

# 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.

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## (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](http://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.

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## 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](http://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.

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## (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](http://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.

### Who can I contact to get more information?

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](http://www.lni.wa.gov) and look for the map showing office locations.

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