WISHA Department of Labor & Industries

Arsenic

Chapter 296-848 WAC

May 2005 Edition

Washington Industrial Safety & Health Act

F414-130-000

05/2005 printing

Department of LABOR AND INDUSTRIES

Standards Update to

Chapter 296-848 WAC, Arsenic

Issue Date 05/2005
Effective Date 05/01/2005

The Department of Labor and Industries has rewritten and reorganized for clarity and ease of use the safety standards for Arsenic. The Arsenic rule, in chapter 296-62 WAC, was rewritten for clarity and adopted as Chapter 296-848 WAC.

Please discard WAC 296-62-07347.

To receive future updates of this standard and all other Department of Labor and Industries safety and health standards electronically, please sign up on the WISHA Listserv (http://www.lni.wa.gov/Safety/Rules/default.htm). By subscribing to the Listserv, you will also receive rule updates, hearing notices, and informational packets for all safety and health rules.

Also available on the WISHA web site:

- WISHA Core Rules
- Other General WISHA Rules
- Industry and Task-specific Rules
- Proposed rules and hearings
- Newly adopted rules and new rule information
- WISHA Regional Directives (WRDs)
- WISHA Interim Operations and Interpretive Memoranda (WIIM)
- Memoranda of Understanding (MOU)

To receive hardcopy updates of this rule, please return the card located at the back of the book.

Other Rules that may apply to your workplace

- The WISHA Safety and Health Core Rules, Chapter 296-800 WAC, contain the basic requirements that apply to most employers in Washington. They also contain:
  - An Introduction that lists important information you should know, including a section on building, fire and electrical codes.
  - A Resource section that includes a complete list of all WISHA rules and a directory of the Labor and Industries (L&I) offices.
- Other WISHA rules may apply to you, depending on the activities and operations of your workplace. Contact your local L&I office if you're uncertain about which WISHA requirements apply to you.
- To go online to access all the Safety and Health Rules: http://www.lni.wa.gov/wisha
- If you would like to receive e-mail notification of rule updates, please register for the Standards Listserv on the WISHA web site at http://www.lni.wa.gov/home/listservs.htm
- For a CD or paper copy contact us by:

Mail: Department of Labor and Industries
P.O. Box 44620
Olympia, WA 98504-4620

Telephone: 1-800-4BE-SAFE (1-800-423-7233)

Arsenic

Chapter 296-848 WAC

Quick Reference

TITLE **PAGE**

Scope
WAC 296-848-100 100-1

Basic Rules
WAC 296-848-200 200-1

Training, Exposure Monitoring, and Medical Monitoring
WAC 296-848-300 300-1

Exposure Control Areas
WAC 296-848-400 400-1

Definitions 500-1

Resources R-1

Index IN-1

Statutory Authority SA-1

Arsenic

Chapter 296-848 WAC

Chapter Contents

TITLE **PAGE**

Scope
WAC 296-848-100 100-1

Basic Rules
WAC 296-848-200 200-1

Preventive practices
WAC 296-848-20010 200-2

Washing facilities
WAC 296-848-20025 200-6

Exposure evaluations
WAC 296-848-20060 200-7

Notification
WAC 296-848-20070 200-12

Exposure records
WAC 296-848-20090 200-13

Training, Exposure Monitoring, and Medical Monitoring
WAC 296-848-300 300-1

Training
WAC 296-848-30005 300-2

Periodic exposure evaluations
WAC 296-848-30010 300-4

Medical evaluations
WAC 296-848-30030 300-6

Medical records
WAC 296-848-30080 300-12

Arsenic

Chapter 296-848 WAC

Chapter Contents

Exposure Control Areas
WAC 296-848-400 400-1

- Exposure control plan
  WAC 296-848-40005 400-2
- Exposure controls
  WAC 296-848-40020 400-4
- Exposure control areas
  WAC 296-848-40025 400-5
- Clean-up facilities and lunchrooms
  WAC 296-848-40030 400-7
- Personal protective equipment
  WAC 296-848-40040 400-8
- Respirators
  WAC 296-848-40045 400-11

Definitions 500-1

Resources R-1

Index IN-1

Statutory Authority SA-1

Scope

This chapter applies to all occupational exposure to inorganic arsenic.

Definitions:

Inorganic arsenic means elemental arsenic (As), copper aceto-arsenite, and inorganic compounds containing arsenic (measured as "As"), except arsine. Inorganic compounds don't contain the element carbon.

Exposure is the contact an employee has with inorganic arsenic, whether or not protection is provided by respirators or other personal protective equipment (PPE). Exposure can occur through various routes of entry such as inhalation, ingestion, skin contact, or skin absorption.

Helpful tool:

Arsenic Contamination in Soil: Information and Guidance for Employers

Use this tool if you have employees who work with soil. It will help you find out if this rule is applicable to your employee's exposure to soil.

-Continued-

Arsenic

WAC 296-848-100

Scope

WAC 296-848-100 (continued)

Exemptions:

- This chapter doesn't apply to any of the following:
  - Exposures during agricultural operations.
  - Pesticide applications, including the treatment of wood with preservatives.
  - Use of wood treated with inorganic arsenic.
  - Arsine, a gas identified by Chemical Abstract Service (CAS) Registry No. 7784-42-1.
  - Laboratories subject to the requirements found in another chapter:
    - Go to the General Occupational Health Standards, chapter 296-62 WAC

      and
    - Find the section, Hazardous Chemicals in Laboratories, WAC 296-62-400.
  - Inorganic arsenic present in a form and handled in such a way that airborne exposures could not occur. For example, inorganic arsenic present in glass is fused in the material. Due to the fused form, airborne exposure can't occur when the glass is scored and subsequently broken.

-Continued-

WAC 296-848-100 (continued)

All requirements in this chapter won't apply to every workplace with an occupational exposure. The following steps will show you which requirements apply to your workplace.

Step 1: Follow requirements in the basic rules sections, WAC 296-848-20010 through 296-848-20090.

- This includes completing an exposure evaluation, as specified in Exposure evaluations, WAC 296-848-20060, to:
  - Obtain employee 8-hour exposure monitoring results of airborne inorganic arsenic

    and
  - Determine if employee exposure monitoring results are above, at, or below these values:
    - 8-hour time-weighted average (TWA_8) 10 micrograms per cubic meter ($\mu g/m^3$).
    - 8-hour action level (AL) 5 $\mu g/m^3$.

-Continued-

Arsenic

WAC 296-848-100

Scope

WAC 296-848-100 (continued)

Step 2: Use employee exposure monitoring results from Step 1 and follow Table 1 to find out which additional sections of this chapter apply to your workplace.

Table 1
Sections That Apply To Your Workplace

If	Then continue to follow the Basic Rules, and these additional requirements
• Employee exposure monitoring results are above the TWA_8	• Training, exposure monitoring, and medical monitoring, WAC 296-848-30005 through 296-848-30080 **and** • Exposure control areas, WAC 296-848-40005 through 296-848-40045
• Employee exposure monitoring results are: – At or below the TWA_8 **and** – At or above AL	• Training, exposure monitoring, and medical monitoring, WAC 296-848-30005 through 296-848-30080
• Employee exposure monitoring results are below the AL **and** • Eye or skin irritation from exposure to inorganic arsenic can't occur	• No additional requirements apply if exposures remain stable
• Employees could experience eye or skin irritation from exposure to inorganic arsenic	• Training in WAC 296-848-30005. • Washing, showering, and changing in WAC 296-848-40030 • Personal protective equipment (PPE) in WAC 296-848-40040

Section Contents

YOUR RESPONSIBILITY:

To measure and minimize employee exposure to inorganic arsenic

IMPORTANT:

- The sections listed in basic rules apply to all employers covered by the scope of this chapter, WAC 296-848-100. To find additional sections that may apply to you, go to the Scope, WAC 296-848-100, and follow Table 1.

Preventitive practices
WAC 296-848-20010 200-2

Washing facilities
WAC 296-848-20025 200-6

Exposure evaluations
WAC 296-848-20060 200-7

Notification
WAC 296-848-20070 200-12

Exposure records
WAC 296-848-20090 200-13

Rule

WAC 296-848-20010

Preventive practices

You must

1) Effectively communicate the hazards of inorganic arsenic by doing both of the following:
   - Keep container labels free of statements that contradict or detract from the labels' hazard warning.

Note:

➢ You may use labels required by other laws, rules, or ordinances in addition to, or in combination with, labels required by this section.

You must

- Make sure shipping containers, storage containers, and products containing inorganic arsenic are labeled, tagged, or marked with this warning:

Danger
Contains Inorganic Arsenic
Cancer Hazard
Harmful if Inhaled or Swallowed
Use Only with Adequate Ventilation
or
Respiratory Protection

-Continued-

WAC 296-848-20010 (continued)

Note:

- You should keep containers tightly covered when not in use to help prevent unnecessary exposure and accidental spills.
- Contaminated items should be handled and disposed of to prevent further exposure in the workplace. For example, vacuuming or wet wiping contaminated equipment helps prevent the release of dust into the air.

Reference:

- Additional requirements are found in other chapters:
  - For spills, leaks, or other releases, go to Emergency Response, chapter 296-824 WAC.
  - For labeling go to:
    - The Safety and Health Core Rules, Chapter 296-800 WAC, and find the section, Label containers holding hazardous chemicals, WAC 296-800-17025

      and
    - Material Safety Data Sheet and Label Preparation, chapter 296-839 WAC.

-Continued-

Rule

WAC 296-848-20010 (continued)

You must

2) Establish safe and effective housekeeping and maintenance practices by doing all the following:
   - Develop and keep a written housekeeping and maintenance plan that lists appropriate frequencies for:
     - Housekeeping operations

       and
     - Cleaning and maintaining dust collection equipment.
   - Keep surfaces free of accumulations of inorganic arsenic, to the degree feasible.
   - When cleaning floors and other accessible surfaces:
     - Use vacuuming or other cleaning methods that minimize the release of inorganic arsenic into the air.
     - Don't use compressed air.
     - Select vacuums that have high efficiency particulate air (HEPA) filters.
     - Use and empty vacuums in a way that minimizes the release of inorganic arsenic back into the workplace.

Note:

- Shoveling or brushing may be used only when vacuuming or other cleaning methods haven't been effective.
- Using non-HEPA vacuums will increase inorganic arsenic contamination in air and on area surfaces.

-Continued-

WAC 296-848-20010 (continued)

You must

- Maintain ventilation systems, including dust collection equipment, to make sure they are effective. Do all of the following:
  - Perform periodic inspections for effectiveness.
  - Periodically clean the equipment.
  - Keep a note of the most recent inspection for effectiveness, and cleaning or maintenance.

3) Prevent eye or skin contact with:

- Arsenic trichloride

  and

- Liquid or particulate forms of inorganic arsenic when contact could cause eye or skin irritation.

Note:

➢ Arsenic trichloride is corrosive and can be quickly absorbed through skin.

Rule

WAC 296-848-20025

Washing facilities

You must

- Provide washing facilities for employees exposed to inorganic arsenic.

References:

➢ For additional washing facility requirements, go to another chapter, the Safety and Health Core Rules, Chapter 296-800 WAC, and find the section titled, Provide convenient and clean washing facilities, WAC 296-800-23025.

WAC 296-848-20060

Exposure evaluations

IMPORTANT:

- This section applies when workplace operations create potential airborne exposure to inorganic arsenic.
- When you conduct an exposure evaluation in a workplace where an employee uses a respirator, the protection provided by the respirator isn't considered.
- Following this section will fulfill the requirements to identify and evaluate respiratory hazards found in another chapter, Respiratory Hazards, chapter 296-841 WAC.

You must

1) Conduct an employee exposure evaluation to accurately determine airborne concentrations of inorganic arsenic by completing Steps 1 through 5 of the Exposure Evaluation Process, each time any of the following apply:
   - No evaluation has been conducted.
   - Changes have occurred in any of the following areas that may result in new or increased exposures:
     - Production
     - Processes
     - Exposure controls such as ventilation systems or work practices
     - Personnel.
   - You have any reason to suspect new or increased exposure may occur.

-Continued-

Rule

WAC 296-848-20060 (continued)

You must

2) Provide affected employees and their designated representatives an opportunity to observe exposure monitoring during Step 4 of the Exposure Evaluation Process.
   - Make sure observers don't interfere with exposure measurements.
   - Make sure observers are entitled to:
     - An explanation of your exposure measurement and monitoring procedures
     - Observe all tasks of exposure measurement performed at the workplace

       and
     - Receive a copy of the exposure measurement results when you obtain them or are allowed to record the exposure measurement results, if made during observations.
   - Make sure observers who enter areas with inorganic arsenic exposure:
     - Are provided with and use the same protective clothing, respirators, and other personal protective equipment (PPE) that employees working in the area are required to use

       and
     - Follow safety and health requirements that apply.

-Continued-

WAC 296-848-20060 (continued)

Exposure Evaluation Process

IMPORTANT:

- Following the Exposure Evaluation Process isn't necessary when you have documentation conclusively demonstrating inorganic arsenic exposures for a particular operation and material, can't exceed the action level (AL) during any conditions reasonably anticipated.
- Documentation can be based on quantitative information such as soil test results **or** qualitative information such as observations of how inorganic arsenic-containing materials are handled.
  - Retain this documentation for as long as you rely on it.

Step 1: Identify all employees who have potential airborne exposure to inorganic arsenic in your workplace.

Step 2: Select employees from those identified in Step 1 who will have their 8-hour exposures monitored.

- Make sure the exposures of the employees selected represent 8-hour exposures for all employees identified in Step 1, including each job classification, work area, and shift.

Note:

➢ A written description of the procedure for obtaining representative employee exposure monitoring results needs to be kept as part of your exposure records required by this chapter in Exposure records, WAC 296-848-20090. This description can be created while completing Steps 2 through 4 of this exposure evaluation process.

-Continued-

Rule

WAC 296-848-20060 (continued)

Step 3: Determine how you'll obtain employee exposure monitoring results.

- Select and use a method that meets the following criteria for accuracy:
- ±25%, with a confidence level of 95%, when concentrations are potentially at or above an 8-hour time-weighted average of 10 micrograms per cubic meter (Fg/m^3)

  or

- ±35%, with a confidence level of 95%, when concentrations are potentially between the 8-hour time-weighted averages of 5 µg/m^3 and 10 µg/m^3.

Note:

➢ Here are examples of methods that meet this accuracy requirement:
  - OSHA Method ID105 found by going to http://www.osha.gov/dts/sltc/methods/toc.html.
  - NIOSH method 7901 found by going to http://www.cdc.gov/niosh/homepage.html and linking to the NIOSH Manual of Analytical Methods.

Step 4: Obtain employee exposure monitoring results by collecting air samples representing employees identified in Step 1.

- Sample at least one shift representative of the 8-hour exposure, for each employee selected in Step 2.
- Make sure samples are collected from each selected employee's breathing zone.

-Continued-

WAC 296-848-20060 (continued)

Note:

- You may use any sampling method that meets the accuracies specified in Step 3. Examples of these methods include:
  - Real-time monitors that provide immediate exposure monitoring results.
  - Equipment that collects samples that are sent to a laboratory for analysis.
- The following are examples of methods for collecting samples representative of 8-hour exposures.
  - Collect one or more continuous samples, for example, a single 8-hour sample or four 2-hour samples.
  - Take a minimum of 4 to 7 brief samples, such as 15-minute samples, during the work shift and at times selected randomly.
- For work shifts longer than 8 hours, monitor the continuous 8-hour portion of the shift expected to have the highest average exposure concentration.

Step 5: Have the samples you collected analyzed to obtain monitoring results representing 8-hour exposures.

- Go to the Scope of this chapter, WAC 296-848-100, and compare employee exposure monitoring results to the values found in Step 1 and follow Step 2 to determine if additional sections of this chapter apply.

Note:

- You may contact your local WISHA consultant for help:
  - Interpreting data or other information.
  - Determining 8-hour employee exposure monitoring results.
- To contact a WISHA consultant:
  - Go to the Safety and Health Core Rules, Chapter 296-800 WAC

    and
  - Find the Resources section, and under "Other Resources," find Service Locations for Labor Industries.

Rule

WAC 296-848-20070

Notification

You must

- Provide written notification of exposure monitoring results, including notification about whether exposures exceed the permissible exposure limit (PEL), to employees represented by your exposure evaluation, within 5 business days after the monitoring results become known to you.
  - In addition, when employee exposure monitoring results are above the permissible exposure limit (PEL), provide written notification of all the following within 15 business days after these exposure monitoring results become known to you.
    - Corrective actions being taken and a schedule for completion

      and
    - Any reason why exposures can't be lowered to below the PEL.

Note:

- You can notify affected employees either individually or post the notifications in areas readily accessible to affected employees.
- When notifying employees about corrective actions, your notification may refer them to a separate document that's available and provides the required information.

WAC 296-848-20090
Exposure records

You must

- Establish and keep complete and accurate records for all exposure monitoring conducted under this chapter. Make sure the record includes, at least:
  - The name, Social Security number or other unique identifier, and job classification of the employee sampled and all other employees represented by the sampled employee.
  - A description of the methods used to obtain exposure monitoring results and evidence of the method's accuracy.
  - A description of the procedure used to obtain representative employee exposure monitoring results.
  - The date, number, duration, location, and the result of each sample taken.
  - Any environmental conditions that could affect exposure concentration measurements.

Note:

➢ It's useful to record any personal protective equipment worn by the employee in addition to the type of respirator worn.

You must

- Keep exposure monitoring records for at least 30 years.

Reference:

➢ To see additional requirements for employee exposure records including access and transfer requirements, go to another chapter, Employee medical and exposure records, chapter 296-802 WAC.

➢ Exposure monitoring records need to be kept longer than 30 years for employees participating in medical monitoring. Go to Medical records, WAC 296-848-30080, found within this chapter.

Notes

Training, Exposure Monitoring, and Medical Monitoring

WAC 296-848-300

Section Contents

YOUR RESPONSIBILITY:

To detect any significant changes in employee health and exposure monitoring results

IMPORTANT:

- These sections apply when skin or eye irritation could occur or when employee exposure monitoring results are either:
  - At or above the action level (AL) of 5 micrograms per cubic meter (µg/m^3) for inorganic arsenic

    or
  - Above the permissible exposure limit (PEL) of 10 µg/m^3 for inorganic arsenic.

Training
WAC 296-848-30005 300-2

Periodic exposure evaluations
WAC 296-848-30010 300-4

Medical evaluations
WAC 296-848-30030 300-6

Medical records
WAC 296-848-30080 300-12

Training, Exposure Monitoring, and Medical Monitoring

WAC 296-848-300

Rule

WAC 296-848-30005

Training

You must

- Train employees:
  - Who are exposed above the action level (AL) of 5 micrograms per cubic meter ($\mu g/m^3$) of air

    or
  - Who could experience eye or skin irritation from exposure.
- Provide training:
  - At the time of initial assignment

    and
  - At least every 12 months after initial training.
- Make sure training and information includes all of the following:
  - A review of this chapter.
  - The information found in another chapter:
    - Go to the General Occupational Health Standards, chapter 296-62 WAC

      and
    - Find Appendix A-Inorganic Arsenic Substance Information Sheet, WAC 296-62-07354(1).
  - The purpose for medical evaluations and a description of how you are fulfilling the medical evaluation requirements of this chapter found in Medical evaluations, WAC 296-848-30030.

-Continued-

WAC 296-848-30005 (continued)

You must

- Make a copy of each of the following readily available to all employees required to be trained under this section:
  - This chapter

    and
  - These appendices found in another chapter, the General Occupational Health Standards, Chapter 296-62 WAC:
    - Appendix A-Inorganic Arsenic Substance Information Sheet, WAC 296-62-07354(1).
    - Appendix B-Substance Technical Guidelines, WAC 296-62-07354(2).
    - Appendix C-Medical Surveillance Guidelines, WAC 296-62-07354(3).

Reference:

- To see additional training and information requirements in other chapters, go to the:
  - Respirators rule, Chapter 296-842 WAC.
  - Safety and Health Core Rules, Chapter 296-800 WAC, and find the section titled, Inform and train your employees about hazardous chemicals in your workplace, WAC 296-800-17030.
- When following these requirements, include specific information about potential exposures to inorganic arsenic, such as the types of operations, locations, quantities, exposure sources, exposure controls, inorganic arsenic use, and storage.

Training, Exposure Monitoring, and Medical Monitoring

WAC 296-848-300

Rule

WAC 296-848-30010

Periodic exposure evaluations

Exemption:

- Periodic exposure evaluations aren't required if exposure monitoring results conducted to fulfill requirements in Exposure evaluation, WAC 296-848-20060, are below the action level (AL).

You must

- Obtain employee exposure monitoring results as specified in Table 2 by repeating Steps 2, 4, and 5 of the Exposure Evaluation Process found within this chapter, in Exposure evaluations, WAC 296-848-20060.

Note:

➢ If you document that one work shift consistently has higher exposure monitoring results than another for a particular operation, then you limit sample collection to the work shift with higher exposures and can use results to represent all employees performing the operation on other shifts.

-Continued-

WAC 296-848-30010 (continued)

Table 2

Periodic Exposure Evaluation Frequencies

If 8-hour employee exposure monitoring results	Then
Are between the: – Action level (AL) of 5 micrograms per cubic meter (µg/m^3) **and** – Permissible exposure limit (PEL) of 10 µg/m^3	Conduct additional exposure evaluations at least every 6 months for the employees represented by the monitoring results.
Are above the PEL	Conduct additional exposure evaluations at least every 3 months for the employees represented by the monitoring results.
For employees previously above the PEL, have decreased: – To a concentration between the PEL and AL **and** – The decrease is demonstrated by 2 consecutive exposure evaluations made at least 7 days apart	You may decrease your evaluation frequency to every 6 months for the employees represented by the monitoring results.
Have decreased to below the AL **and** The decrease is demonstrated by 2 consecutive exposure evalutaions made at least 7 days apart.	You may stop periodic employee exposure evaluations for employees represented by the monitoring results.

Training, Exposure Monitoring, and Medical Monitoring

WAC 296-848-300

Rule

WAC 296-848-30030

Medical evaluations

IMPORTANT:

- Medical evaluations conducted under this section will satisfy the medical evaluation requirement found in another chapter, Respirators, Chapter 296-842 WAC.

You must

- Make medical evaluations available to current employees who have been, are, or will be exposed to inorganic arsenic concentrations above the AL:
  - At least 30 days in any 12-month period

    or
  - A total of 10 years or more of combined employment with you or previous employers with at least 30 days of exposure per year.
- Make medical evaluations available at no cost to employees.
  - Pay all costs, including travel costs and wages associated with any time spent outside of the employee's normal work hours.
- Make medical evaluations available at reasonable times and places.
- Make medical evaluations available by completing Steps 1 through 6 of the Medical Evaluation Process for each employee covered.

-Continued-

WAC 296-848-30030 (continued)

Note:

- Employees who wear respirators need to be medically evaluated to make sure the respirator won't harm them, before they are assigned work in areas requiring respirators. Employees who decline to receive medical examination and testing to monitor for health effects caused by inorganic arsenic aren't excluded from receiving a separate medical evaluation for a respirator use.
- If employers discourage participation in medical monitoring for health effects caused by inorganic arsenic, or in any way interfere with an employee's decision to continue with this program, this interference may represent unlawful discrimination under RCW 49.17.160, Discrimination against employee filing, instituting proceeding, or testifying prohibited--Procedure--Remedy.

Helpful tool:

Declination form for nonemergency related medical evaluations

You may use this optional form to document employee decisions to decline participation in the medical evaluation process for exposure to inorganic arsenic. To see this form, go to the Resources section within this chapter.

-Continued-

Rule

WAC 296-848-30030 (continued)

Medical Evaluation Process

Step 1: Identify employees who qualify, as stated above, for medical evaluations.

Step 2a: Make medical evaluations available for employees identified in Step 1 at the following times:

- Initially, when employees are assigned to work in an area where exposure monitoring results are, or will likely be, above the action level for at least 30 days in a 12-month period.
- Periodically as specified in Table 3.
- When employment with exposure ends, if the employee hasn't had an evaluation within the 6-month period before exposure ends. Include in these evaluations the same content as specified in Table 4 for initial evaluations, excluding a chest X ray.

Table 3

Frequencies for Periodic Medical Evaluations

For	Provide periodic medical evaluations every
Employees less than 45 years old with less than 10 years of exposure above the AL	12 months
Employees 45 or older **and** Employees with more than 10 years of exposure above the AL	6 months **and** 12 months to obtain a 14- by 17-inch posterior-anterior chest X ray for monitoring purposes, unless the LHCP has determined a different frequency for periodic X rays.

-Continued-

WAC 296-848-30030 (continued)

Step 2b: Provide appropriate medical examination and emergency treatment when an employee identified in Step 1 develops signs or symptoms commonly associated with inorganic arsenic exposure.

Step 3: Select a licensed healthcare professional (LHCP) who will conduct or supervise examinations and procedures.

Step 4: Make sure the LHCP receives all of the following before the medical evaluation is performed:

- A copy of:
  - This chapter
    and
  - The following information found in the General Occupational Health Standards, Chapter 296-62 WAC:
    - Appendix A-Inorganic Arsenic Substance Information Sheet, WAC 296-62-07354(1).
    - Appendix B-Substance Technical Guidelines, WAC 296-62-07354(2).
    - Appendix C-Medical Surveillance Guidelines, WAC 296-62-07354(3).
- A description of the duties of the employee being evaluated and how these duties relate to inorganic arsenic exposure.
- The anticipated or representative exposure monitoring results for the employee being evaluated.
- A description of the personal protective equipment (PPE) each employee being evaluated uses or will use.
- Information from previous employment-related examinations when this information isn't available to the examining LHCP.

-Continued-

Rule

WAC 296-848-30030 (continued)

- Instructions that the written opinions the LHCP provides you be limited to the following information:
  - Results from examinations and tests.
  - The LHCP's opinion about whether or not medical conditions were found that would increase the employee's risk for impairment from exposure to inorganic arsenic.
  - Any recommended limitations for:
    - Inorganic arsenic exposure

      and
    - Use of respirators or other PPE.
  - A statement that the employee has been informed of medical results and medical conditions caused by inorganic arsenic exposure requiring further examination or treatment.

Step 5: Make the medical evaluation available to the employee. Make sure it includes the content listed in Table 4, Content of Medical Evaluations.

Step 6: Obtain the LHCP's written opinion for the employee's medical evaluation and give a copy to the employee.

- Make sure the written opinion is limited to the information specified for written opinions in Step 4.

Note:

➢ If the written opinion contains specific findings or diagnoses unrelated to occupational exposure, send it back and obtain a revised version without the additional information.

-Continued-

WAC 296-848-30030 (continued)

Rule

Table 4

Content of Medical Evaluations

When conducting	Include
An initial evaluation	• A work history and medical history including: – Smoking history. – The presence and degree of respiratory symptoms such as breathlessness, cough, sputum production, and wheezing. • A physical examination that includes: – A 14- by 17-inch posterior-anterior chest X ray and the International Labor Office UICC/Cincinnati (ILO U/C) rating. – A nasal and skin examination. • Additional examinations the licensed healthcare professional (LHCP) believes appropriate based on the employee's exposure to inorganic arsenic or respirator use.
Periodic evaluations for employees less than 45 years old with less than 10 years of exposure above the action level (AL)	The same content as specified for initial evaluations repeated every 12 months.
Periodic evaluations for employees: • 45 or older **or** • With more than 10 years of exposure above the AL	• The following content repeated every 6 months: – A work history and medical history including: • Smoking history. • The presence and degree of respiratory symptoms such as breathlessness, cough, sputum production, and wheezing. – A physical examination that includes a nasal and skin examination. – Additional examinations the LHCP believes appropriate based on the employee's exposure to inorganic arsenic or respirator use. • A physical examination, repeated every 12 months, that obtains a 14- by 17-inch posterior-anterior chest X ray and the International Labor Office UICC Cincinnati (ILO U/C) rating.

Training, Exposure Monitoring, and Medical Monitoring

WAC 296-848-300

Rule

WAC 296-848-30080

Medical records

IMPORTANT:

- This section applies when a medical evaluation is performed, or any time a medical record is created for an employee exposed to inorganic arsenic.

You must

- Establish and maintain complete and accurate medical records for each employee receiving a medical evaluation and make sure the records include all the following:
  - The employee's name and Social Security number, or other unique identifier.
  - A description of the employee's duties.
  - A copy of the licensed healthcare professional's (LHCP's) written opinions.
  - The anticipated or representative employee exposure monitoring results provided to the LHCP for the employee.
- Maintain medical evaluation records for the duration of employment plus 30 years.

Note:

➢ Your medical provider may keep these records for you. Other medical records, such as the employee's medical history or X ray, need to be kept as a confidential record by the medical provider and accessed only with the employee's consent.

Reference:

➢ To see additional requirements for employee medical record, including access and transfer requirements, go to Employee Medical and Exposure Records, chapter 296-802 WAC.

Exposure Control Areas

WAC 296-848-400

Section Contents

YOUR RESPONSIBILITY:

To protect employees from exposure to inorganic arsenic by using feasible exposure controls and appropriate respirators

IMPORTANT:

- These sections apply when employee exposure monitoring results are above the permissible exposure limit (PEL) of 10 micrograms per cubic meter (µg/m^3) of air.

Exposure control plan
WAC 296-848-40005 400-2

Exposure controls
WAC 296-848-40020 400-4

Exposure control areas
WAC 296-848-40025 400-5

Clean-up facilities and lunchrooms
WAC 296-848-40030 400-7

Personal protective equipment
WAC 296-848-40040 400-8

Respirators
WAC 296-848-40045 400-11

Exposure Control Areas

WAC 296-848-400

Rule

WAC 296-848-40005

Exposure control plan

IMPORTANT:

- Use of employee rotation to control exposures isn't advisable since inorganic arsenic is a known carcinogen.

You must

- Establish and implement a complete written exposure control plan that includes at least the following, for exposure control areas:
  - A description of each operation releasing inorganic arsenic, for example:
    - Crew size
    - Current exposure controls
    - Materials processed
    - Machinery used
    - Operating procedures
    - Maintenance practices.
  - Exposure evaluation data.
  - A report of the technology considered for exposure controls.

-Continued-

WAC 296-848-40005 (continued)

You must

- Engineering plans and studies used as a basis for selecting exposure controls.
- A detailed schedule for implementing:
  - Feasible exposure controls, if immediate implementation isn't possible.
  - Changes to enhance current exposure controls, when necessary.
- An analysis of the effectiveness of the exposure controls considered, when controls won't reduce exposures to or below the permissible exposure limit (PEL).
- Other relevant information.
  - Review and update your exposure control plan at least every 6 months to keep it current.
  - Implement exposure controls on the quickest schedule feasible if controls won't reduce exposure to or below the PEL.
  - Provide a copy of your exposure control plan to affected employees and their designated representatives, when they ask to review or copy it.

Exposure Control Areas

WAC 296-848-400

Rule

WAC 296-848-40020

Exposure controls

IMPORTANT:

- Use of employee rotation to control exposures isn't advisable since inorganic arsenic is a known carcinogen.
- Respirators and other personal protective equipment (PPE) don't substitute for feasible exposure controls.

You must

- Use feasible exposure controls to reduce exposures to or below the permissible exposure limit (PEL), or as low as achievable.

Reference:

➢ To see examples of exposure controls go to Respiratory Hazards, Chapter 296-841 WAC, and find Table 1 in the section, Control employee exposure, WAC 296-848-20010.

WAC 296-848-40025

Exposure control areas

You must

- Establish temporary or permanent exposure control areas where airborne concentrations of inorganic arsenic are above the permissible exposure limit (PEL) by doing all the following:
  - Distinguish the boundaries of exposure control areas from the rest of the workplace in any way that minimizes employee access.
  - Allow only authorized personnel to enter exposure control areas.
  - Post signs at access points to exposure control areas that include this warning:

DANGER
Inorganic Arsenic
Cancer Hazard
Authorized Personnel Only
No Smoking or Eating
Respirator Required

  - Make sure signs are kept clean and well lit so they are easy to read.
  - Keep signs and areas near them free of statements that contradict or detract from their message.

Note:

➢ This requirement doesn't prevent you from posting signs required by other laws, rules, or ordinances.

-Continued-

Exposure Control Areas

WAC 296-848-400

Rule

WAC 296-848-40025 (continued)

You must

- Make sure employees entering exposure control areas have an appropriate respirator.
- Prevent all of the following activities from occurring in exposure control areas unless they are conducted in required lunchrooms, change rooms, or showers:
  - Eating food or drinking beverages
  - Smoking
  - Chewing tobacco or gum
  - Applying cosmetics.

Note:

- You may use permanent or temporary enclosures, caution tape, ropes, painted lines on surfaces, or other materials to visibly distinguish exposure control areas or separate them from the rest of the workplace.
- When distinguishing exposure control areas, you should consider factors such as:
  - The level and duration of airborne exposure.
  - Whether the area is permanent or temporary.
  - The number of employees in adjacent areas.

Reference:

- To see other requirements for respirators within this chapter, go to Respirators, WAC 296-848-40045.

WAC 296-848-40030

Clean-up facilities and lunchrooms

You must

- Provide the following facilities for employees who could experience eye or skin irritation from exposure to inorganic arsenic or who work in exposure control areas:
  - Clean change rooms with separate storage for street clothes and personal protective equipment (PPE).
  - Shower facilities.
- Make sure employees who could experience eye or skin irritation from exposure to inorganic arsenic or who work in exposure control areas:
  - Shower at the end of the work shift
    and
  - Wash their hands and face before eating.
- Provide lunchrooms for employees working in exposure control areas that are:
  - Located so they are readily accessible to the employees.
  - Temperature controlled.
  - Under positive pressure compared to surrounding areas.
  - Provided with a filtered air supply.

Note:

➢ Lunchrooms may be located within exposure control areas, but are considered separate from the exposure control area.

-Continued-

Exposure Control Areas

WAC 296-848-400

Rule

WAC 296-848-40030 (continued)

You must

- Do the following when exposures in exposure control areas exceed an 8-hour time-weighted average of 100 micrograms of arsenic per cubic meter of air (µg/m^3):
  - Provide facilities for employees working in exposure control areas where they can remove excess contamination from protective clothing and shoes.
  - Make sure employees vacuum protective clothing and clean or change shoes before entering showers, change rooms, or lunchrooms.

Reference:

➢ To see additional requirements for hygiene facilities:

- Go to the Safety and Health Core Rules, Chapter 296-800 WAC.
- Find Drinking water, bathrooms, washing facilities, and waste disposal, WAC 296-800-230.

WAC 296-848-40040

Personal protective equipment (PPE)

You must

- Provide, make sure employees use, and maintain PPE as follows:
  - Provide clean and dry protective clothing to employees who could experience eye or skin irritation from exposure to inorganic arsenic or who work in exposure control areas.
  - Provide impervious protective clothing to employees exposed to arsenic trichloride.

-Continued-

WAC 296-848-40040 (continued)

Note:

- Arsenic trichloride is corrosive and can be rapidly absorbed through skin.
- Examples of protective clothing appropriate for inorganic arsenic exposures include:
  - Coveralls or similar full-body work clothing.
  - Gloves, and shoes or coverlets.
  - Face shields or vented goggles when necessary to prevent eye irritation.

You must

- Make sure employees don't remove inorganic arsenic from PPE by blowing or shaking.
  - Make sure protective clothing is removed:
    - In change rooms

      and
    - At the end of the work shift.
- Make sure contaminated protective clothing that will be cleaned, laundered, or disposed of, is placed in a closed container located in the change room.
  - Make sure the container prevents the release of inorganic arsenic.

-Continued-

Exposure Control Areas

WAC 296-848-400

Rule

WAC 296-848-40040 (continued)

- Launder protective clothing:
  - At least weekly if employees work in areas where exposure monitoring results of inorganic arsenic are below an 8-hour time-weighted average concentration of 100 micrograms per cubic meter (µg/m^3)

    or
  - Daily if employees work in areas where either exposure monitoring results of inorganic arsenic are above an 8-hour time-weighted average concentration of 100 µg/m^3 or when more frequent washing is needed to prevent skin irritation.
- Maintain the effectiveness of PPE by repairing or replacing it, as needed:
  - Dispose of protective clothing if it won't be repaired.

- Inform individuals who clean or launder protective clothing about the possible health effects associated with inorganic arsenic, including carcinogenic effects, by doing the following:
  - Provide the information in writing

    and
  - Label containers of contaminated PPE with the following warning:

Caution:
Clothing contaminated with inorganic arsenic
Don't remove dust by blowing or shaking
Dispose of inorganic arsenic contaminated wash water as applicable local, state, or federal regulations require

Reference:

➢ To see additional Personal protective equipment requirements go to the Safety and Health Core Rules, Chapter 296-800 WAC, and find the section titled, PPE, WAC 296-800-160.

WAC 296-848-40045

Respirators

IMPORTANT:

- The requirements in this section are in addition to the requirements found in other chapters:
  - Respiratory Hazards, Chapter 296-841 WAC.
  - Respirators, Chapter 296-842 WAC.

You must

- Provide respirators and require that employees use them in circumstances where exposure is above the permissible exposure limit (PEL), including any of the following circumstances:
  - Employees are in an exposure control area
  - Feasible exposure controls are being put in place
  - Where you determine that exposure controls aren't feasible
  - Feasible exposure controls don't reduce exposures to, or below, the PEL
  - Emergencies.
- Make sure air-purifying respirators selected have high-efficiency particulate air (HEPA) filters or N-, R-, or P-100 filters.

-Continued-

Exposure Control Areas

WAC 296-848-400

Rule

WAC 296-848-40045 (continued)

You must

- Provide an employee a powered air-purifying respirator (PAPR) when this type of respirator will provide proper protection and:
  - A licensed healthcare professional (LHCP) allows this type of respirator in their written opinion.

    or
  - The employee chooses to use this type of respirator.
- Prohibit the use of half-facepiece respirators for protection against arsenic trichloride.

Note:

➢ Arsenic trichloride is corrosive and can be rapidly absorbed through skin.

Definitions

Action level

An airborne concentration of inorganic arsenic of 5 micrograms per cubic meter (µg/m3) of air calculated as an 8-hour time-weighted average.

Authorized personnel

Individuals specifically permitted by the employer to enter the exposure control area to perform duties, or to observe employee exposure evaluations as a designated representative.

Breathing zone

The space around and in front of an employee's nose and mouth, forming a hemisphere with a 6- to 9-inch radius.

CAS (Chemical Abstract Service) number

CAS numbers are internationally recognized and used on material safety data sheets (MSDSs) and other documents to identify substances. For more information see http://www.cas.org/about.

Day

Any part of a calendar day.

Designated representative

Any one of the following:

- Any individual or organization to which an employee gives written authorization.
- A recognized or certified collective bargaining agent without regard to written employee authorization.
- The legal representative of a deceased or legally incapacitated employee.

-Continued-

Arsenic

WAC 296-848-500

Definitions

Emergency

Any event that could or does result in the unexpected significant release of inorganic arsenic. Examples of emergencies include equipment failure, container rupture, or control equipment failure.

Exposure

The contact an employee has with inorganic arsenic, whether or not protection is provided by respirators or other personal protective equipment (PPE). Exposure can occur through various routes of entry such as inhalation, ingestion, skin contact, or skin absorption.

Inorganic arsenic

Elemental arsenic (As), copper aceto-arsenite, and inorganic compounds containing arsenic (measured as As), except arsine. Inorganic compounds don't contain the element carbon.

Licensed healthcare professional (LHCP)

An individual whose legally permitted scope of practice allows him or her to provide some or all of the healthcare services required for medical evaluations.

Permissible exposure limits (PELs)

PELs are employee exposures to toxic substances or harmful physical agents that must not be exceeded. PELs are also specified in WISHA rules found in other chapters. The PEL for inorganic arsenic is an 8-hour time-weighted average (TWA_8) of 10 micrograms per cubic meter ($\mu g/m^3$).

Time-weighted average (TWA_8)

An exposure limit averaged over an 8-hour period that must not be exceeded during an employee's workday.

Resources

HELPFUL TOOLS

Declination Form For Nonemergency Related Medical Evaluations R-3

Arsenic Contamination in Soil Information and Guidance for Employers R-4

Notes

Declination Form for Nonemergency Related Medical Evaluations (Optional)

Use with Arsenic, Chapter 296-848 WAC

Employer_____

I understand that because of my occupational exposure to inorganic arsenic, I may be at risk for serious health effects including lung and skin cancer.

You have given me the opportunity to receive medical examination and testing for the potential health effects from inorganic arsenic exposures, at no cost to me. However, I decline to receive this medical examination and testing at this time.

I understand that by declining medical examination and testing, I continue to be at risk for lung and skin cancer and other health effects related to inorganic arsenic exposure.

I understand that I must have a medical evaluation to wear a respirator and without such an evaluation I cannot wear a respirator as part of my job. I also understand that declining to receive medical examination and testing for health effects from inorganic arsenic exposures does not exclude me from receiving a separate medical evaluation for respirator use.

If, in the future, I continue to have occupational exposure to inorganic arsenic and decide to receive medical examination and testing, I will be given the opportunity to receive them at no cost to me.

_____

Employee's Name (Print)

_____ _____

Employee's Signature Date

Arsenic Contamination in Soil
Information and Guidance for Employers

Use with Arsenic, Chapter 296-848 WAC

This tool provides information to help you determine if you are covered by the Inorganic Arsenic rule, chapter 296-848 WAC, when:

- Employees are exposed to airborne dust generated from activities that disturb soil or through contact with soil

  and

- The worksite is located in either
  - King, Pierce, Snohomish, or Stevens counties where arsenic-containing residues from smelter emissions are present

    or

  - Chelan, Okanogan, Spokane, or Yakima counties where arsenic-containing pesticides were used.

Examples of employee activities to consider include construction, excavation, landscaping, underground tank removal, and utility work.

This helpful tool doesn't apply to agricultural operations covered by another chapter, Safety Standards For Agriculture, chapter 296-307 WAC.

Inorganic Arsenic In Soil

Human activities, such as past use of arsenic-containing pesticides or industrial metal smelting processes, have contaminated soil in some areas of Washington State with inorganic arsenic. This contamination is found in soil on residential, commercial, and undeveloped worksites.

Does Inorganic Arsenic, Chapter 296-848 WAC, apply to my worksite?

In general, the Inorganic Arsenic rule applies when:

- Employees have contact with soil or airborne dust

  and

- Information about the worksite indicates inorganic-arsenic contamination.

To evaluate information about the worksite, follow the Worksite Evaluation Process that follows; or use soil-testing results, if available.

-Continued-

Arsenic Contamination in Soil
Information and Guidance for Employers

Use with Arsenic, Chapter 296–848 WAC

(continued)

- Soil testing may be used to determine if inorganic arsenic contamination is present; however, this is not required by the Inorganic Arsenic rule.
  - Soil testing kits are available that can provide quick test results.
    - These tests use color changes to indicate soil concentrations of inorganic arsenic.
    - To find products currently available, search the Internet using "arsenic soil testing kits" or similar search terms.
  - To find out how to plan and conduct soil testing:
    - Go to the Area-Wide Soil Contamination Project report and select the second link at: www.ecy.wa.gov/programs/tcp/area_wide/area_wide_hp.html
    - Open the Area-wide Soil Contamination Report.
    - Find Appendix K, and under Individual Property Evaluation Tools find the section titled, Area-Wide Soil Contamination Sampling Guidance-Residential Areas.
  - If soil testing results or other information indicates inorganic arsenic contamination greater than 20 parts per million (ppm) or 20 milligrams per kilogram (mg/kg), presume the Inorganic Arsenic rule applies.
    - You may also need to follow requirements found in another chapter, Hazardous Waste Operations, Chapter 296-843 WAC, when inorganic-arsenic contamination levels exceed 20 ppm or mg/kg.

-Continued-

Arsenic Contamination in Soil
Information and Guidance for Employers

Use with Arsenic, Chapter 296-848 WAC

(continued)

WORKSITE EVALUATION PROCESS

Step 1: If the worksite is located in King, Pierce, Snohomish, or Stevens County, find out if the worksite is in an area affected by past smelter emissions. If the worksite is located in Chelan, Okanogan, Spokane, or Yakima County, skip this step.

- Use maps showing the potential extent of arsenic contamination around smelters in Tacoma, Everett, Northport, and on Harbor Island (in Seattle).

  To access these maps:

  - Go to the Area-Wide Soil Contamination Project report and select the second link at www.ecy.wa.gov/programs/tcp/area_wide/area_wide_hp.html
  - Open the Area-wide Soil Contamination Report
  - Find Appendix K, and under Maps of Area-Wide Soil Contamination find the Tier 2 Smelter Maps.
- If the worksite is located in an area on these maps, inorganic arsenic contamination is probable. Presume the Inorganic Arsenic rule applies.

Step 2: Find out if apple or pear trees were cultivated on the worksite before 1947. While you will need other sources of information for your evaluation, consider the following:

- Substantial amounts of inorganic arsenic-containing pesticides were commonly applied to apple and pear trees before 1947.

-Continued-

Arsenic Contamination in Soil
Information and Guidance for Employers

Use with Arsenic, Chapter 296-848 WAC

(continued)

- Possible sources for information about apple or pear tree cultivation on the worksite before 1947 include:
  - Previous and current land owners
  - Long-time residents, developers, and local officials
  - Local planning or zoning departments
  - Maps showing areas potentially affected by inorganic. arsenic-containing pesticide use. To access these maps:
    - Go to the Area-Wide Soil Contamination Project report and select the second link at www.ecy.wa.gov/programs/tcp/area_wide/area_wide_hp.html
    - Open the Area-wide Soil Contamination Report
    - Find Appendix K and under Maps of Area-Wide Soil Contamination find the Tier 2 Lead Arsenate Pesticide Maps.

- The following types of land aren't likely to have been cultivated with apple or pear trees before 1947:
  - State or federal land
  - Undisturbed land or land developed after 1947 from undisturbed land
  - Land above 2,500 feet in elevation (or above 2,000 feet if in Yakima County)
  - Land where annual rainfall is below 15 inches and the general area wasn't served by irrigation before 1947.
- If information conclusively demonstrates that apple or pear trees were cultivated on the worksite before 1947, inorganic arsenic contamination is probable. Presume the Inorganic Arsenic rule applies.

<u>Who can I contact to get more information?</u>

If you have questions or need more information contact your local WISHA office and ask for an Industrial Hygiene Consultant.

For a list of WISHA offices, visit www.lni.wa.gov and look for the map showing office locations.

Notes

Index

A

Accuracy
- evaluation, exposure, **200**-7-12
- recordkeeping, **200**-14

Action level
- definition, **500**-1
- periodic exposure evaluations, **300**-4
- medical evaluation process, **300**-6-12
- training, **300**-2

Actions, corrective, **200**-13
Additional exposure monitoring, (see evaluation, exposure)
Administrative controls (see exposure controls)
Agricultural operations, exemption, **100**-2
Air filters, high-efficiency particulate (HEPA) in respirators, **400**-11
In vacuum cleaners, **200**-2
Air sampling methods, **200**-7-8
Appendices, references to another chapter
- employee training, **300**-2
- medical evaluations, **300**-6-12

Application, chapter, **100**-1
Arsenic contamination in soil, information and guidance for employers, helpful tool, **R**-4-7
Arsenic, inorganic, definition, **100**-1
Arsenic trichloride, skin contact, **200**-2; **200**-5(note)
Arsine, exemption, **100**-2
Authorized personnel, **400**-5; **500**-1

B

Basic rules, **200**-1
Breathing zone, **200**-10(step 4); **500**-1
Boundaries, exposure control areas, **400**-5-6

C

Changing rooms, **400**-6-9
Chapter application, scope, **100**-1-4
Clean-up facilities, **400**-7-8
Cleaning methods, housekeeping and maintenance plan, **200**-2
Clothing, protective, **400**-8
Communication of hazards, **200**-2
Concentration levels above the AL
- medical evaluations, **300**-6

Containers, labels, **200**-2
Contamination, soil, helpful tool, **R**-4
Content of medical evaluations,
- table 4, **300**-11

Corrective actions, **200**-13
Costs to employees, medical evaluations, **300**-6

D

Declination form for nonemergency related medical evaluations, helpful tool, **300**-7
Definitions, **500**-1-2
- exposure, **100**-1
- inorganic arsenic, **100**-1

Designated representative, **200**-8,10 (step 2); **400**-3
Documentation
- exposure evaluation process (Important), **200**-7-8
- exposure records, **200**-14
- medical records, **200**-9-12; **300**-12

E

Eating or drinking, prevention, **400**-6
Eight-hour time weighted average (TWA-8), **100**-1; **500**-2
Emergencies, respirators, **400**-11
Emergency treatment, **300**-6-12 (step 2b)
Employee
- communication, hazard, **200**-2
- costs, medical evaluations, **300**-6-12
- observation of exposure monitoring, **200**-7-12
- notification, exposure monitoring results, **200**-13
- rotation, **400**-2, 4
- training, **300**-2

Enclosures (note), **400**-5
Evaluations
- See also exposure controls
- exposure, **100**-3 (step 1), **200**-7-8
- medical, **300**-6-12
- periodic exposure, **300**-4

Exemptions
- chapter, **100**-2
- periodic exposure evaluations, **300**-4

Exposure, definition, **100**-2; **500**-2
Exposure controlall requirements, **400**-1-12
- areas, **400**-5-8
- clean-up facilities and lunchrooms, **400**-7
- corrective actions, **200**-13
- feasible, **400**-7-8
- recordkeeping, **200**-9

Arsenic
WAC 296-848

Index

personal protective equipment (PPE), **400**-8
plan, **400**-2
preventative practices, **200**-2(3)
respirators, **400**-2
Exposure evaluations
general requirements, **100**-3 (step 1), **200**-7
periodic, **300**-4
Exposure monitoring
air sampling, **200**-10-11(step 4 and 5)
notification of results, **200**-13
Exposure records, accuracy, **200**-14
Exposures during agricultural operations, exemptions, **100**-2
Extended work shifts (step 4, note), **200**-11
Eye and skin irritations, clean up facilities, **400**-7
Eye protection, **400**-9

F

Frequencies, periodic medical evaluations, (table 3), **300**-8

G

Goggles, **400**-9

H

Handwashing, **200**-6; **400**-7
Hazard communication, **200**-2
Hazardous chemicals in laboratories, exemptions, **100**-2
Helpful tools
arsenic contamination in soil, information and guidance for employers, **100**-1
declination form for nonemergency related medical evaluations, **300**-7
HEPA (high-efficiency particulate air) filters
air-purifying respirators, **400**-11-12
vacuum cleaners, **200**-3-4
Housekeeping, **200**-4

I

Inorganic arsenic, definition, **100**-1
Initial exposure evaluation (see evaluations, exposure)
Inspections, (step 2) **200**-4-5

L

Labeling, containers
preventative practices, **200**-23
contaminated PPE, **400**-10
Laboratories, exemptions, **100**-2
Laundering, PPE, **400**-9-10
Lavatories (see washing facilities)
Leaks (see releases)
Licensed health care professional (LHCP)
definition, **500**-2
medical evaluations, **300**-9-11
medical records, **300**-12
respirators, **400**-12
Lunchrooms, **400**-7-8

M

Maintenance , **200**-2
Medical evaluations
general requirements, **300**-2; 6-11
records, **300**-12
Medical provider (see Licensed health care professional (LHCP)

N

Notifications, exposure monitoring, **200**-11-13

O

Observations, exposure monitoring, **200**-9

P

PAPR (powered air purifying respirator), **400**-12
Periodic Exposure Evaluations, **300**-4-5
Permissible exposure limits (PEL)
notifications, **200**-13
exposure monitoring, **300**-4-5
exposure controls, **400**-4
respirators, **400**-11-12
Personal protective equipment (PPE)
all, **400**-8
exposure controls (Important), **400**-4
exposure evaluations, **200**-7
medical evaluations, **300**-6
Pesticide applications, exemptions, **100**-2
Physician (see licensed health care professional (LHCP)
Plan

exposure control, **400**-2
housekeeping and maintenance, **200**-2
PPE (Personal protective equipment), **400**-8-10
exposure evaluation process, **200**-9-12
laundering, **400**-9-10
removing inorganic arsenic, **400**-9-10
repairing and replacing, **400**-10
Posting signs, **400**-5
Preventive practices, **200**-2-5

R

Recordkeeping
exposure evaluation process (Important), **200**-7
exposure records, **200**-14
medical records, **300**-12
Removing inorganic arsenic, PPE, **400**-9-10
Repairing and replacing, PPE, **400**-10
Respirators
all requirements, **400**-11-12
exposure controls, **400**-4 6
medical evaluations, **300**-8-11
training, **300**-2-3

S

Sampling methods, **200**-10-11 (steps 3, 4, & 5)
Scope, chapter application, **100**-1-4
Sections that apply to your workplace, table 1, **100**-4
Showers (see clean-up facilities)
Signs, warning, **400**-5
Skin contact, **200**-5
Smoking, **300**-11; **400**-6
Soil contamination (see Arsenic contamination in soil: information and guidance for employers, helpful tool), **R**-4
Spills, see releases

T

Tables
content of medical evaluations (table 4), **300**-11
frequencies for periodic medical evaluations (table 3), **300**-8
periodic exposure evaluation frequencies (table 2), **300**-5
sections that apply to your workplace, (table 1),**100**-4
Temporary or permanent, exposure control areas, **400**-5-6
Testing
soil, **200**-9
medical evaluations, **300**-6-11
Training, **300**-2-3
TWA-8 (Eight-hour time weighted average), **100**-3; **500**-2

V

Vacuuming, **200**-3-4, **400**-8
Ventilation, **200**-5, 7

W

Warning messages, **200**-2
Washing facilities
arsenic, **200**-6
core rules, **296-800**-23025
Wood, treated with arsenic, exemptions, **100**-2
Work shifts, extended (step 4, note), **200**-7-12
Written opinions, **300**-10-12; **400**-12

X

X-ray, **300**-8, 11-12