherwise provided in paragraph (d)(4) of this standard.

Purpose: OSHA recognizes that exposures in the workplace may fluctuate. Periodic monitoring helps employers identify changes in the workplace that influence exposures, and helps employers ensure that workers do not experience exposures that are higher than expected. Periodic monitoring also facilitates the identification and use of additional control measures where necessary. In addition, periodic monitoring reminds workers and employers of the continued need to protect against the hazards associated with beryllium exposure. The standard allows for employers to discontinue monitoring under certain circumstances.

§ 1915.1024(d)(4) Reassessment of Exposure.

(4) Reassessment of exposure. The employer must reassess airborne exposure whenever a change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional airborne exposure at or above the action level or STEL, or when the employer has any reason to believe that new or additional airborne exposure at or above the action level or STEL has occurred.

Purpose: The additional assessments required under this subsection are necessary to ensure that the exposure monitoring accurately represents existing exposure conditions. The exposure information gained from such assessments will enable the employer to take appropriate action to protect exposed workers. On the other hand, additional monitoring is not required simply because a change occurs, if the change could not reasonably be expected to result in new or additional exposures to beryllium.

§ 1915.1024(d)(6)(i) & (ii) Employee Notification of Assessment Results.

(i) Within 15 working days after completing an exposure assessment in accordance with paragraph (d) of this standard, the employer must notify each employee whose airborne exposure is represented by the assessment of the results of that assessment individually in writing or post the results in an appropriate location that is accessible to each of these employees.

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(ii) Whenever an exposure assessment indicates that airborne exposure is above the TWA PEL or STEL, the employer must describe in the written notification the corrective action being taken to reduce airborne exposure to or below the exposure limit(s) exceeded where feasible corrective action exists but had not been implemented when the monitoring was conducted.

Purpose: Notifying workers of their exposures allows them to know if the employer is required to make medical surveillance available to them, as well as whether the standard requires them to wear respiratory protection and/or personal protective clothing and equipment. Notification can also permit and encourage workers to be more proactive in working safely to control their own exposures through better work practices and more active participation in safety programs. The time allowed for notification is consistent with the harmonized notification times established for a number of health standards applicable to general industry, construction, and maritime.

§1915.1024(e)(2) Regulated Areas

(2) Demarcation. The employer must identify each regulated area in accordance with paragraph (m)(2) of this standard.

Purpose: The purpose of a regulated area is to ensure that the employer makes workers aware of the presence of beryllium at levels above the PEL or STEL, to limit exposure to as few workers as possible, and to remind employees that personal protective equipment (PPE) is required. Establishing a regulated area can help to minimize exposure to workers not directly involved in operations that generate beryllium.

OSHA is not taking burden hours or costs for the regulated areas provision under items 12 and 13 of this Supporting Statement.

Paragraph (m)(2) includes a requirement to post a sign regarding the hazards in regulated areas and is addressed with the discussion of paragraph (m) later in this section.

§ 1915.1024(f)(1) -- Methods of Compliance -- Written Exposure Control Plan.

§ 1915.1024(f)(1)(i), (ii), & (iii) Written exposure control plan.

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

- (A) A list of operations and job titles reasonably expected to involve exposure to beryllium;
- (B) A list of engineering controls, work practices, and respiratory protection required by paragraph (f)(2) of this standard;
- (C) A list of personal protective clothing and equipment required by paragraph (h) of this standard; and
- (D) Procedures used to ensure the integrity of each containment used to minimize exposures to employees outside of the containment.

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(E) Procedures for removing, cleaning, and maintaining personal protective clothing and equipment in accordance with paragraph (h) of this standard.

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

(A) 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;

(B) The employer is notified that an employee is eligible for medical removal in accordance with paragraph (l)(1) of this standard, referred for evaluation at a CBD diagnostic center, or shows signs or symptoms associated with airborne exposure to beryllium; or

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

(iii) 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 OSHA's Access to Employee Exposure and Medical Records (Records Access) standard (29 CFR 1910.1020(e)).

Purpose: Written exposure control plans are instrumental in ensuring that employers comprehensively and consistently protect employees exposed to beryllium. Requiring employers to articulate conditions resulting in exposure and how those exposures will be controlled will help to ensure that they have a complete understanding of the controls needed to comply with the rule. Even in cases where employees are well trained, the written plan can help to ensure that controls are consistently used and become part of employees' routine skill sets. Employers can also use the plans to ensure that maintenance checks are routinely performed and optimal conditions are maintained. In addition, written exposure control plans are a useful method for communicating protections to employees.

The purpose of paragraph (f)(1)(i)(D) is to ensure that any containment used is not compromised such that employees outside of the containment are potentially exposed to beryllium at levels above the TWA PEL or STEL. OSHA believes that this requirement will help ensure that workers not directly involved in beryllium-related work are not exposed to beryllium in excess of the TWA PEL or STEL.

The written exposure control plan needs to be periodically reviewed and, if needed, updated because work conditions can change (e.g., the employer purchases a new type of equipment). A written exposure control plan will not likely need to be updated often because employees tend to use the same equipment to perform the same tasks at many locations. However, a yearly review is needed to ensure that all current scenarios are captured in the plan.

Requiring the plan to be accessible also serves an important purpose. Written exposure control plans are effective methods for communicating protections to employees. Making the written

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plan accessible empowers and protects employees by providing them with written information about sources of exposure, controls, and personal protective clothing and equipment, as well as certain other procedures to minimize employee exposure.

§ 1915.1024(g)(2) – Respiratory protection -- Respiratory protection program.

(2) Respiratory protection program. Where this standard requires an employer to provide respiratory protection, the selection and use of such respiratory protection must be in accordance with the Respiratory Protection standard (29 CFR 1910.134).

Purpose: The respiratory protection program will ensure that respirators are properly used in the workplace and are effective in protecting employees. As required under 29 CFR 1910.134(c)(1), employers providing employees with respiratory protection pursuant to the beryllium standard must establish a written respiratory protection program. This written program must include: procedures for selecting respirators for use in the workplace; medical evaluations of employees required to use respirators; fit-testing procedures for tight-fitting respirators; procedures for proper use of respirators in routine and reasonably foreseeable emergency situations; procedures and schedules for maintaining respirators; procedures to ensure adequate quality, quantity, and flow of breathing air for atmosphere-supplying respirators; training of employees in respiratory hazards to which they might be exposed and the proper use of respirators; and procedures for evaluating the effectiveness of the program.

§ 1915.1024(k)(1), (2), and (3) -- Medical Surveillance.

(1) General.

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

- (A) Who is or is reasonably expected to be exposed at or above the action level for more than 30 days per year;
- (B) Who shows signs or symptoms of CBD or other beryllium-related health effects;
- or
- (C) Whose most recent written medical opinion required by paragraph (k)(6) or (k)(7) recommends periodic medical surveillance.

(ii) 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.

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

(i) Within 30 days after determining that:

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(A) An employee meets the criteria of paragraph (k)(1)(i)(A), unless the employee has received a medical examination, provided in accordance with this standard, within the last two years; or

(B) An employee meets the criteria of paragraph (k)(1)(i)(B).

(ii) At least every two years thereafter for each employee who continues to meet the criteria of paragraph (k)(1)(i)(A), (B), or (C) of this standard.

(iii) At the termination of employment for each employee who meets any of the criteria of paragraph (k)(1)(i) of this standard 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.

(3) Contents of examination.

(i) 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.

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

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

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

(C) A physical examination for skin rashes;

(D) 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);

(E) 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, a follow-up BeLPT must be offered within 30 days, unless the employee has been confirmed positive. Samples must be analyzed in a laboratory certified under the College of American Pathologists/Clinical Laboratory Improvement Amendments (CLIA) guidelines to perform the BeLPT.

(F) 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

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

Purpose: The general purposes of the medical surveillance provisions for beryllium include: to determine, when reasonably possible, if an individual worker is at increased risk for adverse health effects with continued exposure to beryllium; to identify beryllium-related adverse health effects for the purpose of taking appropriate intervention measures; and to determine workers' fitness to use personal protective equipment, such as respirators. The inclusion of medical

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surveillance requirements in the shipyard standard is consistent with Section 6(b)(7) of the OSH Act (29 U.S.C. 655(b)(7)), which requires that, when appropriate, OSHA include medical surveillance programs in its standards to determine whether exposure to the hazard addressed by the standard adversely affects the health of workers. Nearly all of OSHA's health standards include medical surveillance requirements.

The initial medical examination serves to identify workers who have beryllium-related medical diseases or other health problems that additional beryllium exposure may exacerbate. The requirement that employers offer employees a medical examination within 30 days after determining that the employee is or is reasonably expected to be exposed at or above the action level for more than 30 days a year will help employers determine if an employee will be able to work in the job involving beryllium exposure without increased risk of adverse health effects.

The requirement to offer an examination to employees who show signs or symptoms of CBD or other beryllium-related health effects is necessary because the risk of material impairment of health remains significant at the action level. Consequently, even employees exposed at the action level for fewer than 30 days in a year may be at risk of developing CBD and other beryllium-related diseases and adverse health effects. In addition, beryllium sensitization and CBD could develop in employees who are especially sensitive to beryllium, may have been unknowingly exposed, or may have been exposed to greater amounts than the exposure assessment suggests. By requiring covered employers to make a medical exam available when an employee exhibits signs or symptoms, the standard protects all employees who may have developed CBD, including employees who have been exposed to beryllium for less than 30 days a year above the action level.

The requirement to offer an examination to employees whose most recent written medical opinion recommends periodic medical surveillance is critical to ensure the evaluation of those workers who have been identified by a PLHCP as in need of further evaluation, but may not otherwise meet a trigger for medical surveillance under paragraphs (k)(1)(i)(A) or (B).

The requirement to offer a medical examination at least every two years after the initial examination to employees who continue to meet the criteria is intended to facilitate the detection of health effects at an early stage so that interventions can be taken to improve health. The requirement to offer an examination at termination under the specified circumstances is intended to ensure that no employee terminates employment while carrying a detectable, but undiagnosed, health condition related to beryllium exposure.

The specified contents of the examination are those that are necessary for the PLHCP to opine on any recommended limitations on the employee's use of respirators, protective clothing, or equipment or on the employee's airborne exposure to beryllium and whether the employee has any detected medical condition, such as CBD or beryllium sensitization, or any medical conditions related to airborne exposure that require further evaluation or treatment. The provision for "any other tests deemed appropriate" gives the examining PLHCP the flexibility to determine additional tests that are medically necessary and related to beryllium exposure. This

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flexibility is needed because there are no tests beyond those listed in paragraphs (k)(3)(ii)(A)–(E) that are necessarily applicable to all employees covered by the medical surveillance requirement.

§ 1915.1024(k)(4) Information Provided to the PLHCP.

(4) Information provided to the PLHCP. The employer must ensure that the examining PLHCP (and the agreed-upon CBD diagnostic center, if an evaluation is required under paragraph (k)(7) of this standard) has a copy of this standard and must provide the following information, if known:

- (i) A description of the employee’s former and current duties that relate to the employee’s exposure to beryllium;
- (ii) The employee’s former and current levels of airborne exposure;
- (iii) 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
- (iv) 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.

Purpose: The information required to be provided to the PLHCP and, when applicable, the CBD diagnostic center, will help the PLHCP and CBD diagnostic center evaluate employees’ health as it relates to their assigned duties and fitness to use personal protective equipment, including respirators, when needed. Providing the PLHCP and CBD diagnostic center with exposure monitoring results, as required under paragraph (k)(4)(ii), will assist them in determining if an employee is likely to be at risk of adverse effects from airborne beryllium exposure at work. A well-documented exposure history will also assist the PLCHP in determining if a condition may be related to beryllium exposure.

§ 1915.1024(k)(5)(i), (ii), and (iii) Licensed Physician’s Written Medical Report for the Employee.

(5) Licensed physician’s written medical report for the employee. The employer must ensure that the employee receives a written medical report from the licensed physician within 45 days of the examination (including any follow-up BeLPT required under paragraph (k)(3)(ii)(E) of this standard) and that the PLHCP explains the results of the examination to the employee. The written medical report must contain:

- (i) A statement indicating the results of the medical examination, including the licensed physician’s opinion as to whether the employee has

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(A) Any detected medical condition, such as CBD or beryllium sensitization (i.e., the employee is confirmed positive, as defined in paragraph (b) of this standard), that may place the employee at increased risk from further airborne exposure, and

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

(ii) Any recommendations on:

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

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

(iii) 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.

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

(v) 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 paragraph (l).

Purpose: The rule requires that only the employee receive a written medical report that includes detailed medical information. By providing the licensed physician's written medical report to employees, those who might be at increased risk of health impairment from airborne beryllium exposure will be able to consider interventions (i.e., health management strategies) with guidance from the licensed physician. Such strategies might include employment choices to limit airborne exposures or to use a respirator for additional protection.

The requirement for a written medical report ensures that the employee receives a record of all findings. Employees will also be able to provide the written medical report to future health care providers. The preparation of the report is accounted for under Item 13, cost to the employer for an employee's medical examination.

§ 1915.1024(k)(6) Licensed Physician's Written Medical Opinion for the Employer.

(i) The employer must obtain a written medical opinion from the licensed physician within 45 days of the medical examination (including any follow-up BeLPT required under paragraph (k)(3)(ii)(E) of this standard). The written medical opinion must contain only the following:

(A) The date of the examination;

(B) A statement that the examination has met the requirements of this standard;

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

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- (D) 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;
- (ii) If the employee provides written authorization, the written opinion must also contain any recommended limitations on the employee's airborne exposure to beryllium.
- (iii) 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.
- (iv) 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.
- (v) 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 paragraph (l).
- (vi) The employer must ensure that each employee receives a copy of the written medical opinion described in paragraph (k)(6) of this standard within 45 days of any medical examination (including any follow-up BeLPT required under paragraph (k)(3)(ii)(E) of this standard) performed for that employee.

Purpose: The written medical opinion in the shipyard standard contains information that allows employers to protect employee health, such as recommended limitations on the employee's use of respirators, while at the same time protecting employee privacy as much as possible by allowing certain information to be included only with the employee's written authorization. The date of the examination and a statement about the examination meeting the requirements of this standard are also included to provide the employer with evidence that compliance with the medical surveillance requirements is current.

The employer must obtain the written opinion within 45 days of the examination; OSHA believes this requirement will provide the licensed physician sufficient time to receive and consider the results of any tests included in the examination, including a follow-up BeLPT, and allow the employer to take any necessary protective measures in a timely manner. The requirement that the opinion be in written form ensures that employers and workers have the benefit of this information. The standard requires the employer to ensure that the worker gets a copy of the licensed physician's written medical opinion within 45 days of the medical examination. This will allow workers to present it as proof of a current medical examination to future employers.

§ 1915.1024(k)(7)(i), (ii), (iii), & (iv) CBD Diagnostic Center.

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(i) 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. The evaluation at the CBD diagnostic center must be scheduled within 30 days, and must occur within a reasonable time, of:

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

(B) 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.

(ii) The evaluation must include 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.

(iii) The employer must ensure that the employee receives a written medical report from the CBD diagnostic center that contains all the information required in paragraph (k)(5)(i), (ii), (iv), and (v) and that the PLHCP explains the results of the examination to the employee within 30 days of the examination.

(iv) The employer must obtain a written medical opinion from the CBD diagnostic center within 30 days of the medical examination. The written medical opinion must contain only the information in paragraph (k)(6)(i), 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 paragraphs (k)(6)(ii), (iv), and (v), if applicable.

(v) The employer must ensure that each employee receives a copy of the written medical opinion from the CBD diagnostic center described in paragraph (k)(7) of this standard within 30 days of any medical examination performed for that employee.

Purpose: Evaluation at a CBD diagnostic center allows employees who are confirmed positive or diagnosed with CBD to receive specialized evaluation to determine the appropriate tests to monitor for possible progression from sensitization to CBD and to monitor the progression of CBD if it does occur. The requirements in (k)(7)(ii), (iii), and (iv) regarding the written medical report and written medical opinion serve the purposes described above in the discussions of (k)(5) and (k)(6).

§ 1915.1024(l)(1) & (2) -- Medical removal.

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(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:

(i) The employee provides the employer with:

(A) A written medical report indicating a confirmed positive finding or CBD diagnosis; or

(B) A written medical report recommending removal from airborne exposure to beryllium in accordance with paragraph (k)(5)(v) or (k)(7)(ii) of this standard; or

(ii) The employer receives a written medical opinion recommending removal from airborne exposure to beryllium in accordance with paragraph (k)(6)(v) or (k)(7)(iii) of this standard.

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

(i) Removal as described in paragraph (l)(3) of this standard; or

(ii) 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 paragraph (g) of this standard whenever airborne exposures are at or above the action level.

Purpose: Medical removal, generally, serves three main purposes. First, it increases employee participation and confidence in the standard's medical surveillance program. Second, by requiring the employer to remove employees with the highest risk of suffering material impairment of health (if the employee chooses removal), MRP may benefit sensitized employees and those with CBD. Finally, MRP may provide employers with an additional incentive to keep employee exposures low.

The provisions in paragraphs (l)(1) and (l)(2) is to provide an option for medical removal of workers in jobs with airborne exposure to beryllium at or above the action level and who are diagnosed with CBD, confirmed positive, or otherwise recommended for removal by a physician in accordance with paragraph (k)(5)(v), (k)(7)(ii), (k)(6)(v), or (k)(7)(iii) of this standard. By making employees eligible for removal when a written medical report indicates a confirmed positive finding or CBD diagnosis or recommends removal from airborne exposure to beryllium based on a CBD diagnosis or a confirmed positive finding, the standard offers protection to employees who could benefit from such removal. The same protection is offered to employees for whom the written medical opinion contains, with their authorization, a recommendation for medical removal in accordance with paragraph (k)(6)(v) or (k)(7)(iii). The medical removal provision is structured to allow the employee to retain discretion over whether the employer is informed of the employee's illness or diagnosis, so the purpose of the requirement for the employer's receipt of documentation is to trigger the removal requirements while ensuring the employer has notice and maintaining the employee's privacy.

§ 1915.1024(m) -- Communication of hazards.

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§ 1915.1024(m)(1) – General.

(i) Chemical manufacturers, importers, distributors, and employers must comply with all requirements of the HCS (29 CFR 1910.1200) for beryllium.

(ii) 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 the HCS (29 CFR 1910.1200) and paragraph (m)(3) of this standard.

Purpose: The purpose of ensuring that each employee has training and access to labels and safety data sheets is to enable workers to take the precautions necessary to implement special practices to prevent or reduce beryllium exposure.

Requirements that employers provide training to workers, both in paragraph (m)(1)(ii) and elsewhere, such as in paragraph (m)(3), are not collections of information. Further, the burden for the requirement to comply with the HCS is taken in the HCS under OMB control number 1218-0072.

§ 1915.1024(m)(2) – Warning Signs.

(i) 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.

(ii) Sign specification.

(A) The employer must ensure that the warning signs required by paragraph (m)(2)(i) of this standard are legible and readily visible.

(B) The employer must ensure each warning sign required by paragraph (m)(2)(i) of this standard 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**

Purpose: Posting warning signs informs workers that they are entering a regulated area, and that they must have proper authorization before entering such an area. Warning signs allow workers and others to take the precautions necessary to avoid harmful beryllium exposures.

Under the PRA, information originally supplied by the Federal government to the recipient for the purpose of disclosure to the public is not considered to be a collection of information (5 CFR 1320.3(c)(2)). The agency has therefore determined that § 1915.1024(m)(2) is not a collection of information.

§ 1915.1024(m)(3) – Employee information and training.²

§ 1915.1024(m)(3)(iv) – Employee Information

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

Purpose: The purpose of the requirement to make a copy of the standard available to employees is to ensure that employees are aware of their employer's obligations under the standard and to assist employees in recognizing, and protecting against, the hazards of beryllium. OSHA considers the requirement to make a copy of the Standard and its appendices available to workers to be a public disclosure of information originally supplied by the Federal government to the employer for the purpose of disclosure to the public, and thus not a collection of information pursuant to 5 CFR 1320.3(c)(2). Therefore, OSHA is taking no burden hours or costs for this requirement.

§ 1915.1024(n) -- Recordkeeping.

§ 1915.1024(n)(1)(i), (ii), & (iii) -- Air Monitoring Data.

(i) The employer must make and maintain a record of all exposure measurements taken to assess airborne exposure as prescribed in paragraph (d) of this standard.

² As a result of the deleting paragraph (m)(3) of the 2017 final standard for shipyards, OSHA is renumbering paragraph (m)(4) in the shipyards standard as (m)(3), and revising the reference in paragraph (m)(1)(ii) accordingly.

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- (ii) This record must include at least the following information:
- (A) The date of measurement for each sample taken;
 - (B) The task that is being monitored;
 - (C) The sampling and analytical methods used and evidence of their accuracy;
 - (D) The number, duration, and results of samples taken;
 - (E) The type of personal protective clothing and equipment, including respirators, worn by monitored employees at the time of monitoring; and
 - (F) The name and job classification of each employee represented by the monitoring, indicating which employees were actually monitored.
- (iii) The employer must ensure that exposure records are maintained and made available in accordance with the Records Access standard (29 CFR 1910.1020).

Purpose: OSHA believes that exposure records are necessary and appropriate for protection of worker health, enforcement of the standards, and development of information regarding the causes and prevention of occupational illnesses. Also, the agency and others can use the records to identify illnesses and deaths that may be attributable to beryllium exposure, evaluate compliance programs, and assess the efficacy of the standards. Establishing and maintaining records of air-monitoring data permit employers, workers, OSHA, and other interested parties (i.e., industry trade associations and worker unions or comparable organizations) to identify the levels, durations, and extent of occupational hazards related to beryllium exposure. The records will allow interested parties to determine if existing controls are protecting workers or whether additional controls are necessary to provide the required protection. These records also allow OSHA to ascertain whether employers are complying with the standards, thereby ensuring that workers are receiving adequate protection from occupational exposure to beryllium and beryllium compounds.

OSHA's deletion of the requirement, in paragraph (n)(1)(ii)(F), to include employees' social security numbers (SSNs) in the records of air monitoring data, does not change costs or burden hours.

§ 1915.1024(n)(2)(i), (ii), & (iii) -- Objective Data.

- (i) Where an employer uses objective data to satisfy the exposure assessment requirements under paragraph (d)(2) of this standard, the employer must make and maintain a record of the objective data relied upon.
- (ii) This record must include at least the following information:
- (A) The data relied upon;
 - (B) The beryllium-containing material in question;
 - (C) The source of the objective data;
 - (D) A description of the process, task, or activity on which the objective data were based; and

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(E) Other data relevant to the process, task, activity, material, or airborne exposure on which the objective data were based.

(iii) The employer must ensure that objective data are maintained and made available in accordance with the Records Access standard (29 CFR 1910.1020).

Purpose: The records of objective data required under paragraph (n)(2) are necessary and appropriate for protection of worker health, enforcement of the standard, and development of information regarding the causes and prevention of occupational illnesses. The agency and others can use the records to identify illnesses and deaths that may be attributable to beryllium exposure, evaluate compliance programs, and assess the efficacy of the standard. Establishing and maintaining records of objective data permit employers, workers, OSHA, and other interested parties (i.e., industry trade associations and worker unions, or comparable organizations) to identify the levels, durations, and extent of beryllium exposure, determine if existing controls are protecting workers or whether additional controls are necessary to provide the required protection, and assess the relationship between beryllium exposure and the subsequent development of diseases. These records also allow OSHA to ascertain whether employers are complying with the requirements of the standard, thereby ensuring that workers are receiving adequate protection from beryllium exposure.

There is no burden taken for the items in paragraph (n)(2) because OSHA assumes any burden for the purposes of this Supporting Statement is incurred under the scheduled monitoring option.

§ 1915.1024(n)(3)(i), (ii), & (iii) -- Medical Surveillance.

(i) The employer must make and maintain a record for each employee covered by medical surveillance under paragraph (k) of this standard.

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

(A) Name and job classification;

(B) A copy of all licensed physicians' written medical opinions for each employee; and

(C) A copy of the information provided to the PLHCP as required by paragraph (k)(4) of this standard.

(iii) The employer must ensure that medical records are maintained and made available in accordance with the Records Access standard (29 CFR 1910.1020).

Purpose: These medical-surveillance records, like exposure records, are necessary and appropriate for protection of worker health, enforcement of the standard, and development of information regarding the causes and prevention of occupational illnesses. Worker access to medical-surveillance records helps protect workers because such records contribute to the evaluation of workers' health and enable workers and their healthcare providers to make informed health care decisions. Furthermore, the employer can evaluate medical-surveillance data they receive for indications that workplace conditions are associated with increased risk of beryllium-related illnesses, and take appropriate corrective actions. Finally, the agency and others can use medical surveillance records to identify illnesses and deaths that may be

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attributable to respirable beryllium exposure, evaluate compliance programs, and assess the efficacy of the standard.

§ 1915.1024(n)(4)(i) & (ii) -- Training.

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

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

Purpose: The creation and maintenance of the training records will permit both OSHA and employers to ensure that required training has occurred on schedule.

§ 1915.1024(n)(5) -- Access to Records.

(5) Access to records. Upon request, the employer must make all records maintained as a requirement of this standard available for examination and copying to the Assistant Secretary, the Director, each employee, and each employee's designated representative(s) in accordance with the Records Access standard (29 CFR 1910.1020).

Purpose: OSHA is requiring access to the records to ensure enforcement of the standard and to assist employees and their representatives in the development of information regarding the causes and prevention of occupational illnesses.

§ 1915.1024(n)(6) -- Transfer of Records.

(6) Transfer of records. The employer must comply with the requirements involving transfer of records set forth in the Records Access standard (29 CFR 1910.1020).

Paragraph (h) of § 1910.1020 requires employers who cease to do business to transfer medical and exposure-monitoring records to the successor employer, who then must receive and maintain the records. If no successor employer is available, the employer must, at least three months before ceasing business, notify current workers who have records of their right to access these records.

Purpose: OSHA considers the employer's transfer of records to a successor employer to be usual and customary communications during the transition from one employer to a successor employer, and is not taking any burden or cost for this provision in Item 12. In this regard, the employer would communicate the location of all records, including employee exposure-monitoring and medical records, at the facility to the successor employer during the transfer of business operations, as a matter of usual and customary business practice.

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3. Describe whether, and to what extent, the collection of information involves the use of automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses, and the basis for the decision for adopting this means of collection. Also, describe any consideration of using information technology to reduce the burden.

Employers may use improved information technology when establishing and maintaining the required records. The agency wrote the paperwork requirements of the standard in performance-oriented language, i.e., in terms of what data to collect, not how to record the data.

4. Describe efforts to identify duplication. Show specifically why any similar information already available cannot be used or modified for use of the purposes described in Item 2 above.

The information collection requirements of the beryllium shipyards standard are specific to each employer and worker involved, and no other source or agency duplicates these requirements or can make the required information available to the agency (i.e., the required information is available only from employers).

5. If the collection of information impacts small businesses or other small entities, describe any methods used to minimize burden.

As part of the 2007 Small Business Regulatory Enforcement Fairness Act (SBREFA) panel process, the SBREFA Panel recommended that OSHA analyze a PEL-only standard as a regulatory alternative. The Panel also recommended that OSHA consider applying ancillary provisions of the proposed standard so as to minimize costs for small businesses where exposure levels are low (*Small Business Advisory Review (SBAR) Panel Report with Appendices A, B, and D. Final Version*³). OSHA solicited public comments on all relevant issues, including health effects, risk assessment, significance of risk, technological and economic feasibility, and the provisions of the proposed regulatory text. Table VIII-17 of the Preamble to the 2017 Final Rule (82 FR 2470, 2623) addresses the SBAR Panel recommendations and OSHA's response to those recommendations.

Medical surveillance was a subject of special concern to small entity representatives (SERs) during the SBREFA process, and the SBREFA Panel offered many comments and recommendations related to medical surveillance for OSHA's consideration. OSHA seeks to ensure that the requirements of the standard offer workers adequate medical surveillance while limiting the costs to employers.

³ <https://www.regulations.gov/searchResults?rpp=25&po=0&s=OSHA-H005C-2006-0870-0345&fp=true&ns=true>

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6. Describe the consequences to Federal program or policy activities if the collection is not conducted or is conducted less frequently, as well as any technical or legal obstacles to reducing burden.

The information collection frequencies specified by the shipyards standard are the minimum frequencies that the agency believes are necessary to ensure that employers and OSHA can effectively monitor the exposure and health status of workers, thereby preventing serious illness or death resulting from hazardous exposure to beryllium.

7. Explain any special circumstances that would cause an information collection to be conducted in a manner:

- **Requiring respondents to report information to the agency more often than quarterly;**
- **Requiring respondents to prepare a written response to a collection of information in fewer than 30 days after receipt of it;**
- **Requiring respondents to submit more than an original and two copies of any document;**
- **Requiring respondents to retain records, other than health, medical, government contract, grant-in-aid, or tax records, for more than three years;**
- **In connection with a statistical survey, that is not designed to produce valid and reliable results that can be generalized to the universe of study;**
- **Requiring the use of a statistical data classification that has not been approved by OMB;**
- **That includes a pledge of confidentiality that is not supported by authority established in statute or regulation, that is not supported by disclosure and data security policies that are consistent with the pledge, or which unnecessarily impedes sharing of data with other agencies for compatible confidential use; or**
- **Requiring respondents to submit proprietary trade secret, or other confidential information unless the agency can demonstrate that it has instituted procedures to protect the information's confidentiality to the extent permitted by law.**

Under paragraph (d)(6) of the standard, employers must inform workers, in writing or by posting, of the exposure-assessment results no later than 15 working days after obtaining the results. If these results indicate that a worker's exposures are above the PEL, the notification

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must state what corrective actions the employer is taking to reduce the worker's exposure to or below the PEL.

The beryllium standard for shipyards requires that exposure records, paragraph (n)(1)(iii), objective data, paragraph (n)(2)(iii), and medical records, paragraph (n)(3)(iii), be maintained pursuant to OSHA's Records Access standard (29 CFR 1910.1020). Under the records access standard, 29 CFR 1910.1020(d)(1)(i), the medical records for each employee must be preserved and maintained for at least the duration of employment plus 30 years, with certain exceptions (see 29 CFR 1910.1020(d)(1)(i)(A)-(C)). Similarly, under 29 CFR 1910.1020(d)(1)(ii) and (iii), employee exposure records, as well as analyses using exposure or medical records, must be preserved and maintained for 30 years.

8. If applicable, provide a copy and identify the data and page number of publication in the Federal Register of the agency's notice, required by 5 CFR 1320.8(d), soliciting comments on the information collection prior to submission to OMB. Summarize public comments received in response to that notice and describe actions taken by the agency in response to these comments. Specifically address comments received on cost and hour burden.

Describe efforts to consult with persons outside the agency to obtain their views on the availability of data, frequency of collection, the clarity of instructions and recordkeeping, disclosure, or reporting format (if any), and on the data elements to be recorded, disclosed, or reported.

Consultation with representatives of those from whom information is to be obtained or those who must compile records should occur at least once every three years -- even if the collection of information activity is the same as in prior periods. There may be circumstances that may preclude consultation in a specific situation. These circumstances should be explained.

As required by the Paperwork Reduction Act of 1995 (44 U.S.C. 3506(c)(2)(A)), OSHA published a notice in the Federal Register on March 12, 2024 (89 FR 17880) requesting public comment on its proposed extension of the information collection requirements specified by the Standard on Occupational Exposure to Beryllium and Beryllium Compounds in the Shipyard Sector (29 CFR part 1915, subpart P) under Docket Number OSHA-2024-0001. This notice is part of a preclearance consultation program intended to provide those interested parties the opportunity to comment on OSHA's request for an extension by the Office of Management and Budget (OMB) of a previous approval of the information collection requirements found in the above Standard. The agency will respond to any public comments received in response to this notice.

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9. Explain any decision to provide any payment or gift to respondents, other than remuneration of contractors or grantees.

The agency will not provide payments or gifts to the respondents.

10. Describe any assurance of confidentiality provided to respondents and the basis for the assurance in statute, regulation, or agency policy.

To ensure that the personal information contained in medical records required by the standard remains confidential, the agency developed and implemented 29 CFR 1913.10 (“Rules of Agency Practice and Procedure Concerning OSHA Access to Employee Medical Records”) to regulate access to these records.

11. Provide additional justification for any questions of a sensitive nature, such as sexual behavior and attitudes, religious beliefs, and other matters that are commonly considered private. This justification should include the reasons why the agency considers the questions necessary, the specific uses to be made of the information, the explanation to be given to persons from whom the information is requested, and any steps to be taken to obtain their consent.

Questions of a sensitive nature may be included in medical questions posed by the PLHCP to properly diagnose the patient and make appropriate recommendations regarding further testing and the employee’s occupational exposure to beryllium.

12. Provide estimates of the hour burden of the collection of information. The statement should:

Indicate the number of respondents, frequency of response, annual hour burden, and an explanation of how the burden was estimated. Unless directed to do so, agencies should not conduct special surveys to obtain information on which to base hour burden estimates. Consultation with a sample (fewer than 10) of potential respondents is desirable. If the hour burden on respondents is expected to vary widely because of differences in activity, size, or complexity, show the range of estimated hour burden, and explain the reasons for the variance. Generally, estimates should not include burden hours for customary and usual business practices.

- **If this request for approval covers more than one form, provide separate hour burden estimates for each form and aggregate the hour burdens.**
- **Provide estimates of annualized costs to respondents for the hour burdens for collections of information, identifying and using appropriate wage rate categories.**

RESPONDENT BURDEN-HOUR AND COST BURDEN DETERMINATIONS

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The burden hours and cost determinations are based on OSHA’s Final Economic Analysis (“FEA”) for the final rule, Occupational Exposure to Beryllium and Beryllium Compounds in Construction and Shipyard Sectors (84 FR 53902). The FEA can be found in section IV of the rule (*see* Docket OSHA-H005C-2006-0870). This Supporting Statement provides a summary of the determinations made by the agency for the burden hours, burden-hour cost, and capital (operation and maintenance) costs under Items 12 and 13.⁴

As described in Table IV-4 of the rule, OSHA estimates that there are a total of 2,796 affected employers and a total of 11,486 affected employees that are potentially at risk from exposure to beryllium in the construction and shipyard industries. For the purposes of this ICR, the agency estimates in the shipyard industry that there are 696 establishments affected and 3,086 employees affected.

For the sole purpose of calculating burden hours and costs under the Paperwork Reduction Act, this supporting statement has rounded certain numbers up to obtain the totals stated in the supporting statement equations. Such presentation makes it easier for the public to read and validate the supporting statement’s burden hour and cost estimates.

Wage Rates

The wage rate estimates were updated using data for base wages from the Standard Occupational Classification (SOC), the March 2019 Occupational Employment Statistics survey of the Bureau of Labor Statistics. The agency obtained the wage rates utilizing the mean wage for the appropriate occupation and the North American Industry Classification System (NAICS). The SOC codes are provided for each occupational title. The wages include a fringe markup (loading factor) of 29.4 percent of base wages. The resulting loaded hourly wages are shown below in Table 1.⁵

⁴The non-compliance rates and some assumptions are based on the Supporting Statement for the Information Collection Requirements in the Final Beryllium Standard for General Industry (29 CFR 1910.1024), Construction (29 CFR 1926.1124), and Maritime (29 CFR 1915.1024), published January 9, 2017, and the 2019 PEA (section IV of the rule). The 2019 PEA and 2020 FEA tables referenced in this Supporting Statement may be downloaded from www.regulations.gov. The non-compliance rates for the ICR are found under the ICR tab in the 2020 FEA spreadsheets.

⁵ The wage rate information in Table 1 was derived from Table IV-7 of the PEA.

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Table 1 – WAGE RATES ESTIMATES				
Occupation	SOC Code	Mean Hourly Wage (A)	Fringe Benefit (B)	Loaded Hourly Wage (C)=[(A)/1-(B)]
Production Occupations	51-0000	\$21.81	29.4%	\$30.89
Human Resources Managers	11-3121	\$70.07	29.4%	\$99.25
File Clerks	43-4071	\$19.02	29.4%	\$26.94
First-Line Supervisors of Production and Operating Workers	51-1011	\$33.22	29.4%	\$47.05

Sources: U.S. Dept. of Labor, OSHA, Directorate of Standards and Guidance, Office of Regulatory Analysis OSHA, 2020.

A. Exposure Monitoring

§1915.1024(d)(2) Performance Option.

When the employer elects the performance option, the employer must assess the 8-hour TWA exposure and the 15-minute short-term exposure for each employee on the basis of any combination of air monitoring data and objective data sufficient to accurately characterize airborne exposure to beryllium.

OSHA has not taken any separate burden associated with the performance option, assuming for the purposes of this analysis that all employers would elect the more burdensome scheduled monitoring system. OSHA recognizes that the performance option is less burdensome and has thus overestimated the burden hours for the monitoring option under this approach.

§1915.1024(d)(3) Scheduled Monitoring Option.

1. Initial Monitoring

§ 1915.1024(d)(3)(i), (ii), & (iii) Initial Monitoring.

Paragraph (d)(3)(i) requires the employer to perform initial monitoring to assess the 8-hour TWA exposure for each employee on the basis of one or more personal breathing zone air samples that reflect the airborne exposure of employees on each shift, for each job classification, and in each work area.

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Paragraph (d)(3)(ii) requires the employer to perform initial monitoring to assess the short-term exposure from 15-minute personal breathing zone air samples measured in operations that are likely to produce airborne exposure above the STEL for each work shift, for each job classification, and in each work area. Paragraph (d)(3)(iii) allows the employer to sample a representative fraction of these employees in order to meet the requirements of paragraph (d)(3) in cases where several employees perform the same tasks on the same shift and in the same work area.

The total number of workers affected is 3,086. Workers in abrasive blasting (in both construction and shipyards) are estimated to be sampled 20 percent more to account for the failure rate. The number of abrasive blasting worker samples is 3,060 times 120 percent, or 3,703 and the number of welders is 26 worker samples times 1.0 percent or 26. Table IV-2 of the PEA shows Number of Workers Exposed to Beryllium by Affected Application Group, Job Category, and Exposure Range (mg/m³). The number of workers that will be directly subjected to initial monitoring (925) is the number of affected workers in each NAICS, divided by 4 because there are 4 workers represented by each sample $\{[(3,060 \times 1.20)/4=918]+[(26 \text{ welders} \times 1.0/4=6.5)]=924.5=925\}$. Each sampled production worker will incur 30 minutes (30/60 hours) of lost work time during air monitoring, at an hourly wage rate of \$30.89. Baseline non-compliance with this requirement is estimated to be 38 percent. The burden hours and cost associated with these provisions are:

Burden hours: $925 \text{ (samples)} \times 0.38 \text{ (non-compliance rate)} \times 30/60 \text{ hours (Production worker time)} = \mathbf{176 \text{ hours}}$

One-Time Cost: $176 \text{ (hours)} \times \$30.89 \text{ (Production worker wage)} = \mathbf{\$5,437}$

2. Periodic Exposure Monitoring

§1915.1024(d)(3)(v), (vi), (vii) &(viii) Scheduled Monitoring Option.

Paragraph (d)(3)(v) requires the employer to repeat exposure monitoring within six months of the most recent monitoring where the most recent exposure monitoring indicates that airborne exposure is at or above the action level but at or below the TWA PEL. Paragraph (d)(3)(vi) requires the employer to repeat such monitoring within three months of the most recent 8-hour TWA exposure monitoring where the most recent exposure monitoring indicates that airborne exposure is above the TWA PEL. Where the most recent (non-initial) exposure monitoring indicates that airborne exposure is below the action level, paragraph (d)(3)(vii) requires the employer to repeat such monitoring within six months of the most recent monitoring until two consecutive measurements, taken seven or more days apart, are below the action level, at which time the employer may discontinue 8-hour TWA exposure monitoring for those employees whose exposure is represented by such monitoring, except as otherwise provided in paragraph (d)(4) of the standard. Finally, where the most recent exposure monitoring indicates that airborne exposure is above the STEL, paragraph (d)(3)(viii) requires the employer to repeat such

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monitoring within three months of the most recent short-term exposure monitoring until two consecutive measurements, taken seven or more days apart, are below the STEL, at which time the employer may discontinue short-term exposure monitoring for those employees whose exposure is represented by such monitoring, except as otherwise provided in paragraph (d)(4).

Workers between the action level and PEL:

For periodic monitoring, the number of samples per year varies depending on whether workers are between the action level and PEL or over the PEL. OSHA estimates that there are 1,534 abrasive blasting workers between action level and PEL after the rule is implemented. These workers between the action level and PEL are sampled twice a year. This number is then divided by four, as one sample covers four workers working in the same area. Finally, this number is multiplied by 120% to account for the sampling failure rate in abrasive blasting. This results in a total of 920 samples for workers between the action level and PEL ($1,534 \text{ workers} \times 2 \text{ samples} \div 4 \text{ workers} \times 120\% \text{ failure rate} = 920$).

For maritime welders, the calculations are the same except that the number of samples is not multiplied by 120% because this setting does not face the same difficulties with sampling. OSHA estimates that there are 11 welders between action level and PEL after the rule is implemented. These workers between the action level and PEL are sampled twice a year. This number is then divided by four, as one sample covers four workers working in the same area. This results in a total of 5 samples for workers between the action level and PEL ($11 \text{ workers} \times 2 \text{ samples} \div 4 \text{ workers} = 5.5=6$).

Workers above the PEL:

For abrasive blasting workers above the PEL, OSHA estimates that there are 58 workers still exposed above the PEL after the rule is implemented. These workers above the PEL are sampled four times per year (twice as often as workers between the action level and PEL). This number is also divide by four workers per area and multiplied by the 120% failure rate. This results in a total of 191 samples for workers above the PEL ($58 \text{ workers} \times 4 \text{ samples} \div 4 \text{ workers} \times 120\% \text{ failure rate} = 69$).

OSHA estimates that is one welder exposed above the PEL after the rule is implemented. Workers above the PEL are sampled four times per year (twice as often as workers between the action level and PEL). Although there is only one worker, OSHA applies the same estimation method as for other workers, and divides by four workers per area. This results in an estimate of 1 sample for workers above the PEL ($1 \text{ worker} \times 4 \text{ samples} \div 4 \text{ workers} = 1$).

Total samples between action level and PEL and above PEL:

Summing the number of samples for workers between the action level and PEL and over the PEL for both abrasive blasting and welding results in a total of 996 samples ($920 + 69 + 6 + 1 = 996$).

OSHA estimates that each employer will conduct periodic exposure monitoring (once every six months when initial or subsequent exposure monitoring reveals that worker exposures are at or above the action level, but at or below the PEL; and above the PEL. Each periodic exposure monitoring sample (996 samples) will result in 30 minutes (30/60 hours) of lost work time

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during air monitoring. Baseline non-compliance with this requirement is estimated to be 38 percent. The burden hours and cost associated with these provisions are:

Burden hours: $996 \text{ (samples)} \times 0.38 \text{ (non-compliance rate)} \times 30/60 \text{ hours (Production worker time)} = \mathbf{189 \text{ hours}}$

Annual Cost: $189 \text{ (hours)} \times \$30.89 \text{ (Production worker wage)} = \mathbf{\$5,838}$

3. Additional Exposure Monitoring

§ 1915.1024(d)(4) Reassessment of Exposure.

The employer must reassess airborne exposure whenever a change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional airborne exposure at or above the action level or STEL, or when the employer has any reason to believe that new or additional airborne exposure at or above the action level or STEL has occurred.

Of the number of at risk workers subject to initial monitoring, 925 workers (see previous paragraph, Initial Monitoring), OSHA estimates 10% will require additional monitoring resulting from changes in the production process, materials, equipment, personnel, work practices, or control methods. Each worker will incur 30 minutes (30/60 hours) of lost work time during air monitoring. Baseline non-compliance with this requirement is estimated to be 38 percent. The burden hours and cost associated with these provisions are:

Burden hours: $925 \times 10\% \text{ (workers sampled)} \times 1 \text{ (assessment per year)} \times 0.38 \text{ (non-compliance rate)} \times 30/60 \text{ hours (Production worker wage)} = \mathbf{18 \text{ hours}}$

Cost: $18 \text{ (hours)} \times \$30.89 \text{ (Production worker wage)} = \mathbf{\$556}$

4. Employee Notification

§ 1915.1024(d)(6)(i) & (ii) Employee Notification of Assessment Results.

Paragraph (d)(6)(i) requires employers, within 15 working days after completing an exposure assessment in accordance with paragraph (d) of this standard, to notify each employee whose airborne exposure is represented by the assessment of the results of that assessment, either individually in writing or by posting the results in an appropriate location that is accessible to each of these employees.

Whenever an exposure assessment indicates that airborne exposure is above the TWA PEL or STEL, paragraph(d)(6)(ii) requires the employer to describe in the written notification the corrective action being taken to reduce airborne exposure to or below the exposure limit(s) exceeded where feasible corrective action exists but had not been implemented when the monitoring was conducted.

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These burden hours are included in the Human Resources Manager time under Item 12 Recordkeeping §1915.1024(n)(1). As a result, employee notification does not appear as a separate entry on Table 2.

B. Written Exposure Control Plan, Respiratory Protection, Medical Surveillance, and Medical Removal

1. Written Exposure Control Plan

§ 1915.1024(f)(1)(i), (ii), & (iii) -- Methods of Compliance --Written Exposure Control Plan.

Paragraph (f)(1)(i) requires the employer to establish, implement, and maintain a written exposure control plan containing the information listed in paragraphs (f)(1)(i)(A) through (D). The employer is required, under paragraph (f)(1)(ii), to review and evaluate the effectiveness of each written exposure control plan at least annually and update it as necessary, as described in paragraphs (f)(1)(ii)(A) through (C). Paragraph (f)(1)(iii) requires the employer to 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.

There are 696 affected establishments in the shipyard sector. Table IV-4 of the FEA of the final rule, and specifically the column labeled “Affected Establishments [b],” shows the profile of the total number of affected establishments in abrasive blasting and welding for shipyards needing a written exposure control plan.

a. Developing and Implementing a Written Exposure Control Plan

Baseline to Develop Plan Per-Establishment Costs:

OSHA estimates that 696 establishments have potential exposure to beryllium. The agency estimates a Human Resource (HR) Manager, earning an hourly wage of \$99.25, spends four hours per establishment to develop and implement a written exposure control plan. Baseline non-compliance with this requirement is estimated to be 10 percent.

Burden hours: $696 \text{ (written plans)} \times 0.10 \text{ (non-compliance rate)} \times 4 \text{ hours (HR manager time)} = \mathbf{280 \text{ hours}}$

One-Time Cost: $280 \text{ (hours)} \times \$99.25 \text{ (HR manager wage)} = \mathbf{\$27,790}$

OSHA notes that the final rule removes several requirements of the written exposure control plan from paragraph (f) and adds a new final paragraph (f)(1)(i)(D), which requires that the written exposure control plan include procedures used to ensure the integrity of each containment used to minimize exposures to employees outside the containment. The final rule also revises previous paragraph (f)(1)(i)(H), renumbered as paragraph (f)(1)(i)(E), to require the written exposure control plan to include a list procedures for removing, cleaning, and maintaining personal

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protective clothing and equipment in accordance with paragraph (h) of the standard. Overall, OSHA estimates that developing and implementing the written exposure control plan, with these changes, will require approximately half the amount of time that developing and implementing the written exposure control plan as required in the 2017 final rule. Therefore, OSHA has changed the total number of hours required for development and implementation from 8 hours (the estimate included in the Supporting Statement for the 2017 final) to 4.5 hours (4 hours for the HR Manager to develop the plan and 30/60 hours for the HR manager to implement the plan).

Baseline to Implement Plan Per-Establishment Costs:

OSHA estimates that 696 establishments have potential exposure to beryllium. The agency estimates a HR Manager, earning an hourly wage of \$99.25, spends 30 minutes (30/60 hours) per establishment to implement a written exposure control plan. Baseline non-compliance with this requirement is estimated to be 10 percent.

Burden hours: $696 \text{ (written plans)} \times 0.10 \text{ (non-compliance rate)} \times 30/60 \text{ hours (HR Manager time)} = \mathbf{35 \text{ hours}}$

Annual Cost: $35 \text{ (hours)} \times \$99.25 \text{ (HR manager wage)} = \mathbf{\$3,474}$

b. Additional Costs based on Size of Establishment

The cost to develop a written exposure control plan would also vary with the number of employees, with larger establishments having higher costs than smaller establishments. Therefore, OSHA has added additional burden and cost on a per-employee basis. OSHA estimates that there are a total of 3,086 workers at risk with a non-compliance rate of 10%. Managers are estimated to need 30/60 hours per employee to write the plan.

Burden hours: $3,086 \text{ (employees)} \times 0.10 \text{ (non-compliance rate)} \times 30/60 \text{ hours (HR manager time)} = \mathbf{155 \text{ hours}}$

One time Cost: $155 \text{ (hours)} \times \$99.25 \text{ (HR manager wage)} = \mathbf{\$15,384}$

c. Reviewing and Updating the Written Exposure Control Plan; Making the Written Exposure Control Plan Accessible to Employees

Under paragraph (f)(1)(ii), the employer must review and update the exposure control plan when: 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 exposures to beryllium; the employer is notified that an employee is eligible for medical removal under paragraph (l)(1), is referred for evaluation at a CBD diagnostic center, or shows signs or symptoms associated with airborne exposure to beryllium; or the employer has any reason to believe that new or additional airborne exposures are occurring or will occur.

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Under paragraph (f)(1)(iii), employers 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 OSHA's Access to Employee Exposure and Medical Records (Records Access) standard (29 CFR 1910.1020(e)). Burden hours and costs for employers to allow employees access to the written exposure control plan are included in this item of the supporting statement under D. Access to Records, subsection 1, Employee Access to Written Exposure Control Plan -- § 1915.1024(f)(1)(iii).

OSHA estimates that there are a total of 3,086 employees at risk of exposures at or above the action level annually. Managers are estimated to need 12 minutes (12/60 hours) per affected employee per quarter, or 48 minutes (4 x 12) (48/60 hours) per affected employee per year to review and update the plan. Baseline non-compliance with this requirement is estimated to be 10 percent.

Burden hours: $3,086 \text{ (employees)} \times 0.10 \text{ (non-compliance rate)} \times 48/60 \text{ hours (HR manager time)} = \mathbf{247 \text{ hours}}$

Annual Cost: $247 \text{ (hours)} \times \$99.25 \text{ (HR manager wage)} = \mathbf{\$24,515}$

2. Respiratory Protection

§ 1915.1024(g)(2) -- Respiratory protection program.

Under paragraph (g)(2), where the standard requires an employer to provide respiratory protection, the selection and use of such respiratory protection must be in accordance with the Respiratory Protection standard (29 CFR 1910.134). The Respiratory Protection standard, 29 CFR 1910.134(c)(1), requires employers to establish and implement a written respiratory protection program containing worksite-specific procedures. The program must be updated as necessary to reflect changes in workplace conditions that affect respirator use. 29 CFR 1910.134(c)(1)(i)-(ix) lists the information that must be included in the employer's written respiratory protection program.

Develop and Implement Plan

There is a cost per establishment to set up a written respiratory protection program in accordance with the respiratory protection standard (29 CFR 1910.134). The respiratory protection standard requires written procedures for the proper selection, use, cleaning, storage, and maintenance. OSHA estimates that there are 70 shipyard establishments potentially at risk from exposure to beryllium that could exceed the PEL that must have a respiratory protection plan (10 percent of the 696 shipyard establishments). The agency estimates that it takes an HR Manager eight hours to develop a respiratory protection plan. Baseline non-compliance with this requirement is estimated to be 10 percent.

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Burden hours: 70 (Respirator program per establishment) x 0.10 (non-compliance rate)
= 7 (Respirator program per establishment affected) × 8.0 hours (HR manager time) = **56 hours**

One-time Cost: 56 hours × \$99.25 (HR manager wage) = **\$5,558**

Update Plan:

OSHA estimates that it takes an HR Manager two hours to update the respiratory protection plan for each of the 70 establishments. Baseline non-compliance with this requirement is estimated to be 10 percent.

Burden hours: 70 (Respirator program per establishment) x 0.10 (non-compliance rate)
= 7 (Respirator program per establishment affected) × 2 hours (HR manager time) = **14 hours**

Annual Cost: 14 hours × \$99.25 (HR manager wage) = **\$1,390**

3. Respirator Fit Testing

The employer will conduct respiratory fit testing for the 59 shipyard workers⁶ who will need to wear respirators. OSHA estimates that it will take 30 minutes (30/60 hours) for a worker to be fit-tested per respirator and 100% of the 59 workers will need to be fit-tested. The baseline for non-compliance is 40 percent.

Burden hours: 59 (Production workers) x 0.4 (non-compliance rate) × 30/60 hours
(Production worker time) = **12 hours**

Annual Cost: 12 hours × \$30.89 (Production worker wage) = **\$371**

OSHA estimates that it will take a supervisor 30 minutes to fit-test the worker. The baseline for non-compliance is 40 percent.

Burden hours: 59 (Supervisor) x 0.4 (non-compliance rate) × 30/60 hours (Supervisor time) = **12 hours**

Annual Cost: 12 hours × \$47.05 (Supervisor wage) = **\$565**

4. Medical Surveillance

§ 1915.1024 (k)(1), (2), and (3) -- Medical Surveillance.

⁶ The 59 shipyard workers comes from comes from Table IV – 2, *Number of Workers Exposed to Beryllium by Affected Application Group, Job Category, and Exposure Range*, of the PEA and in the 2019 PEA spreadsheets.

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Paragraph (k)(1)(i) requires the employer to make medical surveillance required by this paragraph available at no cost to the employee, and at a reasonable time and place, to each employee: (A) Who is or is reasonably expected to be exposed at or above the action level for more than 30 days per year; (B) Who shows signs or symptoms of CBD or other beryllium-related health effects; or (C) Whose most recent written medical opinion required by paragraph (k)(6) or (k)(7) recommends periodic medical surveillance. Paragraph (k)(1)(ii) requires the employer to ensure that all medical examinations and procedures required by the standard are performed by, or under the direction of, a licensed physician.

In paragraph (k)(2)(i), the employer must provide a medical examination within 30 days of determining that: (A) An employee meets the criteria of paragraph (k)(1)(i)(A), unless the employee has received a medical examination, provided in accordance with the standard, within the last two years; or (B) An employee meets the criteria of paragraph (k)(1)(i)(B). Under paragraph (k)(2)(ii), medical examinations must be provided at least every two years thereafter for each employee who continues to meet the criteria of paragraph (k)(1)(i)(A), (B), or (C). Finally, paragraph (k)(2)(iii) requires provision of a medical exam at the termination of employment for each employee who meets any of the criteria of paragraph (k)(1)(i) of this standard 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.

Paragraph (k)(3)(i) requires the employer to ensure that the healthcare provider conducting the examination advises the employees 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 examination. Paragraph (k)(3)(ii) specifies the required contents of the medical examination.

The number of workers subject to initial medical surveillance in the first year and periodic surveillance in each year includes both those who are over the action level and those showing signs and symptoms (of CBD or other beryllium-related health effects sensitization).

The total number of medical exams needed for the shipyard workers is 1,825. OSHA estimated the examination requires 125 minutes (or 2.08 hours) away from work for each employee each year to complete an initial medical examination. This includes time for traveling, a health history review, the physical exam, a beryllium lymphocyte proliferation test (BeLPT), the pulmonary function test, and employee time when the PLHCP explains the results of the medical examination to the employee. Baseline non-compliance with this requirement is estimated to be 22 percent. The burden hours and annual cost associated with these provisions are:

Biennial Exams

Burden hours: 1,825 (examinations) x 0.22 (non-compliance rate) x 2.08 hours
(Production worker time) = **836 hours**

Biennial Cost: 836 hours x \$30.89 (Production worker wage) = **\$25,824**

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Note: The agency estimates that 10 percent of the standard medical examinations will lead to further tests recommended by the PLHCP and are included in the cost and time of the employees.

5. Information Provided to the PLHCP

§ 1915.1024 (k)(4) -- Information Provided to the PLHCP.

Paragraph (k)(4) requires the employer to ensure that the examining PLHCP (and the agreed-upon CBD diagnostic center, if an evaluation is required under paragraph (k)(7) of the standard) has a copy of the standard and to provide the following information, if known: a description of the employee's former and current duties that relate to the employee's occupational exposure to beryllium; the employee's former and current levels of occupational beryllium exposure; 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 information from records of employment-related medical examinations previously provided to the employee, currently within the control of the employer, after obtaining a medical release from the employee.

OSHA estimates that it will take 15 minutes (15/60 hours) of a Supervisor's time to gather and provide the information needed for the PLHCP. Baseline non-compliance with this requirement is estimated to be 22 percent.

Burden hours: $1,825 \text{ (employees)} \times 0.22 \text{ (non-compliance rate)} \times 15/60 \text{ hours}$
(Supervisor time) = **101 hours**

Annual Cost: $101 \text{ (hours)} \times \$47.05 \text{ (Supervisor wage)} = \text{\$4,752}$

6. Licensed Physician's Written Medical Opinion for the Employer

§ 1915.1024(k)(6) -- Licensed Physician's Written Medical Opinion for the Employer.

Paragraph (k)(6)(i) requires the employer to obtain a written medical opinion from the licensed physician within 45 days of the medical examination (including any follow-up BeLPT required under paragraph (k)(3)(ii)(E) of the standard). Paragraph (k)(6)(i) specifies the information that must be included in the written opinion. Paragraph (k)(6)(iv) provides that employers must ensure that the employee who underwent the medical examination receives a copy of the written medical opinion within 45 days of the examination.

There are 1,825 affected employees that the employer will need to provide a copy of the licensed physician's written opinion. OSHA estimates that it will take 5 minutes (5/60 hour) of a Supervisor's time to provide a copy of the information to the employee. Baseline non-compliance with this requirement is estimated to be 22 percent.

Supervisor:

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Burden hours: $1,825 \text{ (employees)} \times 0.22 \text{ (non-compliance rate)} \times 5/60 \text{ hours}$
(Supervisor time) = **34 hours**

Biennial Cost: $34 \text{ (hours)} \times \$47.05 \text{ (Supervisor wage)} = \text{\$1,600}$

7. Referral to Diagnostic Center

§ 1915.1024(k)(7)(i), (ii), & (iii) – CBD Diagnostic Center.

Under final paragraph (k)(7)(i), 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. The evaluation at the CBD diagnostic center must be scheduled within 30 days, and must occur within a reasonable time, of: (A) The employer's receipt of a physician's written medical opinion to the employer that recommends referral to a CBD diagnostic center; or (B) 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. The baseline is 40 percent for non-compliance.

Referral exams to the CBD Diagnostic Center --Traveling Workers

The estimated annual number of referrals to the CBD diagnostic center is 86. It will take 24 hours and 15 minutes for each employee to travel by plane to the center and complete the medical examination.

Burden hours: $86 \text{ referrals traveling} \times 0.4 \text{ (non-compliance)} \times 24.25 \text{ hours (Production worker time)} = \text{825 hours}$

Cost: $825 \text{ hours} \times \$30.89 \text{ (Production worker wage)} = \text{\$25,484}$

Referral exams to the CBD Diagnostic Center --Non-Traveling Workers

The estimated annual number of referrals exams to the CBD diagnostic center is 29. It will take 4 hours and 15 minutes for each employee to travel to the center in town and complete the medical examination. The baseline is 40 percent for non-compliance.

Burden hours: $29 \text{ referrals non travel} \times 0.4 \text{ (non-compliance)} \times 4.25 \text{ hours (Production worker time)} = \text{51 hours}$

Cost: $51 \text{ hours} \times \$30.89 \text{ (Production worker wage)} = \text{\$1,575}$

8. Medical Removal

§1915.1024 (l)(1) and (2) -- Medical removal.

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Under paragraph (l)(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:

- (i) The employee provides the employer with:
 - (A) A written medical report indicating a confirmed positive finding or CBD diagnosis; or
 - (B) A written medical report recommending removal from airborne exposure to beryllium in accordance with paragraph (k)(5)(v) or (k)(7)(ii) of this standard; or
- (ii) The employer receives a written medical opinion recommending removal from airborne exposure to beryllium in accordance with paragraph (k)(6)(v) or (k)(7)(iii) of this standard.

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

- (i) Removal as described in paragraph (l)(3) of this standard; or
- (ii) 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 paragraph (g) of this standard whenever airborne exposures are at or above the action level.

OSHA estimates that there are 89 employees who will request medical removal because of a positive finding of CBD. OSHA also estimates that it will take five minutes (5/60 hour) of a Supervisor's time to receive and process (including conveying the two options under (l)(2)) for each medical removal request. OSHA anticipates that this will typically involve the employee authorizing that the PLHCP share a recommendation for removal with the employer. Baseline non-compliance with this requirement is estimated to be 40 percent.

Burden hours: 89 employees x 0.4 (non-compliance) x 5/60 hours (Supervisor time) = **3 hours**

Cost: 3 hours x \$47.05 (Supervisor wage) = **\$141**

C. Recordkeeping

1. Exposure Assessment.

§ 1915.1024 (n)(1)(i), (ii), &(iii) – Recordkeeping -- Air Monitoring Data.

Under paragraph (n)(1)(i), the employer must make and maintain a record of all exposure measurements taken to assess airborne exposures as required by paragraph (d) of the standard. Paragraph (n)(1)(ii) states the required elements of the exposure measurement records. Under paragraph (n)(1)(iii), employers must ensure that these exposure records are maintained and made available in accordance with the Records Access standard (29 CFR 1910.1020).

a. Initial Exposure Monitoring paragraph (d)(3) of §1910.1024)

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As determined under Initial Exposure Monitoring, paragraph (d)(3), the agency estimates there are 925 exposure monitoring records being generated for this purpose. The agency estimates that an HR manager will spend 15 minutes (15/60 hours) developing and maintaining records for employee records at a loaded hourly wage of \$99.25, which includes time to notify employees of the results of the exposure monitoring (typically accomplished by posting the results). Baseline non-compliance with this requirement is estimated to be 38 percent. The burden hours and cost associated with these provisions are:

Burden hours: $925 \text{ (workers sampled)} \times 0.38 \text{ (non-compliance rate)} \times 15/60 \text{ hours (HR manager time)} = \mathbf{88 \text{ hours}}$

One-Time Cost: $88 \text{ (hours)} \times \$99.25 \text{ (HR manager wage)} = \mathbf{\$8,734}$

b. Periodic Exposure Monitoring (paragraph (d)(3) of §1915.1024)

As determined under Periodic Exposure Monitoring, paragraph (d)(3), the agency estimates there are 996 periodic monitoring samples being developed. The agency estimates that an HR manager will spend 15 minutes (15/60 hours) developing and maintaining employee monitoring records at a loaded hourly wage of \$99.25, which includes time to notify employees of the results of the exposure monitoring (typically accomplished by posting the results). Baseline non-compliance with this requirement is estimated to be 38 percent. The burden hours and cost associated with these provisions are:

Burden hours: $996 \text{ (workers sampled)} \times 0.38 \text{ (non-compliance rate)} \times 15/60 \text{ hours (HR manager time)} = \mathbf{95 \text{ hours}}$

Annual Cost: $95 \text{ (hours)} \times \$99.25 \text{ (HR manager wage)} = \mathbf{\$9,429}$

c. Additional Exposure Monitoring (paragraphs (d)(4) of § 1915.1024)

Of the 925 at risk workers subject to initial monitoring (see previous paragraph, Initial Monitoring), OSHA estimates 10%, 92 workers, will require additional monitoring resulting from changes in the production process, materials, equipment, personnel, work practices, or control methods. The agency estimates that an HR manager will spend 15 minutes (15/60 hours) maintaining the relevant records at a loaded hourly wage of \$99.25, which includes time to notify employees of the results of the exposure monitoring. Baseline non-compliance with this requirement is estimated to be 38 percent. The burden hours and cost associated with these provisions are:

Burden hours: $92 \text{ (workers sampled)} \times 0.38 \text{ (non-compliance rate)} \times 15/60 \text{ hours (HR manager time)} = \mathbf{9 \text{ hours}}$

Annual Cost: $9 \text{ (hours)} \times \$99.25 \text{ (HR manager wage)} = \mathbf{\$893}$

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2. Medical Surveillance

§ 1915.1024 (n)(3)(i), (ii), & (iii) -- Recordkeeping-- Medical Surveillance.

Under paragraph (n)(3)(i), the employer must make and maintain a record for each employee covered by medical surveillance under paragraph (k) of the standard. Paragraph (n)(3)(ii) lists the information required to be included in this record. Finally, paragraph (n)(3)(iii) requires employers to ensure that these medical records are maintained and made available in accordance with the Records Access standard (29 CFR 1910.1020).

a. Human Resource Manager

A Human Resource manager would expend 15 minutes (15/60 hour) to copy and read the PLHCP's opinion; provide and discuss the opinion with the employee; and discuss any necessary post-exam consultation with the employee. The number of post-exam records is 1,825 and the number of referral exam records is 115, for a total of 1,940. Baseline non-compliance with this requirement is estimated to be 38 percent.

Burden hours: $1,940 \text{ (exam records)} \times 0.38 \text{ (non-compliance rate)} \times 15/60 \text{ hours (HR manager time)} = \mathbf{184 \text{ hours}}$

Annual Cost: $184 \text{ (hours)} \times \$99.25 \text{ (HR manager wage)} = \mathbf{\$18,262}$

b. Clerical Worker Time

Each file would require 5 minutes (5/60 hours) of a clerical worker's time to generate and maintain. The total number of medical exam records per year is 1,940. Baseline non-compliance with this requirement is estimated to be 38 percent.

Burden hours: $1,940 \text{ (exam records)} \times 0.38 \text{ (non-compliance rate)} \times 5/60 \text{ hours (Clerical worker time)} = \mathbf{61 \text{ hours}}$

Annual Cost: $61 \text{ hours} \times \$26.94 \text{ (Clerical worker wage)} = \mathbf{\$1,643}$

3. Training

§ 1915.1024 (n)(4)(i) & (ii) -- Recordkeeping -- Training.

Paragraph (n)(4)(i) requires the employer to prepare a record of any training required by the standard. The record must include the name and job classification of each employee trained, the date the training was completed, and the topic of the training. Under paragraph (n)(4)(ii), this record must be maintained for three years after the completion of training.

OSHA estimates that there are 3,086 employees that will require a training record to be generated and maintained. A clerical worker will take 5 minutes (5/60 hours) to prepare and

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maintain these records for each employee receiving training. Baseline non-compliance with this requirement is estimated to be 26 percent.

Burden hours: $3,086 \text{ (training records)} \times 0.26 \text{ (non-compliance rate)} \times 5/60 \text{ hours}$
(Clerical worker time) = **67 hours**

Annual Cost: $67 \text{ (hours)} \times \$26.94 \text{ (Clerical worker wage)} = \mathbf{\$1,805}$

4. Fit Testing Records

As required by §1910.134(m) of the respiratory protection standard, the employer must establish and retain written information regarding medical evaluations, fit testing, and the respirator program. This information will facilitate employee involvement in the respirator program, assist the employer in auditing the adequacy of the program, and provide a record for compliance determinations by OSHA.

OSHA estimates that it will take a clerical worker 5 minutes (5/60 hours) making \$26.94 an hour to maintain the records for fit testing a respirator. Baseline non-compliance with this requirement is estimated to be 40 percent.

Burden hours: $59 \text{ (employees)} \times 0.4 \text{ (non-compliance)} \times 5/60 \text{ hours}$ (Clerical worker time) = **2 hours**

Cost: $2 \text{ (hours)} \times \$26.94 \text{ (Clerical worker wage)} = \mathbf{\$54}$

D. Access to Records

1. Employee Access to Written Exposure Control Plan -- 1915.1024(f)(1)(iii)

Under paragraph (f)(1)(iii), the employer must make a copy of the exposure control plan accessible to each employee who is or can reasonably be expected to be exposed to airborne beryllium in accordance with OSHA's Access to Employee Exposure and Medical Records (Records Access) standard (29 CFR 1910.1020(e)).

OSHA estimates it takes 5 minutes (5/60 hours) of a clerical worker's time to make the exposure control plan accessible to the worker. OSHA estimates that approximately 5% of the 3,086 at-risk workers, or 154 workers, will request access to their records per year. Baseline non-compliance with this requirement is estimated to be 10 percent.

Burden hours: $154 \text{ (worker requests for written exposure control plan)} \times 0.10 \text{ (non-compliance rate)} \times 5/60 \text{ hours}$ (Clerical worker time) = **1 hours**

One-Time Cost: $1 \text{ (hours)} \times \$26.94 \text{ (Clerical worker wage)} = \mathbf{\$27}$

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2. Access to Records

§ 1915.1024 (n)(5) -- Employee Access to Records.

Pursuant to paragraph (n)(5), the employer must, upon request, make all records maintained as a requirement of the standard available for examination and copying to the Assistant Secretary, the Director, each employee, and each employee's designated representative(s) in accordance with the Records Access standard (29 CFR 1910.1020).

OSHA estimates that approximately 5% of the 3,086 at-risk workers, or 154 workers, will request access to their records per year. OSHA estimates that it takes 5 minutes (5/60 hours) of a Clerical worker's time to disclose these records. Baseline non-compliance with this requirement is estimated to be 100 percent. The annual burden hours and cost for this task are estimated to be:

Burden hours: $154 \text{ (worker requests for medical documentation)} \times 0.4 \text{ (non-compliance rate)} \times 5/60 \text{ (hours of Clerical worker time)} = \mathbf{5 \text{ hours}}$

Annual Cost: $5 \text{ (hours)} \times \$26.94 \text{ (Clerical worker wage)} = \mathbf{\$135}$

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Table 2. Summary of Burden Hours and Burden-Hour Cost Under Item 12 for Shipyards*

Collection of Information	Frequency	Occupation	Responses per Year	Non-compliance Rate	Total No. of Responses	Burden per Responses (in Hours)	Total Burden Hour	Loaded Hourly Wage	Total Burden Cost
A. Exposure Monitoring									
1. Performance Option									
Objective Data	Annual	Production Worker	0	0%	0	0	0	\$30.89	\$0
2. Scheduled Monitoring Option									
Initial	First Year	Production Worker	925	38%	352	30/60	176	\$30.89	\$5,437
Periodic	Annual	Production Worker	996	38%	378	30/60	189	\$30.89	\$5,838
Additional	Annual	Production Worker	92	38%	35	30/60	18	\$30.89	\$556
B. Written Exposure Control Plan, Respiratory Protection, Medical Surveillance, and Medical Removal									
1. Written Exposure Control Plan									
Develop Plan	First Year	HR Manager	696	10%	70	4	280	\$99.25	\$27,790
Implement Plan	Annual	HR Manager	696	10%	70	30/60	35	\$99.25	\$3,474
Develop Plan	First Year	HR Manager	3,086	10%	309	30/60	155	\$99.25	\$15,384
Update Plan	Annual	HR Manager	3,086	10%	309	48/60	247	\$99.25	\$24,515
2. Respirator Program									
Develop Plan	First Year	HR Manager	70	10%	7	8	56	\$99.25	\$5,558
Update Plan	Annual	HR Manager	70	10%	7	2	14	\$99.25	\$1,390
3. Respirator Fit Testing									
Respirator Fit Testing - Labor	Annual	Production Worker	59	40%	24	30/60	12	\$30.89	\$371
Respirator Fit Testing - Labor	Annual	Supervisor	59	40%	24	30/60	12	\$47.05	\$565
4. Medical Surveillance									

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Collection of Information	Frequency	Occupation	Responses per Year	Non-compliance Rate	Total No. of Responses	Burden per Responses (in Hours)	Total Burden Hour	Loaded Hourly Wage	Total Burden Cost
Medical Exam - Initial and Periodic	Biennial	Production Worker	1,825	22%	402	2.08	836	\$30.89	\$25,824
5. Information Provided to the PLHCP									
Provide Information - Supervisor	Biennial	Supervisor	1,825	22%	402	15/60	101	\$47.05	\$4,752
6. Licensed Physician's Written Medical Opinion									
Process Information - Supervisor	Biennial	Supervisor	1,825	22%	402	5/60	34	\$47.05	\$1,600
7. Referral to Diagnostic Center									
Referral Exam - Travelling Workers	Annual	Production Worker	86	40%	34	24.25	825	\$30.89	\$25,484
Referral Exam - Non-Travelling Workers	Annual	Production Worker	29	40%	12	4.25	51	\$30.89	\$1,575
8. Medical Removal									
Medical Removal	First Year	Supervisor	89	40%	36	5/60	3	\$47.05	\$141
C. Recordkeeping									
1. Exposure Monitoring									
Initial	First Year	HR Manager	925	38%	352	15/60	88	\$99.25	\$8,734
Periodic	Annual	HR Manager	996	38%	378	15/60	95	\$99.25	\$9,429
Additional	Annual	HR Manager	92	38%	35	15/60	9	\$99.25	\$893
2. Medical Surveillance									
Medical Surveillance - HR Manager	Annual	HR Manager	1,940	38%	737	15/60	184	\$99.25	\$18,262
Medical Surveillance - Clerical	Annual	File Clerk	1,940	38%	737	5/60	61	\$26.94	\$1,643
3. Training									
Training	Annual	File Clerk	3,086	26%	802	5/60	67	\$26.94	\$1,805
4. Respirator Fit Testing Records									
Respirator Fit Testing	Annual	File Clerk	59	40%	24	5/60	2	\$26.94	\$54

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Collection of Information	Frequency	Occupation	Responses per Year	Non-compliance Rate	Total No. of Responses	Burden per Responses (in Hours)	Total Burden Hour	Loaded Hourly Wage	Total Burden Cost
D. Employee Access to Exposure Monitoring and Medical Records									
Written Exposure Control Plan	Annual	File Clerk	154	10%	15	5/60	1	\$26.94	\$27
Access to Records	Annual	File Clerk	154	40%	62	5/60	5	\$26.94	\$135
Totals									
First Year					1,126		758		\$63,044
Annual					3,683		1,827		\$96,016
Biennial					1,206		971		\$32,176
Total					6,015		3,556		\$191,236
Annualized Over Three Years					4,661		2,565		\$133,119

*The total number of respondents is 696.

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13. Provide an estimate of the total annual cost burden to respondents or recordkeepers resulting from the collection of information. (Do not include the cost of any hour burden shown in Items 12 and 14.)

The cost estimate should be split into two components: (a) a total capital and start-up cost component (annualized over its expected useful life) and (b) a total operation and maintenance and purchase of services component. The estimates should take into account costs associated with generating, maintaining, and disclosing or providing the information. Include descriptions of methods used to estimate major cost factors including system and technology acquisition, expected useful life on capital equipment, the discount rate(s), and the time period over which costs will be incurred. Capital and start-up costs include, among other items, preparations for collecting information such as purchasing computers and software; monitoring, sampling, drilling and testing equipment; and record storage facilities.

If cost estimates are expected to vary widely, agencies should present ranges of cost burdens and explain the reasons for the variance. The cost of purchasing or contracting out information collections services should be part of this cost burden estimate. In developing cost burden estimates, agencies may consult with a sample of respondents (fewer than 10), utilize the 60-day pre-OMB submission public comment process and use existing economic or regulatory impact analysis associated with the rulemaking containing the information collection, as appropriate.

Generally, estimates should not include purchases of equipment or services, or portions thereof, made: (1) prior to October 1, 1995, (2) to achieve regulatory compliance with requirements not associated with the information collection, (3) for reasons other than to provide information or keep records for the government, or (4) as part of customary and usual business or private practices.

1. Exposure Monitoring

The agency has taken a unit cost for analyzing the samples taken for exposure monitoring. This exposure monitoring requires that three samples be taken per worker: one time-weighted average (TWA) sample and two short-term exposure limit (STEL) samples. The costs differ for initial exposure monitoring (which is conducted by certified IH) and additional/periodic monitoring (which is conducted by a lower wage IH). The unit cost for an initial TWA sample is estimated to be \$628.20, which is the sum of the cost for contract industrial hygienist services (\$468.10) and the associated lab fees (\$160.10). The unit cost to obtain the two STEL samples is estimated to be \$1,256.40 (2 x (\$160.10 + \$468.10)) per sampled worker. The unit cost for additional/periodic TWA samples is estimated to be \$390.07, which is the sum of the cost for contract

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industrial hygienist services (\$229.98) and the associated lab fees (\$160.10). The unit cost to obtain additional/periodic STEL samples is estimated to be \$780.15 (2 x (\$160.10 + \$229.98)).⁷

Table 3 shows the number of responses per year, non-compliance rate, and total cost associated with each type of exposure monitoring sample. The number of workers affected by the exposure monitoring requirements varies, with 925 workers affected in the first year, 996 workers subject to periodic exposure monitoring, and 92 workers subject to additional exposure monitoring. The total cost is calculated by multiplying the cost per sample by the number of non-compliance responses. First-year costs and the costs for each type of sample are summed to arrive at the total costs.

**Table 3. Direct Costs of Exposure Monitoring
(Shipyards Only)**

	Frequency	Responses per Year	Non-Compliance Rate	Non-Compliance Responses per year	Unit Cost	Total Cost
Initial						
TWA Sample	First Year	925	38%	352	\$628.20	\$221,126
2 STEL Samples	First Year	925	38%	352	\$1,256.40	\$442,253
Subtotal	First Year	925		352		\$663,379
Periodic						
TWA Sample	Annual	996	38%	378	\$390.07	\$147,446
2 STEL Samples	Annual	996	38%	378	\$780.15	\$294,897
Subtotal	Annual	996		378		\$442,343
Additional						
TWA Sample	Annual	92	38%	35	\$390.07	\$13,652
2 STEL Samples	Annual	92	38%	35	\$780.15	\$27,305
Subtotal	Annual	92		35		\$40,958
Total						
						\$1,146,680

Total average over three years for the Shipyards sector is:
 $(\$663,379/3) + \$442,343 + \$40,958 = \$704,427$

⁷ These exposure monitoring unit costs are summarized in the spreadsheets accompanying the PEA for the 2017 rule. (Docket Number: OSHA-H005C-2006-0870-0385).

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2. Initial Medical Examinations

The agency assumes that employers will incur an initial medical cost for the exams associated with the medical surveillance provision of the rule. The medical cost associated with initial medical exams is \$598.43, which includes \$44.57 for gathering or updating work and medical history, \$133.71 for a full physical exam (encompassing both respiratory and skin requirements), \$63.93 for a pulmonary function test, \$332.84 for a BeLPT, and \$229.98 for all additional tests (collectively) that the PLHCP may recommend. For this last element, the agency estimates that 10 percent of the standard medical examinations will lead to further tests recommended by the PLCHP.⁸ The cost for the PLHCP or other medical provider to provide a written medical report to the employee is included in the cost for the medical exams.

The Agency estimates that 1,825 workers will be subject to biennial medical surveillance, and OSHA estimates a non-compliance rate of 22% (402 workers) so the total cost for these workers is \$240,569 (402 x \$598.43). (See Table 4) The cost for the additional exams is included.

Table 4 – Medical Exam Costs for Shipyards

	Frequency	Basis	Unit Cost	Responses per Year	Non-Compliance Rate	Adjusted Responses	Total Cost
Medical Exam Costs	Biennial	Employee	\$598.43	1,825	22%	402	\$240,569

Total Annual Cost: $\$240,569 \div 2 = \$120,284$

3. Respirator Fit-Test Materials

The agency estimates that it costs employers \$1.27 for respirator materials to fit-test each of the 24 employees (59 employers x 40% noncompliance = 24 employers).

Annual Cost: 24 (employees) x \$1.27 (cost for materials) = **\$30**

4. Total Capital Costs

The total costs for this item are the sum of the costs for exposure monitoring and medical examinations and respirator fit test materials.

Table 5 – Estimated Capital Cost

⁸ The medical exams' unit costs are summarized in OSHA's spreadsheets supporting the 2020 FEA.

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Total Estimated Capital Cost for Shipyards	Cost
Exposure Monitoring	\$1,146,680
Medical Exams	\$240,569
Respirator Fit Testing Materials	\$30
Total Cost for Shipyards	\$1,397,279

Total Capital Cost is: \$1,397,279

Table 6 – Estimated Annualized Capital Cost

Annualized Over Three Years for the ICR (Only Maritime)	
Exposure Monitoring	\$704,427
Initial Medical Exam	\$120,284
Respirator Fit Testing Materials	\$30
Total Cost Average over three years for Shipyards	\$824,741

Total Capital Cost Annualized is: \$824,741.

14. Provide estimates of annualized cost to the Federal Government. Also, provide a description Provide estimates of annualized cost to the Federal Government. Also, provide a description of the method used to estimate cost, which should include quantification of hours, operational expenses (such as equipment, overhead, printing, and support staff), and any other expense that would not have been incurred without this collection of information. Agencies may also aggregate cost estimates from Items 12, 13, and 14 in a single table.

There are no costs to the Federal Government.

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15. Explain the reasons for any program changes or adjustments.

The agency is requesting an adjustment decrease in burden from 6,609 to 2,565 hours, a difference of 4,044 hours. The decrease in burden is due to removing the collection of information requirements for rule familiarization and reducing the non-compliance rate for employers. The total estimated annualized capital cost is \$824,741. This decrease in cost is due to the lower non-compliance rate.

16. For collections of information whose results will be published, outline plans for tabulation and publication. Address any complex analytical techniques that will be used. Provide the time schedule for the entire project, including beginning and ending dates of the collection of information, completion of report, publication dates, and other actions.

The information collected under the beryllium standard for shipyards will not be published.

17. If seeking approval to not display the expiration date for OMB approval of the information collection, explain the reasons that display would be inappropriate.

OSHA lists current valid control numbers in §§1910.8, 1915.8, 1917.4, 1918.4, and 1926.5 and publishes the expiration date in the Federal Register notice announcing OMB approval of the information collection requirement (see 5 CFR 1320.3(f)(3)). OSHA believes that this is the most appropriate and accurate mechanism to inform interested parties of these expiration dates.

18. Explain each exception to the certification statement.

OSHA is not requesting an exception to the certification statement.

B. COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL METHODS

This Supporting Statement does not contain any collection of information requirements that employ statistical methods.

SEC. 2. Congressional Findings and Purpose

(a) The Congress finds that personal injuries and illnesses arising out of work situations impose a substantial burden upon, and are a hindrance to, interstate commerce in terms of lost production, wage loss, medical expenses, and disability compensation payments.

(b) The Congress declares it to be its purpose and policy, through the exercise of its powers to regulate commerce among the several States and with foreign nations and to provide for the general welfare, to assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources --

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29 USC 651

(1) by encouraging employers and employees in their efforts to reduce the number of occupational safety and health hazards at their places of employment, and to stimulate employers and employees to institute new and to perfect existing programs for providing safe and healthful working conditions; (2) by providing that employers and employees have separate but dependent responsibilities and rights with respect to achieving safe and healthful working conditions;

(3) by authorizing the Secretary of Labor to set mandatory occupational safety and health standards applicable to businesses affecting interstate commerce, and by creating an Occupational Safety and Health Review Commission for carrying out adjudicatory functions under the Act;

(4) by building upon advances already made through employer and employee initiative for providing safe and healthful working conditions;

(5) by providing for research in the field of occupational safety and health, including the psychological factors involved, and by developing innovative methods, techniques, and approaches for dealing with occupational safety and health problems;

(6) by exploring ways to discover latent diseases, establishing causal connections between diseases and work in environmental conditions, and conducting other research relating to health problems, in recognition of the fact that occupational health standards present problems often different from those involved in occupational safety;

(7) by providing medical criteria which will assure insofar as practicable that no employee will suffer diminished health, functional capacity, or life expectancy as a result of his work experience;

(8) by providing for training programs to increase the number and competence of personnel engaged in the field of occupational safety and health; affecting the OSH Act since its passage in 1970 through January 1, 2004.

(9) by providing for the development and promulgation of occupational safety and health standards;

(10) by providing an effective enforcement program which shall include a prohibition against giving advance notice of any inspection and sanctions for any individual violating this prohibition;

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(11) by encouraging the States to assume the fullest responsibility for the administration and enforcement of their occupational safety and health laws by providing grants to the States to assist in identifying their needs and responsibilities in the area of occupational safety and health, to develop plans in accordance with the provisions of this Act, to improve the administration and enforcement of State occupational safety and health laws, and to conduct experimental and demonstration projects in connection therewith;

(12) by providing for appropriate reporting procedures with respect to occupational safety and health which procedures will help achieve the objectives of this Act and accurately describe the nature of the occupational safety and health problem;

(13) by encouraging joint labor-management efforts to reduce injuries and disease arising out of employment.

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6. Occupational Safety and Health Standards
<p>29 USC 655:</p> <p>(a) Without regard to chapter 5 of title 5, United States Code, or to the other subsections of this section, the Secretary shall, as soon as practicable during the period beginning with the effective date of this Act and ending two years after such date, by rule promulgate as an occupational safety or health standard any national consensus standard, and any established Federal standard, unless he determines that the promulgation of such a standard would not result in improved safety or health for specifically designated employees. In the event of conflict among any such standards, the Secretary shall promulgate the standard which assures the greatest protection of the safety or health of the affected employees. (b) The Secretary may by rule promulgate, modify, or revoke any occupational safety or health standard in the following manner:</p>
<p>(1) Whenever the Secretary, upon the basis of information submitted to him in writing by an interested person, a representative of any organization of employers or employees, a nationally recognized standards-producing organization, the Secretary of Health and Human Services, the National Institute for Occupational Safety and Health, or a State or political subdivision, or on the basis of information developed by the Secretary or otherwise available to him, determines that a rule should be promulgated in order to serve the objectives of this Act, the Secretary may request the recommendations of an advisory committee appointed under section 7 of this Act. The Secretary shall provide such an advisory committee with any proposals of his own or of the Secretary of Health and Human Services, together with all pertinent factual information developed by the Secretary or the Secretary of Health and Human Services, or otherwise available, including the results of research, demonstrations, and experiments. An advisory committee shall submit to the Secretary its recommendations regarding the rule to be promulgated within ninety days from the date of its appointment or within such longer or shorter period as may be prescribed by the Secretary, but in no event for a period which is longer than two hundred and seventy days. (2) The Secretary shall publish a proposed rule promulgating, modifying, or revoking an occupational safety or health standard in the Federal Register and shall afford interested persons a period of thirty days after publication to submit written data or comments. Where an advisory committee is appointed and the Secretary determines that a rule should be issued, he shall publish the proposed rule within sixty days after the submission of the advisory committee's recommendations or the expiration of the period prescribed by the Secretary for such submission. (3) On or before the last day of the period provided for the submission of written data or comments under paragraph (2), any interested person may file with the Secretary written objections to the proposed rule, stating the grounds therefore and requesting a public hearing on such objections. Within thirty days after the last day for filing such objections, the Secretary shall publish in the Federal Register a notice specifying the occupational safety or health standard to which objections have been filed and a hearing requested, and specifying a time and place for such hearing.</p>

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SEC. 8. Inspections, Investigations, and Recordkeeping

(a) In order to carry out the purposes of this Act, the Secretary, upon presenting appropriate credentials to the owner, operator, or agent in charge, is authorized --

29 USC 657

(1) to enter without delay and at reasonable times any factory, plant, establishment, construction site, or other area, workplace or environment where work is performed by an employee of an employer; and (2) to inspect and investigate during regular working hours and at other reasonable times, and within reasonable limits and in a reasonable manner, any such place of employment and all pertinent conditions, structures, machines, apparatus, devices, equipment, and materials therein, and to question privately any such employer, owner, operator, agent or employee.

(b) In making his inspections and investigations under this Act the Secretary may require the attendance and testimony of witnesses and the production of evidence under oath. Witnesses shall be paid the same fees and mileage that are paid witnesses in the courts of the United States. In case of a contumacy, failure, or refusal of any person to obey such an order, any district court of the United States or the United States courts of any territory or possession, within the jurisdiction of which such person is found, or resides or transacts business, upon the application by the Secretary, shall have jurisdiction to issue to such person an order requiring such person to appear to produce evidence if, as, and when so ordered, and to give testimony relating to the matter under investigation or in question, and any failure to obey such order of the court may be punished by said court as a contempt thereof. (c) (1) Each employer shall make, keep and preserve, and make available to the Secretary or the Secretary of Health and Human Services, such records regarding his activities relating to this Act as the Secretary, in cooperation with the Secretary of Health and Human Services, may prescribe by regulation as necessary or appropriate for the enforcement of this Act or for developing information regarding the causes and prevention of occupational accidents and illnesses. In order to carry out the provisions of this paragraph such regulations may include provisions requiring employers to conduct periodic inspections. The Secretary shall also issue regulations requiring that employers, through posting of notices or other appropriate means, keep their employees informed of their protections and obligations under this Act, including the provisions of applicable standards.

(2) The Secretary, in cooperation with the Secretary of Health and Human Services, shall prescribe regulations requiring employers to maintain accurate records of, and to make periodic reports on, work-related deaths, injuries and illnesses other than minor injuries requiring only first aid treatment and which do not involve medical treatment, loss of consciousness, restriction of work or motion, or transfer to another job.

The Electronic Code of Federal Regulations

Displaying title 29, up to date as of 3/13/2024. Title 29 was last amended 3/13/2024.

§ 1915.1024 Beryllium.

(a) *Scope and application.*

- (1) This standard applies to occupational exposure to beryllium in all forms, compounds, and mixtures in shipyards, except those articles and materials exempted by paragraphs (a)(2) and (a)(3) of this standard.
- (2) This standard does not apply to articles, as defined in the Hazard Communication standard (HCS) ([29 CFR 1910.1200\(c\)](#)), that contain beryllium and that the employer does not process.
- (3) This standard does not apply to materials containing less than 0.1% beryllium by weight where the employer has objective data demonstrating that employee exposure to beryllium will remain below the action level as an 8-hour TWA under any foreseeable conditions.

(b) *Definitions.* As used in this standard:

Action level means 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).

Airborne exposure and **airborne exposure to beryllium** mean the exposure to airborne beryllium that would occur if the employee were not using a respirator.

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, United States Department of Labor, or designee.

Beryllium lymphocyte proliferation test (BeLPT) means the measurement of blood lymphocyte proliferation in a laboratory test when lymphocytes are challenged with a soluble beryllium salt.

Beryllium sensitization means a response in the immune system of a specific individual who has been exposed to beryllium. There are no associated physical or clinical symptoms and no illness or disability with beryllium sensitization alone, but the response that occurs through beryllium sensitization can enable the immune system to recognize and react to beryllium. While not every beryllium-sensitized person will develop chronic beryllium disease (CBD), beryllium sensitization is essential for development of CBD.

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CBD diagnostic center means a medical diagnostic center that has a pulmonologist or pulmonary specialist on staff and on-site facilities to perform a clinical evaluation for the presence of chronic beryllium disease (CBD). 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 24 hours. The pulmonologist or pulmonary specialist must be able to interpret the biopsy pathology and the BAL diagnostic test results.

Chronic beryllium disease (CBD) means a chronic granulomatous lung disease caused by inhalation of airborne beryllium by an individual who is beryllium-sensitized.

Confirmed positive means the person tested has had two abnormal BeLPT test results, an abnormal and a borderline test result, or three borderline test results from tests conducted within a 3-year period. It also means the result of a more reliable and accurate test indicating a person has been identified as having beryllium sensitization.

Director means the Director of the National Institute for Occupational Safety and Health (NIOSH), U.S. Department of Health and Human Services, or designee.

Objective data means 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.

Physician or other licensed health care professional (PLHCP) means 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 paragraph (k) of this standard.

Regulated area means an area, including temporary work areas where maintenance or non-routine 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).

This standard means this beryllium standard, [29 CFR 1915.1024](#).

(c) Permissible Exposure Limits (PELs) –

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- (1) *Time-weighted average (TWA) PEL.* The employer must ensure that no employee is exposed to an airborne concentration of beryllium in excess of 0.2 µg/m³ calculated as an 8-hour TWA.
- (2) *Short-term exposure limit (STEL).* The employer must ensure that no employee is exposed to an airborne concentration of beryllium in excess of 2.0 µg/m³ as determined over a sampling period of 15 minutes.
- (d) *Exposure assessment –*
 - (1) *General.* The employer must assess the airborne exposure of each employee who is or may reasonably be expected to be exposed to airborne beryllium in accordance with either the performance option in paragraph (d)(2) or the scheduled monitoring option in paragraph (d)(3) of this standard.
 - (2) *Performance option.* The employer must assess the 8-hour TWA exposure and the 15-minute short-term exposure for each employee on the basis of any combination of air monitoring data and objective data sufficient to accurately characterize airborne exposure to beryllium.
 - (3) *Scheduled monitoring option.*
 - (i) The employer must perform initial monitoring to assess the 8-hour TWA exposure for each employee on the basis of one or more personal breathing zone air samples that reflect the airborne exposure of employees on each shift, for each job classification, and in each work area.
 - (ii) The employer must perform initial monitoring to assess the short-term exposure from 15-minute personal breathing zone air samples measured in operations that are likely to produce airborne exposure above the STEL for each work shift, for each job classification, and in each work area.
 - (iii) Where several employees perform the same tasks on the same shift and in the same work area, the employer may sample a representative fraction of these employees in order to meet the requirements of paragraph (d)(3) of this standard. In representative sampling, the employer must sample the employee(s) expected to have the highest airborne exposure to beryllium.
 - (iv) If initial monitoring indicates that airborne exposure is below the action level and at or below the STEL, the employer may discontinue monitoring for those employees whose airborne exposure is represented by such monitoring.
 - (v) Where the most recent exposure monitoring indicates that airborne exposure is at or above the action level but at or below the TWA PEL, the employer must repeat such monitoring within six months of the most recent monitoring.

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- (vi) Where the most recent exposure monitoring indicates that airborne exposure is above the TWA PEL, the employer must repeat such monitoring within three months of the most recent 8-hour TWA exposure monitoring.
- (vii) Where the most recent (non-initial) exposure monitoring indicates that airborne exposure is below the action level, the employer must repeat such monitoring within six months of the most recent monitoring until two consecutive measurements, taken 7 or more days apart, are below the action level, at which time the employer may discontinue 8-hour TWA exposure monitoring for those employees whose exposure is represented by such monitoring, except as otherwise provided in paragraph (d)(4) of this standard.
- (viii) Where the most recent exposure monitoring indicates that airborne exposure is above the STEL, the employer must repeat such monitoring within three months of the most recent short-term exposure monitoring until two consecutive measurements, taken 7 or more days apart, are below the STEL, at which time the employer may discontinue short-term exposure monitoring for those employees whose exposure is represented by such monitoring, except as otherwise provided in paragraph (d)(4) of this standard.
- (4) *Reassessment of exposure.* The employer must reassess airborne exposure whenever a change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional airborne exposure at or above the action level or STEL, or when the employer has any reason to believe that new or additional airborne exposure at or above the action level or STEL has occurred.
- (5) *Methods of sample analysis.* The employer must ensure that all air monitoring samples used to satisfy the monitoring requirements of paragraph (d) of this standard are evaluated by a laboratory that can measure beryllium to an accuracy of plus or minus 25 percent within a statistical confidence level of 95 percent for airborne concentrations at or above the action level.
- (6) *Employee notification of assessment results.*
 - (i) Within 15 working days after completing an exposure assessment in accordance with paragraph (d) of this standard, the employer must notify each employee whose airborne exposure is represented by the assessment of the results of that assessment individually in writing or post the results in an appropriate location that is accessible to each of these employees.
 - (ii) Whenever an exposure assessment indicates that airborne exposure is above the TWA PEL or STEL, the employer must describe in the written notification the corrective action being taken to reduce airborne exposure to or below the exposure limit(s) exceeded where feasible corrective action exists but had not been implemented when the monitoring was conducted.
- (7) *Observation of monitoring.*

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- (i) The employer must provide an opportunity to observe any exposure monitoring required by this standard to each employee whose airborne exposure is measured or represented by the monitoring and each employee's representative(s).
 - (ii) When observation of monitoring requires entry into an area where the use of personal protective clothing or equipment (which may include respirators) is required, the employer must provide each observer with appropriate personal protective clothing and equipment at no cost to the observer and must ensure that each observer uses such clothing and equipment.
 - (iii) The employer must ensure that each observer follows all other applicable safety and health procedures.
- (e) *Regulated areas* –
- (1) *Establishment.* The employer must establish and maintain a regulated area wherever employees are, or can reasonably be expected to be, exposed to airborne beryllium at levels above the TWA PEL or STEL.
 - (2) *Demarcation.* The employer must identify each regulated area in accordance with paragraph (m)(2) of this standard.
 - (3) *Access.* The employer must limit access to regulated areas to:
 - (i) Persons the employer authorizes or requires to be in a regulated area to perform work duties;
 - (ii) Persons entering a regulated area as designated representatives of employees for the purpose of exercising the right to observe exposure monitoring procedures under paragraph (d)(7) of this standard; and
 - (iii) Persons authorized by law to be in a regulated area.
 - (4) *Provision of personal protective clothing and equipment, including respirators.* The employer must provide and ensure that each employee entering a regulated area uses:
 - (i) Respiratory protection in accordance with paragraph (g) of this standard; and
 - (ii) Personal protective clothing and equipment in accordance with paragraph (h) of this standard.
- (f) *Methods of compliance* –
- (1) *Written exposure control plan.*
 - (i) The employer must establish, implement, and maintain a written exposure control plan, which must contain:

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- (A) A list of operations and job titles reasonably expected to involve exposure to beryllium;
- (B) A list of engineering controls, work practices, and respiratory protection required by paragraph (f)(2) of this standard;
- (C) A list of personal protective clothing and equipment required by paragraph (h) of this standard;
- (D) Procedures used to ensure the integrity of each containment used to minimize exposures to employees outside of the containment; and
- (E) Procedures for removing, cleaning, and maintaining personal protective clothing and equipment in accordance with paragraph (h) of this standard.
- (ii) The employer must review and evaluate the effectiveness of each written exposure control plan at least annually and update it, as necessary, when:
 - (A) 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;
 - (B) The employer is notified that an employee is eligible for medical removal in accordance with paragraph (I)(1) of this standard, referred for evaluation at a CBD diagnostic center, or shows signs or symptoms associated with exposure to beryllium; or
 - (C) The employer has any reason to believe that new or additional airborne exposure is occurring or will occur.
- (iii) 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 OSHA's Access to Employee Exposure and Medical Records (Records Access) standard ([29 CFR 1910.1020\(e\)](#)).
- (2) *Engineering and work practice controls.* The employer must use engineering and work practice controls to reduce and maintain employee airborne exposure to beryllium to or below the TWA 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 by using respiratory protection in accordance with paragraph (g) of this standard.
- (3) *Prohibition of rotation.* The employer must not rotate employees to different jobs to achieve compliance with the PELs.
- (g) *Respiratory protection* –

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- (1) *General.* The employer must provide respiratory protection at no cost to the employee and ensure that each employee uses respiratory protection:
 - (i) During periods necessary to install or implement feasible engineering and work practice controls where airborne exposure exceeds, or can reasonably be expected to exceed, the TWA PEL or STEL;
 - (ii) During operations, including maintenance and repair activities and non-routine tasks, when engineering and work practice controls are not feasible and airborne exposure exceeds, or can reasonably be expected to exceed, the TWA PEL or STEL;
 - (iii) During operations for which an employer has implemented all feasible engineering and work practice controls when such controls are not sufficient to reduce airborne exposure to or below the TWA PEL or STEL; and
 - (iv) When an employee who is eligible for medical removal under paragraph (l)(1) chooses to remain in a job with airborne exposure at or above the action level, as permitted by paragraph (l)(2)(ii).
- (2) *Respiratory protection program.* Where this standard requires an employer to provide respiratory protection, the selection and use of such respiratory protection must be in accordance with the Respiratory Protection standard ([29 CFR 1910.134](#)).
- (3) The employer must provide at no cost to the employee a powered air-purifying respirator (PAPR) instead of a negative pressure respirator when:
 - (i) Respiratory protection is required by this standard;
 - (ii) An employee entitled to such respiratory protection requests a PAPR; and
 - (iii) The PAPR provides adequate protection to the employee in accordance with paragraph (g)(2) of this standard.
- (h) *Personal protective clothing and equipment –*
 - (1) *Provision and use.* Where airborne exposure exceeds, or can reasonably be expected to exceed, the TWA PEL or STEL, 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 paragraph (f)(1) of this standard and OSHA's Personal Protective Equipment standards for shipyards ([subpart I of this part](#)).
 - (2) *Removal of personal protective clothing and equipment.*
 - (i) The employer must ensure that each employee removes all personal protective clothing and equipment required by this standard at the end of the work shift or at the completion of all tasks involving beryllium, whichever comes first.

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(ii) The employer must ensure that personal protective clothing and equipment required by this standard is not removed in a manner that disperses beryllium into the air, and is removed as specified in the written exposure control plan required by paragraph (f)(1) of this standard.

(iii) The employer must ensure that no employee with reasonably expected exposure above the TWA PEL or STEL removes personal protective clothing and equipment required by this standard from the workplace unless it has been cleaned in accordance with paragraph (h)(3)(ii) of this standard.

(3) *Cleaning and replacement.*

(i) 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.

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

(i) [Reserved]

(j) *Housekeeping.*

(1) When cleaning dust resulting from operations that cause, or can reasonably be expected to cause, airborne exposure above the TWA PEL or STEL, the employer must ensure the use of methods that minimize the likelihood and level of airborne exposure.

(2) The employer must not allow dry sweeping or brushing for cleaning up dust resulting from operations that cause, or can reasonably be expected to cause, airborne exposure above the TWA PEL or STEL unless methods that minimize the likelihood and level of airborne exposure are not safe or effective.

(3) The employer must not allow the use of compressed air for cleaning where the use of compressed air causes, or can reasonably be expected to cause, airborne exposure above the TWA PEL or STEL.

(4) Where employees use dry sweeping, brushing, or compressed air to clean, the employer must provide, and ensure that each employee uses, respiratory protection and personal protective clothing and equipment in accordance with paragraphs (g) and (h) of this standard.

(5) 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 re-entrainment of airborne beryllium in the workplace.

(k) *Medical surveillance* —

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(1) General.

- (i)** The employer must make medical surveillance required by this paragraph available at no cost to the employee, and at a reasonable time and place, to each employee:
 - (A)** Who is or is reasonably expected to be exposed at or above the action level for more than 30 days per year;
 - (B)** Who shows signs or symptoms of CBD or other beryllium-related health effects; or
 - (C)** Whose most recent written medical opinion required by paragraph (k)(6) or (k)(7) recommends periodic medical surveillance.
- (ii)** 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.

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

- (i)** Within 30 days after determining that:
 - (A)** An employee meets the criteria of paragraph (k)(1)(i)(A) of this standard, unless the employee has received a medical examination, provided in accordance with this standard, within the last two years; or
 - (B)** An employee meets the criteria of paragraph (k)(1)(i)(B) of this standard.
- (ii)** At least every two years thereafter for each employee who continues to meet the criteria of paragraph (k)(1)(i)(A), (B), or (C) of this standard.
- (iii)** At the termination of employment for each employee who meets any of the criteria of paragraph (k)(1)(i) of this standard 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.

(3) Contents of examination.

- (i)** 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.
- (ii)** The employer must ensure that the employee is offered a medical examination that includes:
 - (A)** A medical and work history, with emphasis on past and present exposure to beryllium, smoking history, and any history of respiratory system dysfunction;
 - (B)** A physical examination with emphasis on the respiratory system;

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- (C) A physical examination for skin rashes;
- (D) 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);
- (E) 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, a follow-up BeLPT must be offered within 30 days, unless the employee has been confirmed positive. Samples must be analyzed in a laboratory certified under the College of American Pathologists/Clinical Laboratory Improvement Amendments (CLIA) guidelines to perform the BeLPT.
- (F) 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
- (G) Any other test deemed appropriate by the PLHCP.
- (4) *Information provided to the PLHCP.* The employer must ensure that the examining PLHCP (and the agreed-upon CBD diagnostic center, if an evaluation is required under paragraph (k)(7) of this standard) has a copy of this standard and must provide the following information, if known:
 - (i) A description of the employee's former and current duties that relate to the employee's exposure to beryllium;
 - (ii) The employee's former and current levels of airborne exposure;
 - (iii) 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
 - (iv) 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.* The employer must ensure that the employee receives a written medical report from the licensed physician within 45 days of the examination (including any follow-up BeLPT required under paragraph (k)(3)(ii)(E) of this standard) and that the PLHCP explains the results of the examination to the employee. The written medical report must contain:
 - (i) A statement indicating the results of the medical examination, including the licensed physician's opinion as to whether the employee has:

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- (A) Any detected medical condition, such as CBD or beryllium sensitization (*i.e.*, the employee is confirmed positive, as defined in paragraph (b) of this standard), that may place the employee at increased risk from further airborne exposure, and
- (B) Any medical conditions related to airborne exposure that require further evaluation or treatment.
- (ii) Any recommendations on:
 - (A) The employee's use of respirators, protective clothing, or equipment; or
 - (B) Limitations on the employee's airborne exposure to beryllium.
- (iii) 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.
- (iv) If the employee is confirmed positive or diagnosed with CBD the written report must also contain a recommendation for continued periodic medical surveillance.
- (v) 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 paragraph (l).
- (6) *Licensed physician's written medical opinion for the employer.*
 - (i) The employer must obtain a written medical opinion from the licensed physician within 45 days of the medical examination (including any follow-up BeLPT required under paragraph (k)(3)(ii)(E) of this standard). The written medical opinion must contain only the following:
 - (A) The date of the examination;
 - (B) A statement that the examination has met the requirements of this standard;
 - (C) Any recommended limitations on the employee's use of respirators, protective clothing, or equipment; and
 - (D) 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;
 - (ii) If the employee provides written authorization, the written opinion must also contain any recommended limitations on the employee's airborne exposure to beryllium.
 - (iii) 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

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written opinion must also contain a referral for an evaluation at a CBD diagnostic center.

- (iv) 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.
 - (v) 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 paragraph (l).
 - (vi) The employer must ensure that each employee receives a copy of the written medical opinion described in paragraph (k)(6) of this standard within 45 days of any medical examination (including any follow-up BeLPT required under paragraph (k)(3)(ii)(E) of this standard) performed for that employee.
- (7) *CBD diagnostic center.*
- (i) 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. The evaluation at the CBD diagnostic center must be scheduled within 30 days, and must occur within a reasonable time, of:
 - (A) The employer's receipt of a physician's written medical opinion to the employer that recommends referral to a CBD diagnostic center; or
 - (B) 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.
 - (ii) 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.
 - (iii) The employer must ensure that the employee receives a written medical report from the CBD diagnostic center that contains all the information required in paragraph (k)(5)(i), (ii), (iv), and (v) and that the PLHCP explains the results of the examination to the employee within 30 days of the examination.
 - (iv) The employer must obtain a written medical opinion from the CBD diagnostic center within 30 days of the medical examination. The written medical opinion must contain only the information in paragraphs (k)(6)(i), as applicable, unless the employee provides

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written authorization to release additional information. If the employee provides written authorization, the written opinion must also contain the information from paragraphs (k)(6)(ii), (iv), and (v), if applicable.

(v) The employer must ensure that each employee receives a copy of the written medical opinion from the CBD diagnostic center described in paragraph (k)(7) of this standard within 30 days of any medical examination performed for that employee.

(vi) After an employee has received the initial clinical evaluation at a CBD diagnostic center described in paragraph (k)(7)(i) of this standard, the employee may choose to have any subsequent medical examinations for which the employee is eligible under paragraph (k) of this standard performed at a CBD diagnostic center mutually agreed upon by the employer and the employee, and the employer must provide such examinations at no cost to the employee.

(l) *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:

(i) The employee provides the employer with:

(A) A written medical report indicating a confirmed positive finding or CBD diagnosis; or

(B) A written medical report recommending removal from airborne exposure to beryllium in accordance with paragraph (k)(5)(v) or (k)(7)(ii) of this standard; or

(ii) The employer receives a written medical opinion recommending removal from airborne exposure to beryllium in accordance with paragraph (k)(6)(v) or (k)(7)(iii) of this standard.

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

(i) Removal as described in paragraph (l)(3) of this standard; or

(ii) 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 paragraph (g) of this standard whenever airborne exposures are at or above the action level.

(3) If the employee chooses removal:

(i) 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

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months from the time of removal the employee's base earnings, seniority, and other rights and benefits that existed at the time of removal.

(ii) 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 paragraph (l)(3)(i) 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.

(m) *Communication of hazards –*

(1) *General.*

(i) Chemical manufacturers, importers, distributors, and employers must comply with all requirements of the HCS ([29 CFR 1910.1200](#)) for beryllium.

(ii) 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 the HCS ([29 CFR 1910.1200](#)) and paragraph (m)(3) of this standard.

(2) *Warning signs.*

(i) *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.

(ii) *Sign specification.*

(A) The employer must ensure that the warning signs required by paragraph (m)(2)(i) of this standard are legible and readily visible.

(B) The employer must ensure each warning sign required by paragraph (m)(2)(i) of this standard bears the following legend:

DANGER

REGULATED AREA

BERYLLIUM

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MAY CAUSE CANCER

CAUSES DAMAGE TO LUNGS

AUTHORIZED PERSONNEL ONLY

WEAR RESPIRATORY PROTECTION AND PERSONAL PROTECTIVE CLOTHING AND
EQUIPMENT IN THIS AREA

(3) *Employee information and training.*

(i) For each employee who has, or can reasonably be expected to have, airborne exposure to beryllium:

(A) The employer must provide information and training in accordance with the HCS ([29 CFR 1910.1200\(h\)](#));

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

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

(ii) 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:

(A) The health hazards associated with exposure to beryllium, including the signs and symptoms of CBD;

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

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

(D) Measures employees can take to protect themselves from exposure to beryllium;

(E) The purpose and a description of the medical surveillance program required by paragraph (k) of this standard including risks and benefits of each test to be offered;

(F) The purpose and a description of the medical removal protection provided under paragraph (l) of this standard;

(G) The contents of the standard; and

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- (H) The employee's right of access to records under the Records Access standard ([29 CFR 1910.1020](#)).
- (iii) 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.
- (iv) The employer must make a copy of this standard and its appendices readily available at no cost to each employee and designated employee representative(s).
- (n) *Recordkeeping –*
 - (1) *Air monitoring data.*
 - (i) The employer must make and maintain a record of all exposure measurements taken to assess airborne exposure as prescribed in paragraph (d) of this standard.
 - (ii) This record must include at least the following information:
 - (A) The date of measurement for each sample taken;
 - (B) The task that is being monitored;
 - (C) The sampling and analytical methods used and evidence of their accuracy;
 - (D) The number, duration, and results of samples taken;
 - (E) The type of personal protective clothing and equipment, including respirators, worn by monitored employees at the time of monitoring; and
 - (F) The name and job classification of each employee represented by the monitoring, indicating which employees were actually monitored.
 - (iii) The employer must ensure that exposure records are maintained and made available in accordance with the Records Access standard ([29 CFR 1910.1020](#)).
 - (2) *Objective data.*
 - (i) Where an employer uses objective data to satisfy the exposure assessment requirements under paragraph (d)(2) of this standard, the employer must make and maintain a record of the objective data relied upon.
 - (ii) This record must include at least the following information:
 - (A) The data relied upon;
 - (B) The beryllium-containing material in question;

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- (C) The source of the objective data;
- (D) A description of the process, task, or activity on which the objective data were based; and
- (E) Other data relevant to the process, task, activity, material, or airborne exposure on which the objective data were based.
- (iii) The employer must ensure that objective data are maintained and made available in accordance with the Records Access standard ([29 CFR 1910.1020](#)).
- (3) *Medical surveillance.*
 - (i) The employer must make and maintain a record for each employee covered by medical surveillance under paragraph (k) of this standard.
 - (ii) The record must include the following information about each employee:
 - (A) Name and job classification;
 - (B) A copy of all licensed physicians' written medical opinions for each employee; and
 - (C) A copy of the information provided to the PLHCP as required by paragraph (k)(4) of this standard.
 - (iii) The employer must ensure that medical records are maintained and made available in accordance with the Records Access standard ([29 CFR 1910.1020](#)).
- (4) *Training.*
 - (i) At the completion of any training required by this standard, the employer must prepare a record that indicates the name and job classification of each employee trained, the date the training was completed, and the topic of the training.
 - (ii) This record must be maintained for three years after the completion of training.
- (5) *Access to records.* Upon request, the employer must make all records maintained as a requirement of this standard available for examination and copying to the Assistant Secretary, the Director, each employee, and each employee's designated representative(s) in accordance the Records Access standard ([29 CFR 1910.1020](#)).
- (6) *Transfer of records.* The employer must comply with the requirements involving transfer of records set forth in the Records Access standard ([29 CFR 1910.1020](#)).
- (o) *Dates —*
 - (1) *Effective date.* This standard shall become effective March 10, 2017.
 - (2) *Compliance dates.*

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- (i) All obligations contained in paragraph (c) of this standard commence and become enforceable on March 12, 2018; and
- (ii) All other obligations of this standard commence and become enforceable on September 30, 2020.

[[82 FR 2744](#), Jan. 9, 2017, as amended at [84 FR 51399](#), Sept. 30, 2019; [85 FR 53996](#), Aug. 31, 2020; [86 FR 11119](#), Feb. 24, 2021]