Revision to the
The Cadmium in General Industry Standard
29 CFR 1910.1027
Supporting Statement

The Standards Improvement Project–Phase III (SIP-III) is the third in a series of rulemaking actions to improve and streamline OSHA standards. The Standard Improvement Projects remove and revise individual requirements in standards that are confusing, outdated, duplicative or inconsistent. In May 2011, OSHA published the SIP-III final rule.

The SIP-III final rule removed from 25 of OSHA's substance-specific standards (see 29 CFR 1910, subpart Z) the requirements for employers to transfer employee exposure-monitoring and medical records to the National Institute for Occupational Safety and Health (NIOSH), and to notify NIOSH prior to disposal of such records. As a result of removing these transfer and notification requirements, OSHA is revising the 25 corresponding Information Collection Requests (ICRs)[1] to reduce the burden-hour and cost estimates associated with these provisions.

In addition, the final rule removed the requirement for employers to develop and maintain employee training records in three standards. OSHA also is revising these three corresponding ICRs to provide the burden-hour and cost reductions for developing and maintaining these training records.

Edits to this supporting statement consists of strikethroughs and highlighted yellow text. These edits indicate removal of the requirement for employers to transfer records to NIOSH and removal of the requirement for employers to develop and maintain employee training-certification records. Language deleted from this Supporting Statement is struck-through. Language added to the supporting statement appears highlighted in yellow.

1 [?]The section of the preamble in the final SIP-III rule titled *Office of Management and Budget Review Under the Paperwork Reduction Act of 1995* lists the 27 ICRs being revised. The 27 ICRs are being revised as follows: 23 ICRs are revised to remove both the requirements for employers to transfer records to NIOSH and for employers to prepare training certifications; and, two additional ICRs are being revised to remove only training certifications.

SUPPORTING STATEMENT FOR THE
INFORMATION COLLECTION REQUIREMENTS IN
THE CADMIUM IN GENERAL INDUSTRY STANDARD (29 CFR 1910.1027)
OFFICE OF MANAGEMENT AND BUDGET (OMB)
CONTROL NO. 1218-0185 (May 2011)

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). To achieve this objective, the OSH Act specifically authorizes "the development and promulgation of occupational safety and health standards" (29 U.S.C. 651). The Act states further 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. 651).

To protect worker health, the OSH Act authorizes the Occupational Safety and Health Administration ("OSHA" or "Agency") to develop standards that provide for "monitoring or measuring worker exposure" to occupational hazards and "prescribe the type and frequency of medical examinations and other tests which shall be made available [by the employer] to workers exposed to such hazards . . . to most effectively determine whether the health of such workers is adversely affected by such exposure" (29 U.S.C. 655). Moreover, the Act directs the Agency to "issue regulations requiring employers to maintain accurate records of worker exposures to potentially toxic materials or other harmful physical agents which are required to be monitored and measured," and further specifies that such regulations provide "for each worker or former worker to have access to such records as will indicate [their] own exposure to toxic materials or harmful physical agents" (29 U.S.C. 657). In addition, the OSH Act mandates that "[e]ach employer shall make, keep and preserve, and make available to the Secretary [of Labor] . . . such records regarding [his/her] activities relating this Act as the Secretary . . . 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" (29 U.S.C. 657).

Under the authority granted by the OSH Act, the Agency published a standard for general industry that regulated worker cadmium (Cd) exposure (§1910.1027; the "Standard"). OSHA based the Standard on a determination that occupational exposure to Cd poses a hazard to workers. This determination showed Cd exposure may cause lung cancer, prostate cancer, non-malignant respiratory disease, acute pneumonitis, fever and chest pain, severe weakness,

coughing and tightness of the chest, and kidney disease. Items 2 and 12 below list and describe 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.

Exposure Monitoring (§1910.1027(d))

General (§1910.1027(d)(1)(i)) - Each employer who has a workplace or work operation covered by this section shall determine if any employee may be exposed to cadmium at or above the action level.

§1910.1027(d)(1)(ii) - Determinations of employee exposure shall be made from breathing zone air samples that reflect the monitored employee's regular, daily 8-hour TWA exposure to cadmium.

§1910.1027(d)(1)(iii) - Eight-hour TWA exposures shall be determined for each employee on the basis of one or more personal breathing zone air samples reflecting full shift exposure on each shift, for each job classification, in each work area. Where several employees perform the same job tasks, in the same job classification, on the same shift, in the same work area, and the length, duration, and level of cadmium exposures are similar, an employer may sample a representative fraction of the employees instead of all employees in order to meet this requirement. In representative sampling, the employer shall sample the employee(s) expected to have the highest cadmium exposures.

Initial Monitoring (§1910.1027(d)(2)(i)) - Except as provided for in paragraphs (d)(2)(ii) and (d)(2)(iii) of this section, the employer shall monitor employee exposures and shall base initial determinations on the monitoring results.

(§1910.1027(d)(2)(ii)) - Where the employer has monitored after September 14, 1991, under conditions that in all important aspects closely resemble those currently prevailing and where that monitoring satisfies all other requirements of this section, including the accuracy and confidence levels of paragraph (d)(6) the employer may rely on such earlier monitoring results to satisfy the requirements of paragraph (d)(2)(i) of this section.

Purpose: Initial monitoring assists employers in identifying areas of operation that may require additional efforts to reduce exposure and come into compliance with the Standard. Initial monitoring results also assist employers in determining the need for engineering controls, instituting or modifying work practices, and in selecting appropriate respiratory protection to prevent workers from overexposure. This information also determines whether the employer must perform periodic monitoring.

§1910.1027(d)(2)(iii) - Where the employer has objective data, as defined in paragraph (n)(2) of this section, demonstrating that employee exposure to cadmium will not exceed the action level

under the expected conditions of processing, use, or handling, the employer may rely upon such data instead of implementing initial monitoring.

Purpose: By eliminating the need for initial monitoring, this alternative encourages employers to use operations that substantially reduce worker exposures to Cd. (See discussion of paragraph (n)(2) for additional information on using objective data.)

Monitoring Frequency (Periodic Monitoring) (§1910.1027(d)(3)(i)) - If the initial monitoring or periodic monitoring reveals employee exposures to be at or above the action level, the employer shall monitor at a frequency and pattern needed to represent the levels of exposure of employees and where exposures are above the PEL to assure the adequacy of respiratory selection and the effectiveness of engineering and work practice controls. However, such exposure monitoring shall be performed at least every six months. The employer, at a minimum, shall continue these semi-annual measurements unless and until the conditions set out in paragraph (d)(3)(ii) are met.

§1910.1027(d)(3)(ii) - If the initial monitoring or the periodic monitoring indicates that employee exposures are below the action level and that result is confirmed by the results of another monitoring taken at least seven days later, the employer may discontinue the monitoring for those employees whose exposures are represented by such monitoring.

Purpose: Periodic monitoring is necessary because relatively minor changes in tasks, work practices, and environmental conditions may affect airborne concentrations of Cd. Employers may use these monitoring results to evaluate the effectiveness of selected control methods. In addition, these measurements remind both the employer and workers of the need to protect workers against the effects of overexposure to Cd. These monitoring data also will inform the examining physician of the existence and extent of an worker's Cd exposures for use in assessing the worker's medical condition.

Additional Monitoring (§1910.1027(d)(4)) - The employer also shall institute the exposure monitoring required under paragraphs (d)(2)(i) and (d)(3) of this section whenever there has been a change in the raw materials, equipment, personnel, work practices, or finished products that may result in additional workers being exposed to cadmium at or above the action level or in workers already exposed to cadmium at or above the action level being exposed above the PEL, or whenever the employer has any reason to suspect that any other change might result in such further exposure.

Purpose: Additional monitoring ensures that the workplace is safe, or alerts the employer of the need to improve protection.

Worker Notification of Monitoring Results (§1910.1027(d)(5)(i)) - The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected worker of these results either individually in writing or by posting the results in an appropriate location that is accessible to workers.

§1910.1027(d)(5)(ii) - Wherever monitoring results indicate that employee exposure exceeds the PEL, the employer shall include in the written notice a statement that the PEL has been exceeded and a description of the corrective action being taken by the employer to reduce employee exposure to or below the PEL.

Purpose: This provision assures that workers receive accurate exposure data and, in addition, provides them with information regarding the specific actions the employer is taking to lower their exposures and furnish them with a safe and healthful workplace in accordance with section 8(c)(3) of the Act.

Methods of Compliance (§1910.1027(f))

Compliance Program (§1910.1027(f)(2)(i)) – Where the PEL is exceeded, the employer shall establish and implement a written compliance program to reduce worker exposure to or below the PEL by means of engineering and work practice controls, as required by paragraph (f)(1) of this section. To the extent that engineering and work practice controls cannot reduce exposures to or below the PEL, the employer shall include in the written compliance program the use of appropriate respiratory protection to achieve compliance with the PEL.

§1910.1027(f)(2)(ii) - Written compliance programs shall include at least the following:

§1910.1027(f)(2)(ii)(A) - A description of each operation in which cadmium is emitted; e.g., machinery used, material processed, controls in place, crew size, employee job responsibilities, operating procedures, and maintenance practices;

§1910.1027(f)(2)(ii)(B) - A description of the specific means that will be employed to achieve compliance, including engineering plans and studies used to determine methods selected for controlling exposure to cadmium, as well as, where necessary, the use of appropriate respiratory protection to achieve the PEL;

§1910.1027(f)(2)(ii)(C) - A report of the technology considered in meeting the PEL;

§1910.1027(f)(2)(ii)(D) - Air monitoring data that document the sources of cadmium emissions;

§1910.1027(f)(2)(ii)(E) - A detailed schedule for implementation of the program, including documentation such as copies of purchase orders for equipment, construction contracts, etc.;

§1910.1027(f)(2)(ii)(F) - A work practice program that includes items required under paragraphs (h), (i), and (j) of this section;

§1910.1027(f)(2)(ii)(G) - A written plan for emergency situations, as specified in paragraph (h) of this section; and

§1910.1027(f)(2)(ii)(H) - Other relevant information.

§1910.1027(f)(2)(iii) - The written compliance programs shall be reviewed and updated at least annually, or more often if necessary, to reflect significant changes in the employer's compliance status.

§1910.1027(f)(2)(iv) - Written compliance programs shall be provided upon request for examination and copying to affected employees, designated employee representatives as well as to the Assistant Secretary, and the Director.

Purpose: This requirement commits the employer to evaluating worker Cd exposures and establishing an organized and complete program for reducing these exposures to the PEL; it does so prior to beginning a job to prevent unnecessary exposure to Cd, and to inform workers regarding planned controls. The requirement to prepare and update the written compliance program ensures that employers continue to evaluate variable workplace conditions, including Cd exposures, and to implement feasible engineering and work-practice controls as required. The written program also assures OSHA, NIOSH, workers, and their representatives that employers are taking necessary and appropriate measures to protect workers from hazardous Cd exposures.

Respiratory Protection (§1910.1027(g))

Respiratory Program (§1910.1027(g)(2)(i)) - The employer must implement a respiratory protection program in accordance with 29 CFR 1910.134 (b) through (d) (except (d)(1)(iii)), and (f) through (m).

Purpose: The purpose of these requirements is to ensure that employers establish a standardized procedure for selecting, using, and maintaining respirators for each workplace that requires respirator use. Developing written procedures ensures that employers implement the required respirator program in an effective and reliable manner that addresses the unique characteristics (including chemical hazards) of the workplace. The Agency accounts for the burden hours and cost resulting from the respirator-program requirements under the Information Collection Request for OSHA's Respiratory Protection Standard (§1910.134), Office of Management and Budget (OMB) Control Number 1218-0099.

Emergency Situations (§1910.1027(h)) - The employer shall develop and implement a written plan for dealing with emergency situations involving substantial releases of airborne cadmium. The plan shall include provisions for the use of appropriate respirators and personal protective equipment. In addition, employees not essential to correcting the emergency situation shall be restricted from the area and normal operations halted in that area until the emergency is abated.

Purpose: Emergency plans provide workers with information to maximize their personal protection and minimize Cd exposures under these conditions.

Protective work clothing and equipment (§1910.1027(i))

(§1910.1027(i)(2)(iv)) - The employer shall assure that bags or containers of contaminated protective clothing and equipment that are to be taken out of the change rooms or the workplace for laundering, cleaning, maintenance or disposal shall bear labels in accordance with paragraph (m)(3) of this section.

Purpose: This information allows personnel who handle Cd-contaminated protective clothing or equipment to protect themselves from the harmful effects of Cd.

Cleaning, replacement, and disposal (§1910.1027(i)(3))

Notification of Laundry Personnel (§1910.1027(i)(3)(v)) - The employer shall inform any person who launders or cleans protective clothing or equipment contaminated with cadmium of the potentially harmful effects of exposure to cadmium and that the clothing and equipment should be laundered or cleaned in a manner to effectively prevent the release of airborne cadmium in excess of the PEL.

Purpose: This information allows such personnel to protect themselves from harmful Cd exposures.

Housekeeping (§1910.1027(k))

§1910.1027(k)(7) - Waste, scrap, debris, bags, containers, personal protective equipment, and clothing contaminated with cadmium and consigned for disposal shall be collected and disposed of in sealed impermeable bags or other closed, impermeable containers. These bags and containers shall be labeled in accordance with paragraph (m)(2) of this section.

Purpose: This information allows personnel who handle these articles to protect themselves from exposure to hazardous levels of Cd.

Medical Surveillance (§1910.1027(l))

General (§1910.1027(l)(1)) - Employers must implement a medical-surveillance program for employees who are or who may be exposed to Cd at concentrations at or above the AL. However, medical surveillance is unnecessary if the employer can demonstrate that: an employee's exposure to airborne Cd at or above the AL occurs on 30 or fewer days per year (twelve consecutive months). Additionally, an employer must provide medical surveillance for an employee exposed to Cd at or above the action level by that employer prior to the effective

date. Employers are exempt from this requirement when they can demonstrate that the employee did not work in jobs with exposure to Cd for an aggregated total of more than 60 months.

Initial Examination (§1910.1027(l)(2)(i)) - The employer shall provide an initial (preplacement) examination to all employees covered by the medical surveillance program required in paragraph (l)(1)(i) of this section. The examination shall be provided to those employees within 30 days after initial assignment to a job with exposure to cadmium or no later than 90 days after the effective date of this section, whichever date is later.

§1910.1027(l)(2)(ii) - The initial (preplacement) medical examination shall include:

> §1910.1027(l)(2)(ii)(A) - A detailed medical and work history, with emphasis on: past, present, and anticipated future exposure to cadmium; any history of renal, cardiovascular, respiratory, hematopoietic, reproductive, and/or musculo-skeletal system dysfunction; current usage of medication with potential nephrotoxic side-effects; and smoking history and current status; and
>
> §1910.1027(l)(2)(ii)(B) - Biological monitoring that includes the following tests:
>
> > §1910.1027(l)(2)(ii)(B)(1) - Cadmium in urine (CdU), standardized to grams of creatinine (g/Cr);
> >
> > §1910.1027(l)(2)(ii)(B)(2) - Beta-2 microglobulin in urine (B(2)-M), standardized to grams of creatinine (g/Cr), with pH specified, as described in Appendix F; and
> >
> > §1910.1027(l)(2)(ii)(B)(3) - Cadmium in blood (CdB), standardized to liters of whole blood (lwb).

§1910.1027(l)(2)(iii) - *Recent Examination*: An initial examination is not required to be provided if adequate records show that the employee has been examined in accordance with the requirements of paragraph (l)(2)(ii) of this section within the past 12 months. In that case, such records shall be maintained as part of the employee's medical record and the prior exam shall be treated as if it were an initial examination for the purposes of paragraphs (l)(3) and (4) of this section.

Actions Triggered by Initial Biological Monitoring (§1910.1027(l)(3))

If laboratory analyses of the initial biological monitoring results show that an employee's CdU, CdB, and/or β_2-MU exceed specified limits, this provision requires the employer to reassess an employee's Cd exposure within two weeks by evaluating the employee's work practices, personal hygiene, respirator use, smoking history and current smoking status, as well as hygiene facilities, the respirator program, and the maintenance and effectiveness of the relevant engineering

controls. Within 30 days after the reassessment, employers must take reasonable steps to correct any deficiencies found in the assessment that may be responsible for the employee's excessive Cd exposure. Employers also must provide the employee with a full medical examination within 90 days of receiving the abnormal biological-monitoring results, and then conduct biological monitoring either quarterly or semi-annually and administer medical examinations either annually or semi-annually.

Purpose: The purpose of initial biological monitoring is to determine the worker's existing cadmium exposure level to facilitate the early detection of potential effects associated with cadmium exposure and to evaluate the need for continued or follow-up monitoring of workers.

Periodic Medical Surveillance (§1910.1027(l)(4))

For each employee who is covered under paragraph (l)(1)(i)(A), the employer shall provide at least the minimum level of periodic medical surveillance, which consists of periodic medical examinations and periodic biological monitoring. A periodic medical examination shall be provided within one year after the initial examination required by paragraph (l)(2) and thereafter at least biennially. Biological sampling shall be provided at least annually, either as part of a periodic medical examination or separately as periodic biological monitoring.

§1910.1027(l)(4)(ii) - The periodic medical examination shall include:

> §1910.1027(l)(4)(ii)(A) - A detailed medical and work history, or update thereof, with emphasis on: past, present and anticipated future exposure to cadmium; smoking history and current status; reproductive history; current use of medications with potential nephrotoxic side-effects; any history of renal, cardiovascular, respiratory, hematopoietic, and/or musculo-skeletal system dysfunction; and as part of the medical and work history, for employees who wear respirators, questions 3-11 and 25-32 in Appendix D;
>
> §1910.1027(l)(4)(ii)(B) - A complete physical examination with emphasis on: blood pressure, the respiratory system, and the urinary system;
>
> §1910.1027(l)(4)(ii)(C) - A 14 inch by 17 inch, or a reasonably standard sized posterior-anterior chest X-ray (after the initial X-ray, the frequency of chest X-rays is to be determined by the examining physician);
>
> §1910.1027(l)(4)(ii)(D) - Pulmonary function tests, including forced vital capacity (FVC) and forced expiratory volume at 1 second (FEV(1));
>
> §1910.1027(l)(4)(ii)(E) - Biological monitoring, as required in paragraph (l)(2)(ii)(B);
>
> §1910.1027(l)(4)(ii)(F) - Blood analysis, in addition to the analysis required under paragraph (l)(2)(ii)(B), including blood urea nitrogen, complete blood count, and serum creatinine;

§1910.1027(l)(4)(ii)(G) - Urinalysis, in addition to the analysis required under paragraph (l)(2)(ii)(B), including the determination of albumin, glucose, and total and low molecular weight proteins;

§1910.1027(l)(4)(ii)(H) - For males over 40 years old, prostate palpation, or other at least as effective diagnostic test(s); and

§1910.1027(l)(4)(ii)(I) - Any additional tests deemed appropriate by the examining physician.

Actions Triggered by Medical Examinations (§1910.1027(l)(5))

§1910.1027(l)(5)(i) - If the results of a medical examination carried out in accordance with this section indicate any laboratory or clinical finding consistent with cadmium toxicity that does not require employer action under paragraphs (l)(2), (3) or (4) of this section, the employer, within 30 days, shall reassess the employee's occupational exposure to cadmium and take the following corrective action until the physician determines they are no longer necessary:

§1910.1027(l)(5)(i)(A) - Periodically reassess: the employee's work practices and personal hygiene; the employee's respirator use, if any; the employee's smoking history and status; the respiratory protection program; the hygiene facilities; and the maintenance and effectiveness of the relevant engineering controls;

§1910.1027(l)(5)(i)(B) - Within 30 days after the reassessment, take all reasonable steps to correct the deficiencies found in the reassessment that may be responsible for the employee's excess exposure to cadmium;

§1910.1027(l)(5)(i)(C) - Provide semiannual medical reexaminations to evaluate the abnormal clinical sign(s) of cadmium toxicity until the results are normal or the employee is medically removed; and

§1910.1027(l)(5)(i)(D) - Where the results of tests for total proteins in urine are abnormal, provide a more detailed medical evaluation of the toxic effects of cadmium on the employee's renal system.

Examination for Respirator Use (§1910.1027(l)(6))

§1910.1027(l)(6)(i) - To determine an employee's fitness for respirator use, the employer shall provide a medical examination that includes the elements specified in (l)(6)(A)-(D). This examination shall be provided prior to the employee's being assigned to a job that requires the use of a respirator or no later than 90 days after this section goes into effect, whichever date is later, to any employee without a medical examination within the preceding 12 months that satisfies the requirements of this paragraph.

§1910.1027(l)(6)(i)(A) - A detailed medical and work history, or update thereof, with emphasis on: past exposure to cadmium; smoking history and current status; any history of renal, cardiovascular, respiratory, hematopoietic, and/or musculo-skeletal system dysfunction; a description of the job for which the respirator is required; and questions 3-11 and 25-32 in Appendix D;

§1910.1027(l)(6)(i)(B) - A blood pressure test;

§1910.1027(l)(6)(i)(C) - Biological monitoring of the employee's levels of CdU, CdB and B(2)-M in accordance with the requirements of paragraph (l)(2)(ii)(B), unless such results already have been obtained within the previous 12 months; and

§1910.1027(l)(6)(i)(D) - Any other test or procedure that the examining physician deems appropriate.

§1910.1027(l)(6)(ii) - After reviewing all the information obtained from the medical examination required in paragraph (l)(6)(i) of this section, the physician shall determine whether the employee is fit to wear a respirator.

§1910.1027(l)(6)(iii) - Whenever an employee has exhibited difficulty in breathing during a respirator fit test or during use of a respirator, the employer, as soon as possible, shall provide the employee with a periodic medical examination in accordance with paragraph (l)(4)(ii) to determine the employee's fitness to wear a respirator.

§1910.1027(l)(6)(iv) - Where the results of the examination required under paragraph (l)(6)(i), (ii), or (iii) of this section are abnormal, medical limitation or prohibition of respirator use shall be considered. If the employee is allowed to wear a respirator, the employee's ability to continue to do so shall be periodically evaluated by a physician.

Emergency Examinations (§1910.1027(l)(7))

§1910.1027(l)(7)(i) - In addition to the medical surveillance required in paragraphs (l)(2)-(6) of this section, the employer shall provide a medical examination as soon as possible to any employee who may have been acutely exposed to cadmium because of an emergency.

§1910.1027(l)(7)(ii) - The examination shall include the requirements of paragraph (l)(4)(ii), with emphasis on the respiratory system, other organ systems considered appropriate by the examining physician, and symptoms of acute overexposure, as identified in Appendix A of this section in paragraphs II(B)(1)-(2) and IV.

Termination of Employment Examination (§1910.1027(l)(8)) - At termination of employment, the employer shall provide a medical examination in accordance with paragraph (l)(4)(ii) of this section, including a chest X-ray, to any employee to whom at any prior time the employer was

required to provide medical surveillance under paragraphs (l)(1)(i) or (l)(7) of this section. However, if the last examination satisfied the requirements of paragraph (l)(4)(ii) of this standard and was less than six months prior to the date of termination, no further examination is required unless otherwise specified in paragraphs (l)(3) or (l)(5);

Purpose: Documentation and maintenance of the medical-examination results required by the Standard provide a continuous record of worker health. Physicians use these records to determine the extent to which workers, since their last examination, experience health effects related to Cd exposure. Additionally, if signs and symptoms of potential Cd overexposure appear, the physician often needs information about an worker's previous medical condition to make an accurate diagnosis of the presenting condition, ascertain its apparent cause, and identify a course of treatment. Medical records also permit workers to determine whether they need treatment, or to evaluate the effectiveness of their employer's exposure-reduction program.

Information Provided to the Physician (§1910.1027(l)(9)) - The employer shall provide the following information to the examining physician:

§1910.1027(l)(9)(i) - A copy of this standard and appendices;

§1910.1027(l)(9)(ii) - A description of the affected employee's former, current, and anticipated duties as they relate to the employee's occupational exposure to cadmium;

§1910.1027(l)(9)(iii) - The employee's former, current, and anticipated future levels of occupational exposure to cadmium;

§1910.1027(l)(9)(iv) - A description of any personal protective equipment, including respirators, used or to be used by the employee, including when and for how long the employee has used that equipment; and

§1910.1027(l)(9)(v) - Relevant results of previous biological monitoring and medical examinations.

Purpose: Making this information available to physicians assists them in evaluating an worker's health and fitness for specific job assignments involving Cd exposure. In the case of medical examinations administered in response to emergency exposures, the physician can use the exposure information to devise appropriate treatment.

Physician's Written Medical Opinion (§1910.1027(l)(10))

§1027(l)(10)(i) - The employer shall promptly obtain a written, medical opinion from the examining physician for each medical examination performed on each employee. This written opinion shall contain:

§1910.1027(l)(10)(i)(A) - The physician's diagnosis for the employee;

§1910.1027(l)(10)(i)(B) - The physician's opinion as to whether the employee has any detected medical condition(s) that would place the employee at increased risk of material impairment to health from further exposure to cadmium, including any indications of potential cadmium toxicity;

§1910.1027(l)(10)(i)(C) - The results of any biological or other testing or related evaluations that directly assess the employee's absorption of cadmium;

§1910.1027(l)(10)(i)(D) - Any recommended removal from, or limitation on the activities or duties of the employee or on the employee's use of personal protective equipment, such as respirators;

§1910.1027(l)(10)(i)(E) - A statement that the physician has clearly and carefully explained to the employee the results of the medical examination, including all biological monitoring results and any medical conditions related to cadmium exposure that require further evaluation or treatment, and any limitation on the employee's diet or use of medications.

§1910.1027(l)(10)(ii) - The employer promptly shall obtain a copy of the results of any biological monitoring provided by an employer to an employee independently of a medical examination under paragraphs (l)(2) and (l)(4), and, in lieu of a written medical opinion, an explanation sheet explaining those results.

§1910.1027(l)(10)(iii) - The employer shall instruct the physician not to reveal orally or in the written medical opinion given to the employer specific findings or diagnoses unrelated to occupational exposure to cadmium.

Purpose: The purpose in requiring the employer to obtain a physician's written opinion is to provide the employer with medical information to use in determining the worker's initial job assignments, and to assess the worker's ability to use protective clothing and equipment. The physician's written opinion also informs the employer about whether the worker has a condition indicating Cd overexposure; the prohibition against providing the employer with information regarding conditions unrelated to Cd exposure ensures that discussions between the physician and patient are open and candid, thereby enhancing diagnosis and treatment. The requirement that the physician's opinion be in writing ensures that the information is available for future reference. Providing workers with a copy of the physician's written opinion informs them of the

medical-examination results so that they can determine the need for, and evaluate the effectiveness of, treatments and other interventions.

Medical Removal Protection (MRP) (§1910.1027(l)(11))

> General (§1910.1027(l)(11)(i)(A)) - The employer shall temporarily remove an worker from work where there is excess exposure to cadmium on each occasion that medical removal is required under paragraphs (l)(3), (l)(4), or (l)(6) of this section and on each occasion that a physician determines in a written medical opinion that the worker should be removed from such exposure. The physician's determination may be based on biological monitoring results, inability to wear a respirator, evidence of illness, other signs or symptoms of cadmium-related dysfunction or disease, or any other reason deemed medically sufficient by the physician.
>
> §1910.1027(l)(11)(i)(B) - The employer shall medically remove an employee in accordance with paragraph (l)(11) of this section regardless of whether at the time of removal a job is available into which the removed employee may be transferred.
>
> §1910.1027(l)(11)(i)(C) - Whenever an employee is medically removed under paragraph (l)(11) of this section, the employer shall transfer the removed employee to a job where the exposure to cadmium is within the permissible levels specified in that paragraph as soon as one becomes available.
>
> §1910.1027(l)(11)(i)(D) - For any employee who is medically removed under the provisions of paragraph (l)(11)(i) of this section, the employer shall provide follow-up biological monitoring in accordance with (l)(2)(ii)(B) at least every three months and follow-up medical examinations semi-annually at least every six months until in a written medical opinion the examining physician determines that either the employee may be returned to his/her former job status as specified under (l)(11)(iv)-(v) or the employee must be permanently removed from excess cadmium exposure.

Purpose: Medical removal prevents medical impairments induced or exacerbated by Cd from becoming worse. In addition, medical removal allows workers who have these impairments an opportunity to recuperate and return to their former jobs.

Multiple Physician Review (§1910.1027(l)(13))

§1910.1027(l)(13)(i) - If the employer selects the initial physician to conduct any medical examination or consultation provided to an employee under this section, the employee may designate a second physician to:

> §1910.1027(l)(13)(i)(A) - Review any findings, determinations, or recommendations of the initial physician; and

*§*1910.1027(l)(13)(i)(B) - Conduct such examinations, consultations, and laboratory tests as the second physician deems necessary to facilitate this review.

§1910.1027(l)(13)(ii) - The employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial physician provided by the employer conducts a medical examination or consultation pursuant to this section. The employer may condition its participation in, and payment for, multiple physician review upon the employee doing the following within fifteen (15) days after receipt of this notice, or receipt of the initial physician's written opinion, whichever is later:

§1910.1027(l)(13)(ii)(A) - Informing the employer that he or she intends to seek a medical opinion; and

§1910.1027(l)(13)(ii)(B) - Initiating steps to make an appointment with a second physician.

§1910.1027(l)(13)(iii) - If the findings, determinations, or recommendations of the second physician differ from those of the initial physician, then the employer and the employee shall assure that efforts are made for the two physicians to resolve any disagreement.

§1910.1027(l)(13)(iv) - If the two physicians have been unable to quickly resolve their disagreement, then the employer and the employee, through their respective physicians, shall designate a third physician to:

§1910.1027(l)(13)(iv)(A) - Review any findings, determinations, or recommendations of the other two physicians; and

§1910.1027(l)(13)(iv)(B) - Conduct such examinations, consultations, laboratory tests, and discussions with the other two physicians as the third physician deems necessary to resolve the disagreement among them.

§1910.1027(l)(13)(v) - The employer shall act consistently with the findings, determinations, and recommendations of the third physician, unless the employer and the employee reach an agreement that is consistent with the recommendations of at least one of the other two physicians.

Purpose: OSHA believes that multiple-physician review improves worker participation in an employer's medical-surveillance program, thereby increasing early detection and treatment Cd-related diseases. However, program participation is strictly voluntary on the part of workers. If the medical opinion provided by the employer's physician could result in job removal, and no opportunity exists for workers to obtain a second medical opinion, many of them would refuse to participate in the medical-surveillance program.

Information the Employer Must Provide the Employee (§1910.1027(l)(15))

§1910.1027(l)(15)(i) - The employer shall provide a copy of the physician's written medical opinion to the examined employee within two weeks after receipt thereof.

§1910.1027(l)(15)(ii) - The employer shall provide the employee with a copy of the employee's biological monitoring results and an explanation sheet explaining the results within two weeks after receipt thereof.

§1910.1027(l)(15)(iii) - Within 30 days after a request by an employee, the employer shall provide the employee with the information the employer is required to provide the examining physician under paragraph (l)(9) of this section.

Purpose: This medical information allows workers to determine the need for, and to evaluate the effectiveness of, treatments and other interventions.

Communication of Cadmium Hazards to Employees (§1910.1027(m))

Warning Signs (§1910.1027(m)(2))

§1910.1027(m)(2)(i) - Warning signs shall be provided and displayed in regulated areas. In addition, warning signs shall be posted at all approaches to regulated areas so that an employee may read the signs and take necessary protective steps before entering the area.

§1910.1027(m)(2)(ii) - Warning signs required by paragraph (m)(2)(i) of this section shall bear the following information: DANGER CADMIUM CANCER HAZARD CAN CAUSE LUNG AND KIDNEY DISEASE AUTHORIZED PERSONNEL ONLY RESPIRATORS REQUIRED IN THIS AREA.

§1910.1027(m)(2)(iii) - The employer shall assure that signs required by this paragraph are illuminated, cleaned, and maintained as necessary so that the legend is readily visible.

Purpose: Posting warning signs informs employees that they are entering a regulated area, and that they must have proper authorization before entering such an area. Warning signs allow employees and others to take the precautions necessary to avoid harmful Cd exposures; in addition, the signs supplement employee training by specifying the limits of regulated areas.

Warning Labels (§1910.1027(m)(3))

§1910.1027(m)(3)(i) - Shipping and storage containers containing cadmium, cadmium compounds, or cadmium contaminated clothing, equipment, waste, scrap, or debris shall bear appropriate warning labels, as specified in paragraph (m)(3)(ii) of this section.

§1910.1027(m)(3)(ii) - The warning labels shall include at least the following information: DANGER CONTAINS CADMIUM CANCER HAZARD AVOID CREATING DUST CAN CAUSE LUNG AND KIDNEY DISEASE.

§1910.1027(m)(3)(iii) - Where feasible, installed cadmium products shall have a visible label or other indication that cadmium is present.

Purpose: Warning labels inform downstream employers and employees of the hazards associated with Cd, and that they may need to implement special practices to prevent or reduce Cd exposure. Furthermore, the labels alert downstream employers that they may have an obligation to protect their employees under the Standard.

Employee Information and Training (§1910.1027(m)(4))

§1910.1027(m)(4)(i) - The employer shall institute a training program for all employees who are potentially exposed to cadmium, assure employee participation in the program, and maintain a record of the contents of such program.

§1910.1027(m)(4)(ii) - Training shall be provided prior to or at the time of initial assignment to a job involving potential exposure to cadmium and at least annually thereafter.

§1910.1027(m)(4)(iii) - The employer shall make the training program understandable to the employee and shall assure that each employee is informed of the following:

> §1910.1027(m)(4)(iii)(A) - The health hazards associated with cadmium exposure, with special attention to the information incorporated in Appendix A to this section;
>
> §1910.1027(m)(4)(iii)(B) - The quantity, location, manner of use, release, and storage of cadmium in the workplace and the specific nature of operations that could result in exposure to cadmium, especially exposures above the PEL;
>
> §1910.1027(m)(4)(iii)(C) - The engineering controls and work practices associated with the employee's job assignment;
>
> §1910.1027(m)(4)(iii)(D) - The measures employees can take to protect themselves from exposure to cadmium, including modification of such habits as smoking and personal hygiene, and specific procedures the employer has implemented to protect employees

from exposure to cadmium such as appropriate work practices, emergency procedures, and the provision of personal protective equipment;

§1910.1027(m)(4)(iii)(E) - The purpose, proper selection, fitting, proper use, and limitations of respirators and protective clothing;

§1910.1027(m)(4)(iii)(F) - The purpose and a description of the medical surveillance program required by paragraph (l) of this standard;

§1910.1027(m)(4)(iii)(G) - The contents of this section and its appendices, and,

§1910.1027(m)(4)(iii)(H) - The employee's rights of access to records under 1910.1020(e) and (g).

§1910.1027(m)(4)(iv) - Additional access to information and training program and materials.

§1910.1027(m)(4)(iv)(A) - The employer shall make a copy of this section and its appendices readily available without cost to all affected employees and shall provide a copy if requested.

§1910.1027(m)(4)(iv)(B) - The employer shall provide to the Assistant Secretary or the Director, upon request, all materials relating to the employee information and the training program.

Purpose: An employer's information and training program provides workers with information on the health hazards resulting from Cd exposure and with the understanding necessary to minimize these hazards. This program serves to explain and reinforce the information presented to workers on signs, labels, and material safety data sheets; however, this information will be effective only when workers understand the information and can take the actions necessary to avoid or minimize Cd exposure. Training also enables workers to recognize operations and locations associated with Cd exposures, thereby permitting them to limit Cd exposure from these sources. Providing the program materials to OSHA ensures that employers are in compliance with the program requirements, while NIOSH may review the materials for research and other purposes.

Recordkeeping (§1910.1027(n))

Exposure Monitoring (§1910.1027(n)(1)(i)) - The employer shall establish and keep an accurate record of all air monitoring for cadmium in the workplace.

§1910.1027(n)(1)(ii) - This record shall include at least the following information:

§1910.1027(n)(1)(ii)(A) - The monitoring date, duration, and results in terms of an 8-hour TWA of each sample taken;

§1910.1027(n)(1)(ii)(B) - The name, social security number, and job classification of the employees monitored and of all other employees whose exposures the monitoring is intended to represent;

§1910.1027(n)(1)(ii)(C) - A description of the sampling and analytical methods used and evidence of their accuracy;

§1910.1027(n)(1)(ii)(D) - The type of respiratory protective device, if any, worn by the monitored employee;

§1910.1027(n)(1)(ii)(E) - A notation of any other conditions that might have affected the monitoring results.

§1910.1027(n)(1)(iii) - The employer shall maintain this record for at least thirty (30) years, in accordance with 29 CFR 1910.1020.

Purpose: Establishing and maintaining exposure monitoring records permit employers, employees, OSHA, and other interested parties to identify the levels, durations, and extent of cadmium exposure. Maintaining these records also assist OSHA in determining whether employers are complying with the standard, thereby ensuring that employees are receiving adequate protection from cadmium exposure.

Objective Data for Exemption from Requirement for Initial Monitoring (§1910.1027(n)(2))

§1910.1027(n)(2)(i) - For purposes of this section, objective data are information demonstrating that a particular product or material containing cadmium or a specific process, operation, or activity involving cadmium cannot release dust or fumes in concentrations at or above the action level even under the worst-case release conditions. Objective data can be obtained from an industry-wide study or from laboratory product test results from manufacturers of cadmium-containing products or materials. The data the employer uses from an industry-wide survey must be obtained under workplace conditions closely resembling the processes, types of material, control methods, work practices and environmental conditions in the employer's current operations.

§1910.1027(n)(2)(ii) - The employer shall establish and maintain a record of the objective data for at least 30 years.

Purpose: Maintaining these records allows OSHA to ascertain whether employers are complying with the Standard, thereby ensuring that workers are receiving adequate protection

from Cd exposure. In addition, workers and their representatives have access to these records, thereby providing assurance that the employer's use of the objective data is reasonable.

Medical Surveillance (§1910.1027(n)(3))

§1910.1027(n)(3)(i) - The employer shall establish and maintain an accurate record for each employee covered by medical surveillance under paragraph (l)(1)(i) of this section.

§1910.1027(n)(3)(ii) - The record shall include at least the following information about the employee:

§1910.1027(n)(3)(ii)(A) - Name, social security number, and description of the duties;

§1910.1027(n)(3)(ii)(B) - A copy of the physician's written opinions and an explanation sheet for biological monitoring results;

§1910.1027(n)(3)(ii)(C) - A copy of the medical history, and the results of any physical examination and all test results that are required to be provided by this section, including biological tests, X-rays, pulmonary function tests, etc., or that have been obtained to further evaluate any condition that might be related to cadmium exposure;

§1910.1027(n)(3)(ii)(D) - The employee's medical symptoms that might be related to exposure to cadmium; and

§1910.1027(n)(3)(ii)(E) - A copy of the information provided to the physician as required by paragraph (l)(9)(ii)-(v) of this section.

§1910.1027(n)(3)(iii) - The employer shall assure that this record is maintained for the duration of employment plus thirty (30) years, in accordance with 29 CFR 1910.1020.

Purpose: These records permit employers, workers, and other interested parties (e.g., worker representatives) to assess the effectiveness of exposure controls by conducting a proper evaluation of worker health, identify the development of Cd-related diseases, determine appropriate treatment and follow-up, and assess the effectiveness of medical interventions. The prolonged retention period (i.e., duration of employment plus 30 years) is necessary because of the long latency periods associated with the manifestation of Cd-related diseases.

~~*Training (§1910.1027(n)(4))*~~

~~The employer shall certify that employees have been trained by preparing a certification record which includes the identity of the person trained, the signature of the employer or the person who conducted the training, and the date the training was completed. The certification records shall be prepared at the completion of training and shall be maintained on file for one (1) year beyond the date of training of that employee.~~

Availability (§1910.1027(n)(5))

§1910.1027(n)(5)(i) - Except as otherwise provided for in this section, access to all records required to be maintained by paragraphs (n)(1)-(4) of this section shall be in accordance with the provisions of 29 CFR 1910.1020.

§1910.1027(n)(5)(ii) - Within 15 days after a request, the employer shall make an employee's medical records required to be kept by paragraph (n)(3) of this section available for examination and copying to the subject employee, to designated representatives, to anyone having the specific written consent of the subject employee, and after the employee's death or incapacitation, to the employee's family members.

Purpose: Workers and their designated representatives use exposure-monitoring and medical-surveillance records to assess worker medical status over the course of employment, to evaluate the effectiveness of the employer's exposure-reduction program, and for other reasons. Accordingly, access to these records is necessary to provide both direct and indirect improvements in the detection, treatment, and prevention of Cd-related medical effects.

Transfer of Records (§1910.1027(n)(6))

~~Whenever an employer ceases to do business and there is no successor employer to receive and retain records for the prescribed period or the employer intends to dispose of any records required to be preserved for at least 30 years,~~ The employer shall comply with the requirements concerning transfer of records set forth in 29 CFR 1910.1020(h).

~~**Purpose**: These records may be used by NIOSH for research purposes, and by workers for health assessments and other reasons.~~

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 burden.

Employers may use electronic information technology when establishing and maintaining the required records, with the exception of training records (which require a signature). 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 for the purposes described in Item A.2 above.

The information collection requirements of the 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.

The information collection requirements of the Standard do not have a significant impact on a substantial number of small entities.

6. Describe the consequence 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 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 Cd exposure.

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 reviewed and 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;**
- **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)(5) of the Standard, employers must inform workers, either individually in writing or by posting the exposure monitoring results, no later than 15 working days after obtaining the results. If these results indicate that an worker's exposures are above the PEL, the notification must state this fact and describe what corrective actions the employer is taking to reduce the worker’s exposure to or below the PEL. Additionally, paragraph (l)(15) of the

Standard requires employers to provide workers with a copy of the physician's written opinion regarding their medical examination and a copy of the worker's biological monitoring results, including an written explanation of the results, within two weeks of obtaining the results.

8. If applicable, provide a copy and identify the date 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 3 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.

The SIP-III notice of proposed rulemaking (NPRM; 75 FR 38645) proposed to revoke existing collection-of-information (paperwork) requirements contained in 27 existing Information Collection Requests (ICRs) approved by the Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1995 (PRA-95). OSHA prepared and submitted one ICR for the SIP-III proposal to OMB for the review in accordance with 44 U.S.C. 3507(d). For the SIP-III final, OSHA is submitting separate ICRs to OMB.

The NPRM proposed to remove provisions that require employers to transfer employee exposure-monitoring and medical records to NIOSH and for employers to contact NIOSH prior to disposing of such records. No comments were received opposing this revision; therefore, OSHA is revising §1910.1027(n)(6) and the associated burden hours and costs from this ICR.

In addition, OSHA proposed removing paragraph (f)(4) of the general industry PPE standard, §1910.132; paragraph (e)(4) of the shipyard employment PPE standard §1915.152; and paragraph (n)(4) of the general industry and construction Cadmium standards, §§1910.1027 and 1926.1127, respectively, all of which require employers to prepare and maintain a written record certifying compliance with the training requirements of these sections. In the NPRM, OSHA stated that it believed that the training-certification records do not provide a safety or health benefit sufficient to justify the burden hours and costs to employers, and that employers ensure that work practices and use of PPE are consistent with the training received by observing employees as they work, not through maintaining training-certification records.

Three commenters opposed the removal of these written training-record requirements. The BCTD, AFL-CIO (ID 0156.1) stated that “the importance of the written certification [is] to reinforce the requirement that employers satisfy themselves that their employees are appropriately trained.” Similarly, the AFL-CIO (ID 0160.1) said that “documentation of training is an important element of the training process. It not only serves to provide written assurance that the training was, in fact, provided but also serves to reinforce and remind the

employer that training is required to be provided in the first place." OSHA considered the above arguments and does not agree with the commenters.

OSHA notes that, of all of OSHA's substance-specific health standards, only the Cadmium standards for general industry and construction require written certification to document training.

Furthermore, OSHA's Respiratory Protection standard, §1910.134, requires in paragraph (k) that employers ensure workers "can demonstrate knowledge" of the capabilities, limitations, and use of respiratory protective equipment, and there is no requirement for written certification of training. Thus, for all of these health standards, with the exception of the Cadmium standards, OSHA relies on demonstration of worker knowledge as evidence that employers provided workers with adequate training in the use of Personal Protective Equipment (PPE).

OSHA considered the above arguments and does not agree with the commenters. While OSHA believes that training workers in the proper wear and use of PPE and the hazards associated with exposure to Cadmium, as well as other hazardous substances, is essential, it is not persuaded by the arguments that written certification improves the overall effectiveness of the training. Effective training ensures that workers understand the proper work practices, and can reduce rates of injuries and illnesses. Removing the certification requirements of these standards will not change the requirements for employers to provide effective training.

Therefore, OSHA is removing paragraph (f)(4) of the general industry PPE standard (§1910.132), paragraph (e)(4) of the shipyard employment PPE standard, §1915.152, and paragraph (n)(4) of the general industry and construction Cadmium standards, §§1910.1027 and 1926.1127, which required employers to prepare and maintain a written record certifying compliance with the training requirements of these sections.

9. Explain any decision to provide any payment or gift to respondents, other than reenumeration 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 worker 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 reason sons why the agency considers the questions necessary, the specific uses to be made of the information, the explanation to be given to persons form whom the information is requested, and any steps to be taken to obtain their consent.

The paperwork requirements specified by the Standard do not require the collection of sensitive information.

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 cost to respondents for the hour burdens for collections of information, identifying and using appropriate wage-rate categories.

An overview of the exposure profile underlying the calculations of burden hours is shown in the attached Tables 1 and 2. The previous ICR update noted that this exposure profile was comprehensively updated in 1999. Because of this, the Agency based its updated estimates of the number potentially exposed workers on cadmium consumption estimates in 1999 and 2007 as reported in the U.S. Geological Survey (USGS) *Mineral Commodity Summaries*. The USGS reports that the percentage of cadmium consumed globally for Nickel-Cadmium (NiCd) battery production has increased in recent years, while the percentages for other traditional end uses of cadmium—specifically coatings, pigments, and stabilizers—have decreased in response to environmental and health concerns. Overall, U.S. domestic consumption of cadmium has decreased over 80 percent since 1999 (from 2,220 to 441 metric tons), while the percentage of cadmium use in batteries increased from 72 percent to 83 percent of total consumption. Additional information and discussion can be found in Tables 1 and 2. Table 3 below provides a summary of burden hour and cost estimates for the information collection requirements specified by the Standard.

BURDEN HOUR AND COST DETERMINATIONS

The Agency adopted the mean wage rates from *"Employer Costs for Employee Compensation, June 2008,"* U.S. Department of Labor, Bureau of Labor Statistics http://stats.bls.gov/home.htm. Total compensation for these occupational categories includes an adjustment of 29.4 percent (*Employer Costs for Worker Compensation, June 2008)* for fringe benefits; this figure represents the average level of fringe benefits in the private sector. The costs of labor used in this analysis are, therefore, estimates of total hourly compensation. These hourly wages are:

- Supervisors $27.90
- Non-supervisory production workers $22.32
- Secretarial workers $21.51
- Industrial hygienist technicians $28.03[2]

Exposure monitoring (§1910.1027(d))

General and Initial Monitoring (§1910.1027(d)(1) and (d)(2)(i))

OSHA assumes that no new plants are involved with cadmium since the last ICR, and, therefore, is not taking any burden hours and cost for these provisions.

Objective Data (§1910.1027(d)(2)(iii))

Employers may rely on objective data to determine that employees' airborne Cd exposure remain below the AL under "worse-case" release conditions. Previously, the Agency estimated that 167 new firms may develop objective data. For this ICR, the Agency has not identified any new firms that would develop objective data.

Periodic Monitoring (§1910.1027(d)(3))

Based on the data in Tables 1 and 2, OSHA estimates that 50,862 employees are exposed above the AL, and that an industrial hygiene technician can monitor 10 employees with one sample. Each sample (every six months) takes 30 minutes (0.5 hour) for an industrial hygienist technician to collect and mail to a laboratory for analysis. Thus, the estimated burden hours and cost of this provision each year are:

Burden hours: (50,862 employees ÷ 10) × 2 samples/year × 0.5 hour = 5,086 hours
Cost: 5,086 hours × $28.03 = $142,561

Additional Monitoring (§1910.1027(d)(4))

The Agency estimates that an additional 102 monitoring samples (one percent of the 10,172 periodic monitoring samples) are performed each year. The yearly burden hours and cost of this requirement are estimated as:

Burden hours: 102 monitoring samples × 0.5 hour = 51 hours
Cost: 51 hours × $28.03 = $1,430

2Clinical laboratory technologists and technicians - Occupational Employment and Wages, May 2007

Employee Notification of Monitoring Results (§1910.1027(d)(5))

The Agency believes that a secretary takes five minutes (0.08 hour) to post the employee exposure-monitoring results. Each of the 4,872 specific-industry establishments involved with cadmium (see Table 1) have employees exposed above the PEL and must conduct at least semi-annual monitoring. In addition, the Agency estimates that each of the 46,377 cross-industry plants (see Table 2, footnote 11) conducting semi-annual exposure monitoring will post their monitoring results. Finally, the Agency assumes each of the 102 additional monitoring samples is in separate plants. Thus, the annual estimated burden hours and cost for this provision are:

Burden hours: ((4,872 + 46,377) × 2 semi-annual) + 102) × 0.08 hours = 8,208 hours
Cost: 8,208 hours × $21.51 = $176,554

Compliance Program (§1910.1027(f)(2))

Employers must review and update their written compliance plans at least annually. The Agency estimates that a supervisor spends 1.5 hours updating the program, resulting in a yearly burden-hour and cost estimate of:

Burden hours: 4,872 plants × 1.5 hours = 7,308 hours
Cost: 7,308 hours × $27.90 = $229,910

For the 10 cross-industry occupations, located in 46,377 plants, a written compliance plan is required for those plants for which exposures are above the PEL. The Agency estimates that 20% of the 46,377 plants must be covered by a written compliance plan, yielding 9,275 plants. Because plants with cross-industry occupations generally have limited cadmium exposures, the compliance plan is expected to be less extensive than plans for the specific industry sector plants. Therefore, OSHA estimates that it takes only one hour to update and revise the written plan. The yearly burden-hour and cost estimates for this requirement are:

Burden hours: 9,275 plants × 1 hour = 9,275 hours
Cost: 9,275 hours × $27.90 = $258,773

Emergency Situations (§1910.1027(h))

OSHA believes that no substantial releases of Cd occur under emergency situations. Therefore, the Agency is assuming that this provision imposes no annual burden hours or cost on employers.

Notification of Laundry Personnel (§1910.1027(i)(3)(v))

The Agency assumes that employers change laundries infrequently; accordingly, the need to provide the specified information to those who clean and launder Cd-contaminated protective

clothing or equipment is minimal. Thus, OSHA concludes that this requirement results in no burden hours or cost to employers.

Medical Surveillance (§1910.1027(l))

Initial Examination; Actions Triggered by Initial Biological Monitoring; Periodic Medical Surveillance; Actions Triggered by Medical Examinations; Examinations for Respirator Use; Emergency Examinations; and Termination of Employment Examination (§1910.1027(l)(2) through (§1910.1027(l)(8))

The Standard states that employers must provide at least one medical exam to the 50,862 employees who are exposed to cadmium above the AL once every two years. The Agency assumes that it will take 1.5 hours of employee time (at $22.32 per hour) to have a medical exam (which includes 30 minutes of travel time). The annual burden hours and cost estimated for these requirements are:

Burden hours: 50,862 employees ÷ 2 × 1.5 hours = 38,147 hours
Cost: 38,147 hours × $22.32 = $851,441

Based on the 1992 Regulatory Impact Analysis (RIA), in conjunction with the updated employment data for 1999, OSHA believes that an additional 203 medical exams are administered each year.[3] These 203 exams cover the following areas: respirator use, emergencies, medical removal, multiple physician review, alternate physician determination, and termination of employment. The yearly burden-hour and cost estimates for these exams are:

Burden hours: 203 examinations × 1.5 hours = 305 hours
Cost: 305 hours × $22.32 = $6,808

Based on the 1992 RIA, in conjunction with the updated employment data for 1999, OSHA estimates that 2,376 biological-monitoring tests are administered each year.[4] The 2,376 tests consist of 792 tests for each of the following: β_2-MU, CdU, and CdB. An employee can receive all three tests in one visit to the physician. The Agency estimates that it will take 45 minutes (0.75 hour) for an employee to receive the three biological tests, including 30 minutes (0.5 hour) of employee travel time. The estimated burden hours and cost each year for these tests are:

3Based on data presented in Tables 1 and 2, the Agency is estimating a total decline in employment of 28.7 percent from 1999 to 2007; the Agency assumes that the total number of additional medical exams will decrease by 28.7 percent as well.

4As discussed in footnote 8, the Agency estimates a total decline in employment of 28.7 percent; the Agency assumes that the total number of biological monitoring tests will decrease by 28.7 percent as well.

Burden hours: 2,376 ÷ 3 tests per visit × 0.75 hour = 594 hours
Cost: 594 hours × $22.32 = $13,258

Information Provided to Physician (§1910.1027(l)(9))

The Agency assumes that employers provide the required information to the physician prior to each medical examination and biological-monitoring collection (i.e., urine and blood collections combined). Therefore, employers must provide this information before the total 26,429 medical examinations and biological tests (25,431 annual examinations + 203 additional medical examinations + 792 employee visits for 3 biological tests). Assuming that a secretary requires five minutes (0.08 hour) to compile and send the information to the physician prior to each administration, the annual burden-hour and cost estimates for this paperwork requirement are:

Burden hours: 26,426 administrations × 0.08 hour = 2,114 hours
Cost: 2,114 hours × $21.51 = $45,472

Physician's Written Medical Opinion (§1910.1027(l)(10))

OSHA assumes that the physician writes an opinion for each medical examination and one opinion for the biological-monitoring tests administered (for a total of 26,426 written opinions annually), and that a secretary takes five minutes (0.08 hour) to distribute a written opinion to an employee.[5] The estimated yearly burden hours and costs of this requirement are:

Burden hours: 26,426 written opinions × 0.08 hour = 2,114 hours
Cost: 2,114 hours × $21.51 = $45,472

Communication of Cadmium Hazards to Employee (§1910.1027(m))

Warning Signs and Labels (§1910.1027(m)(2) and (m)(3))

The Standard provides specific language for the required signs and labels, therefore, the Agency is exempted from estimating the burden hours and costs of this provision under 5 CFR 1320.3(c)(2) (“Controlling paperwork burden on the public”).

Employee Information and Training (§1910.1027(m)(4))

The Standard requires annual training for all (306,447) potentially exposed workers. This includes 55,654 employees in the specific-industry sectors, and 250,793 employees in the cross-

5The five minutes includes the annual burden for maintaining a record of each written opinion as required by paragraph (n)(3).

industry occupations.[6] OSHA estimates that, for each session, the supervisor requires 15 minutes (0.25 hour) to prepare the training material and 45 minutes (0.75 hour) to deliver it to 20 employees, for a total of one hour. In addition, based on the decrease in the number of total plants in specific-industry sectors (see Table 1), the Agency estimates there are no new plants that must develop a training program. The annual burden hours and cost estimated for this training are:

Burden hours: 306,447 employees ÷ 20 × 1 hour = 15,322 hours
Cost: 15,322 hours × $27.90 = $427,484

Recordkeeping (§1910.1027(n))

Exposure Monitoring (§1910.1027(n)(1))

The Agency assigned the burden hours and costs of this recordkeeping requirement to paragraph (d)(5) (see "Employee Notification of Monitoring Results (§1910.1027(d)(5)" above)).

Objective Data for Exemption from Requirement for Initial Monitoring (§1910.1027(n)(2))

The Agency assumes that the burden is minimal for employers to maintain objective data once the data have been developed. Burden for employers to develop such data is accounted for under "Objective Data (§1910.1027(d)(2)(iii)."

Medical Surveillance (§1910.1027(n)(3))

The Agency assigned the burden hours and cost of this recordkeeping requirement to paragraphs (l)(9) and (l)(10). (See "Information Provided to Physician (§1910.1027 (l)(9))" and "Physician's Written Opinion (§ 1910.1027(l)(10)" above.)

~~*Training Records (§1910.1027(n)(4))*~~

~~Under "Employee Information and Training (§1910.1047 (n)(4))" above, OSHA estimated that employers conduct 15,322 training sessions each year (306,447 employees ÷ 20 employees per session). Assuming that a secretary takes an average of five minutes (0.08 hour) each year to compile and maintain a training record of sessions and employees attending each session, the annual burden hour and cost estimates for this recordkeeping requirement are:~~

~~**Burden hours**: 15,322 sessions × 0.08 hour = 1,226 hours~~
~~**Cost**: 1,226 hours × $21.51 = $26,371~~

6The previous ICR noted that this data was "[b]ased on data from the RIA, in conjunction with the updated employment data for 1999."

Availability (§1910.1027 (n)(5))

The Agency estimates that OSHA compliance officers will conduct 717 inspections annually at facilities covered by the Standard, and that they will request all required records while at each site.[7] OSHA believes that a supervisor spends five minutes (0.08 hour) during each inspection informing a compliance office about the location of these records, for a total of 57 hours (i.e., 717 inspections × 0.08 hour). In addition, the Agency assumes that 10% (30,645) of the 306,447 employees potentially exposed to Cd request to see their records each year.[8] OSHA estimates that a secretary requires five minutes (0.08 hour) to make these records available to each employee, for a total of 2,452 hours (i.e., 30,645 employees × 0.08 hour). Therefore, the estimated annual burden hours and cost for this requirement are:

Burden hours:	57 hours (for inspections) + 2,452 hours (for employees) = 2,509 hours
Cost:	(57 hours × $27.90) + (2,452 hours × $21.51) = $54,333

~~*Transfer of Records (§1910.1027(n)(6))*~~

~~During the period of this ICR, the Agency believes that no employer covered by the Standard will cease business operations without a successor employer, or a designated organization, to receive and retain the required records for the prescribed periods; therefore, no such employer will transfer these records to NIOSH during this period. Accordingly, the Agency is assigning no burden hours or cost to this requirement.~~

7The Agency estimated the number of inspections by determining the inspection rate (1.4%) for all facilities under the jurisdiction of the OSH Act (including both Federal OSHA and approved state-plan agencies), and then multiplied the total number of facilities covered by the Standard (51,249) by this percentage (i.e., 51,249 facilities × 1.4% = 717 inspections).

8This figure includes parties acting on an employee's behalf (i.e., their designated representatives, parties with the employee's written consent, and family members).

Table 1. Exposure Profile for Cadmium: Specific Industry Sectors

Specific-Industry Sector[i]	1999 Estimates			2008 Estimates		
	# Plants	Total EEs ≥ AL	Only those EEs ≥ PEL	# Plants[ii]	Total EEs ≥ AL	Only those EEs ≥ PEL
NiCd Batteries[iii]	4	1,032	826	4	236	189
Zn/Cd Refining[iv]	5	1,294	1,035	3	647	518
Pigments[v]	4	99	80	4	12	10
Stabilizers[vi]	4	141	113	4	6	5
Lead Smelting/Refining[vii]	4	354	354	4	303	303
Platers[viii]	436	327	109	76	57	19
Utilities[ix]	4,501	4,220	4,220	4,663	3,887	3,887
Iron & Steel[x]	95	7,907	7,907	114	6,112	6,112
Total	**5,052**	**15,374**	**14,644**	**4,872**	**11,260**	**11,043**

Table 2. Exposure Profile for Cadmium: Cross-Industry Occupations[xi]

Cross-Industry Occupations	1999 Estimates		2008 Estimates	
	# EEs ≥ AL	# EEs ≥ PEL	# EEs ≥ AL	# EEs ≥ PEL
Chemical Mixers[xii]	7,978	5,318	1,588	1,058
Electroplaters[xiii]	670	335	117	58
Furnace Operators[xiv]	2,572	1,714	2,548	1,699
Kiln/Kettle Operators[xv]	123	123	102	102
Heat Treaters[xvi]	811	581	569	408
Equipment Cleaners	97	39	97	39
Metal Machining[xvii]	8,941	8,941	6,402	6,402
Painters[xviii]	5,140	3,427	627	418
Repair/Utilities[xix]	15,075	5,276	13,884	4,859
Weld/Braze/Solders[xx]	14,525	14,525	13,668	13,668
Total	**55,932**	**40,279**	**39,602**	**28,711**

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 service 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 of 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 collection services should be a part of this cost burden estimate. In developing cost burden estimates, agencies may consult with a sample of respondent (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.

Capital Cost Determinations

In determining the capital cost of these paperwork requirements, OSHA used the information and data from Item 12 above. From these determinations, the Agency estimates that the total capital cost of these requirements is $4,644,185.

(A) Exposure Monitoring

Based on information from OSHA's Technical Center in Salt Lake City, the cost for a laboratory to analyze air-monitoring samples for Cd is approximately $25 per sample. According to the information provided under "Exposure Monitoring (§1910.1027(d))" above, employers collect 5,086 representative exposure-monitoring samples twice a year, for a total of 10,172 samples, as well as an additional 102 exposure-monitoring samples annually. The capital cost each year associated with obtaining these exposure-monitoring samples is:

Cost: (10,172 samples + 102 samples) × $25 = $256,850

(B) Medical Surveillance

Based on information from a large occupational medicine practice that performs medical exams on Cd-exposed employees, the cost for the medical exam required by the Standard is estimated

to be $169 per exam.[9] For biological testing, costs are as follows: β_2-MU - $59; CdU - $27; and CdB - $27.[10] According to "Medical Surveillance (§1910.1027(l))" above, employers provide 25,431 annual medical examinations, 203 additional medical examinations, and analyze 2,376 biological-monitoring samples for CdU, CdB, and β_2-MU.[11] The yearly capital cost of the medical-surveillance requirements is:

Cost: (25,431 medical examinations × $169) + (792 CdU samples × $27) + (792 CdB samples × $27) + (792 β_2-MU samples × $59) = $4,387,335

14. 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 also may aggregate cost estimates from Items 12, 13, and 14 in a single table.

COSTS TO FEDERAL GOVERNMENT

The Federal government may incur costs from paragraph~~s~~ (n)(5) ~~and (n)(6)~~ of the Standard. Paragraph (n)(5) specifies that employers must make all required records available to OSHA for inspection; ~~paragraph (n)(6) requires employers to transfer medical-surveillance and exposure-monitoring records to NIOSH if they cease business operations without a successor employer or a designated organization to receive and retain the required records for the prescribed periods. As noted above under "Transfer of Records (§1910.1027(n)(6))," the Agency believes that no employer will transfer these records to NIOSH during the period covered by this ICR; therefore, it assigns no cost to the Federal government under this provision.~~

In fulfilling its enforcement responsibilities under paragraph (n)(5), the Agency estimates that a compliance officer (GS-12, step 5), at an hourly wage rate of $39.70, spends about 10 minutes (.17 hour) during an inspection reviewing the written records required by the Standard.[12] According to footnote 9 above, OSHA believes that its compliance officers conduct 717 such

---

9The previous ICR update estimated that the cost for a medical examination was $159 per exam, including $45 for a medical history and physical, $84 for a chest x-ray, and $30 for a pulmonary function test. The Consumer Price Index (CPI) indicated a 6.3% increase in the price of professional medical services from 2005 to 2007; given the 6.3% increase in the price of professional medical services, it was assumed that the cost of medical examinations increased by 6.3% as well.

10The previous ICR update estimated the cost of biological testing as follows: β_2-MU - $55; CdU - $25; and CdB - $25. Given the 6.3% increase in the price of professional medical services discussed in footnote 14, the Agency assumed that the price of biological testing increased by 6.3% as well.

11While the information under "Medical Surveillance (§1910.1027(l))" indicates that employers perform 792 urine collections and blood collections annually, laboratories divide the urine collections into two parts for analyzing CdU and β_2-MU separately; the resulting 1,584 urine samples, when added to 792 blood samples, result in a total of 2,376 biological-monitoring samples.

12This rate represents the average 2009 General Schedule (GS) hourly wage rate for a compliance officer (GS-12, Step 5) in each of the 32 geographic regions as specified by the U.S. Office of Personnel Management.

inspections annually. The Agency considers other expenses, such as equipment, overhead, and support staff salaries, as normal operating expenses that would occur without the collection-of-information requirements specified by the Standard. Therefore, the total cost of these paperwork requirements to the Federal government is:

Cost: 717 inspections × .17 hour × $39.70 = $4,839

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

OSHA removed the requirement that employers develop and maintain employee training records as specified by paragraph 1910.1027(n)(4), under the Standards Improvement Project – Phase III final rulemaking. As a result of this rulemaking, the Agency requests a program change reduction of 1,226 hours.

In addition, OSHA removed the requirement that employers who cease to do business or those with records with expired retention periods, transfer these records to the National Institute for Occupational Safety and Health (specified in paragraph 29 CFR 1910.1027(n)(6), under the Standards Improvement Project-Phase III rule. Because the Agency takes no burden hours or cost under this provision in this ICR, there are no program changes to report for this provision.

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 information, completion of report, publication dates, and other actions.

OSHA will not publish the information collected under the Standard.

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

No forms are available for the Agency to display the expiration date.

18. Explain each exception to the certification statement.

OSHA is not requesting an exception to the certification statement.

Table 3 – Summary of Annual Burden Hour and Cost Estimates

Information Collection Requirement	Current Burden Hours	Requested Burden Hours	Change in Burden Hours	Estimated Cost
Exposure Monitoring				
Initial Monitoring	0	0	0	0
Objective Data	0	0	0	0
Monitoring Frequency (Periodic Monitoring)	5,086	5,086	0	$142,561
Additional Monitoring	51	51	0	$1,430
Employee Notification of Monitoring Results	8,208	8,208	0	$176,554
Compliance Program	16,583	16,583	0	$488,683
Emergency Situations	0	0	0	0
Notification of Laundry Personnel	0	0	0	0
Medical Surveillance				
Initial Examination; Actions Triggered by Initial Biological Monitoring; Periodic Medical Surveillance; Actions Triggered by Medical Examinations; Examinations for Respirator Use; Emergency Examinations; and Termination of Employment Examination	39,046	39,046	0	$871,507
Information Provided to Physician	2,114	2,114	0	$45,472
Physician's Written Medical Opinion	2,114	2,114	0	$45,472
Communication of Cd Hazards to Employees				
Warning Signs and Warning Labels	0	0	0	0
Employee Information and Training	15,322	15,322	0	$427,484
Recordkeeping	0	0	0	0
Medical Surveillance	0	0	0	0
Training Records*	1,226	0	-1,226	$0
Availability	2,509	2,509	0	$54,333
Transfer of Records**	0	0	0	0

Information Collection Requirement	Current Burden Hours	Requested Burden Hours	Change in Burden Hours	Estimated Cost
TOTAL	**92,259**	**91,033**	**-1,226**	**$2,253,496**

**Indicates removal of 29 CFR part 1910.1027(n)(4) requiring employers to develop training certification records for employees.*

**Indicates revision of 29 CFR 1910.1027(n)(6) requiring employers to *comply with transferring worker exposure monitoring and medical surveillance records to the National Institute for Occupational Safety and Health (NIOSH) or notifying NIOSH prior to disposal of such records.*

B. COLLECTION OF INFORMATION EMPLOYING STATISIICAL METHODS.

There are no collections of information employing statistical methods.