

Beryllium Associated Worker Training and HGET Lesson

Screen Captures 9/28/2010



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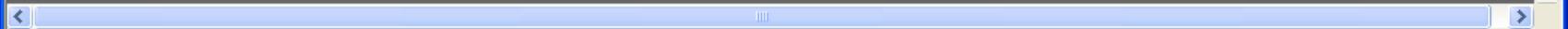
Beryllium Associated Worker Training

This lesson consists of the sections below. You must complete all required sections to complete the lesson.

<i>Content Sections</i>		
	Be: What is Beryllium?	<i>Required</i>
	Be: Beryllium Exposure Hazards	<i>Required</i>
	Be: Chronic Beryllium Disease Medical Conditions	<i>Required</i>
	Be: Chronic Beryllium Disease Prevention Program Controls	<i>Required</i>
	Be: Beryllium Medical Monitoring Program	<i>Required</i>
	Knowledge Check - Beryllium Associated Worker Training	<i>Required</i>

<i>Supplemental Sections</i>	
Instructions	Glossary
Summary	References

Questions and comments may be addressed to [Chris Stape](#)



Introduction

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Welcome to This Beryllium Expedition!

Why Learn About Beryllium?

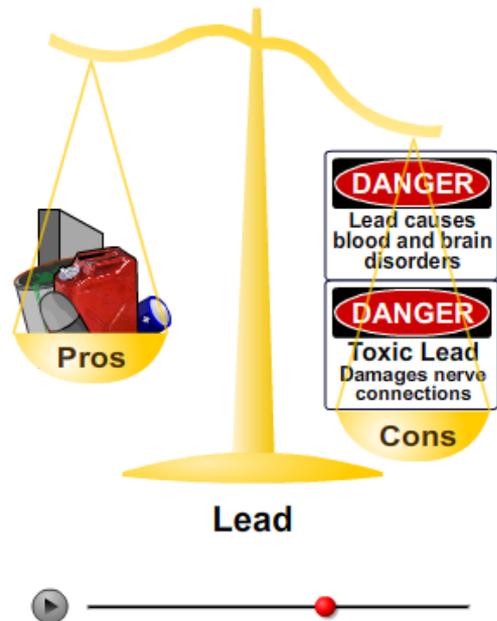
- If you are concerned about your health, it makes sense to learn about a potential health hazard
- You need a clear recognition of the hazard to protect against it
- Once you know the facts, you can make an informed decision on the options available to you



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Weighing the Pros and Cons

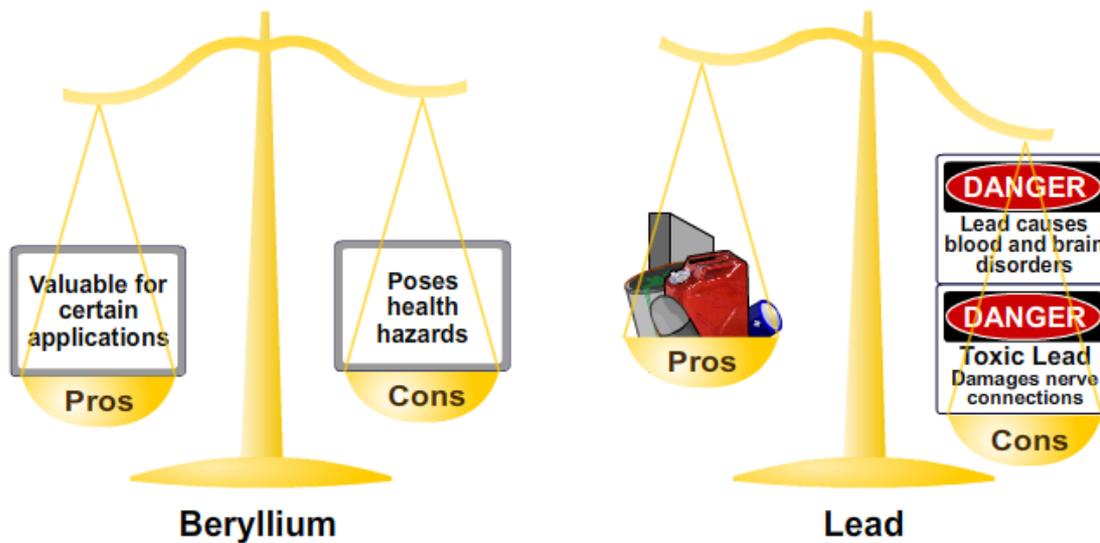


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Weighing the Pros and Cons



Introduction

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In this lesson we will explore:

- Characteristics that make beryllium a desirable metal compared to other metals
- Beryllium exposure hazards and possible health effects from beryllium exposure
- Controls in place to prevent and manage beryllium exposure
- Key elements of the Beryllium Medical Monitoring Program
- Contacts and resources to learn more

The lesson will end with a knowledge check.

Let's Begin!



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Let's Begin!



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Beryllium Exposure Hazards

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Beryllium: Taking It In

This short video describes how exposure to beryllium can result in health hazards. As you watch this video, focus on the primary exposure route of beryllium, the body's initial defense to exposure, special antibodies deployed, affected organs, and the final resulting medical conditions caused by exposure. You will have an opportunity to organize what you have learned into a map on the next page.



Beryllium Exposure Hazards

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Beryllium Exposure Poses Health Hazards

Primary Means of Entry

Absorption

Inhalation

Ingestion

First Line of Defense

Expulsion or Ingestion

Excretion

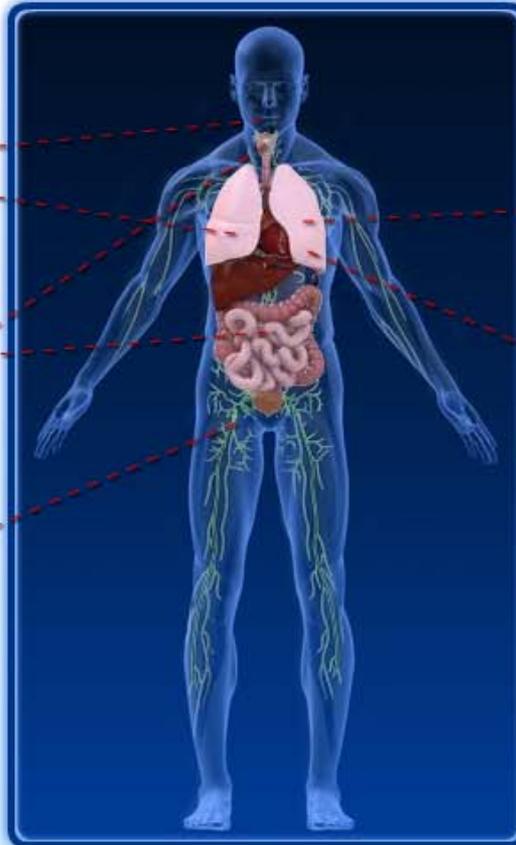
Perspiration (sweating)

Special Antibodies

Lymphocytes

Platelets

Plasma



Affected Organ

Eyes

Liver

Lungs

Final Condition

Arthritis

Scarring

Dehydration

Congratulations!
You have completed
this exercise.

Start Over

Beryllium Exposure Hazards

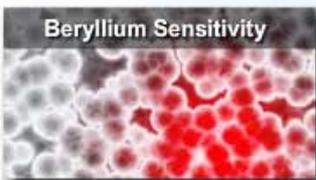
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Health Effects

The most serious health effects of beryllium occur when beryllium enters your body from breathing in airborne particles.

Long-term health effects can take years to develop after the first exposure to beryllium and can affect people who were exposed to very small amounts. Exposure to beryllium can affect your health in various ways. Not every individual who is exposed to beryllium will experience health effects.



Roll your mouse over each type to learn more about the possible health effects.



Beryllium Exposure Hazards

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Beryllium sensitivity is an allergic reaction where the immune system develops specialized white blood cells designed to attack beryllium.



Roll your mouse over each type to learn more about the possible health effects.



Beryllium Exposure Hazards

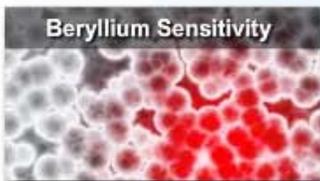
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Chronic Beryllium Disease is scarring of the lungs that occurs in individuals from the process of beryllium sensitization.

Roll your mouse over each type to learn more about the possible health effects.



Beryllium Exposure Hazards

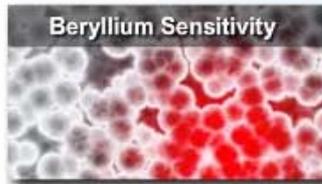
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Lung cancer is a disease of uncontrolled cell growth in tissues of the lung.

Roll your mouse over each type to learn more about the possible health effects.



Beryllium Exposure Hazards

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Taking Work Home?

If the controls used to minimize exposure to beryllium were to fail, co-workers and family members that come into contact with beryllium-containing dust and/or debris on personal clothing worn by beryllium workers at work may face the same potential health risks as beryllium workers.



Chronic Beryllium Disease Medical Conditions

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Physiology



Scarring in Skin

- Most of us have had a cut in our skin
- Sometimes the cut leaves a scar
- Scars are areas of fibrous tissue (fibrosis) that replace normal skin after injury
- Scars result from the biologic process of wound repair in the skin and other body tissues
- Scarring is a natural part of the healing process



Scarring in Lungs

- Exposure to beryllium in the lungs can result in scarring of the lungs
- A special type of scarring called granuloma is very typical of this disease
- These noncancerous growths look like scars or tumors present in another disease called sarcoidosis
- When scarring becomes severe, it can interfere with the normal operation of the lungs in various symptoms

Chronic Beryllium Disease Medical Conditions

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Symptoms

- Beryllium sensitization does not have any symptoms
- Chronic Beryllium Disease (CBD) may not have any symptoms at first, especially if the disease is diagnosed at an early stage

As Chronic Beryllium Disease develops, however, some people may experience:

- Shortness of breath with walking, climbing stairs, or other physical activities
- A dry cough that will not go away
- Fatigue, night sweats, chest and joint pain
- Loss of appetite

Sensitization - No symptoms



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Is It Chronic Beryllium Disease?

Sobering statistics (from Center for Disease Control and Prevention, CDC):

- 78% of us don't meet basic activity levels
- 8 out of 10 adults over age 25 are overweight
- About 46 million adults smoke

These factors can also result in similar symptoms to Chronic Beryllium Disease:

- Shortness of breath with walking, climbing stairs, or other physical activities
- A dry cough that will not go away

Remember, no one develops beryllium sensitization or Chronic Beryllium Disease (CBD) unless they are exposed to beryllium.

The only way you can find out is to have an [LPT blood test](#).



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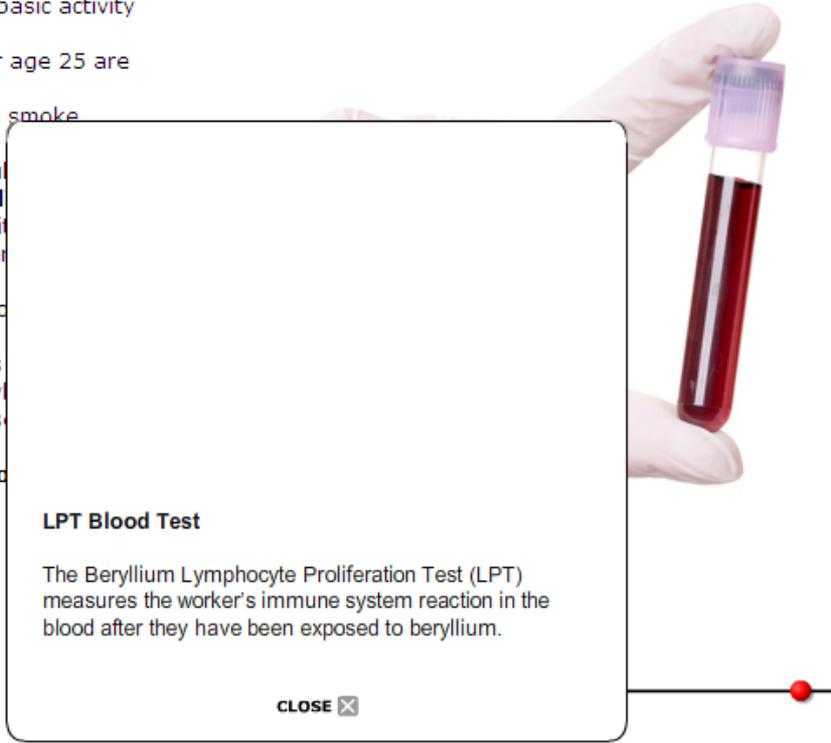
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The only way you can find out if you have beryllium sensitization is to take an [LPT blood test](#).



LPT Blood Test

The Beryllium Lymphocyte Proliferation Test (LPT) measures the worker's immune system reaction in the blood after they have been exposed to beryllium.

CLOSE X

Chronic Beryllium Disease Medical Conditions

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What should you do if you think you may have been exposed to beryllium?

Read the following scenario, then click Continue.



Zach has worked in several facilities in the past at Hanford that have later been designated as Beryllium Controlled Facilities.

He has noticed lately that he has been getting tired easily when he climbs the stairs to his work area or does much of any physical activity.

Zach is becoming increasingly concerned about his lack of energy.

[continue](#)

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What should Zach do?

Make a selection, and then click Check Answer.



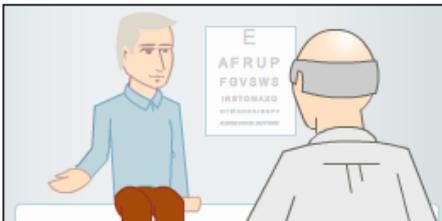
- Try to ignore the situation. It's probably either some bug going around or job stress (or both) that is draining his energy.
- Begin an intense personal workout regimen to get back into shape.
- Schedule an appointment for a beryllium blood screening test at AdvanceMed Hanford (AMH).
- Demand treatment for Chronic Beryllium Disease as soon as possible at AdvanceMed Hanford (AMH).

Chronic Beryllium Disease Medical Conditions

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What should Zach do?

Make a selection, and then click Check Answer.



Zach made the right choice by scheduling an appointment with AMH to receive a beryllium blood screening test. This is the only way to determine what effects, if any, are being caused by exposure to beryllium. By scheduling the appointment, he didn't lose any more time which could be valuable in treating the condition, regardless of the diagnosis.

OK

- Try to ignore the situation. It's probably either some bug going around or job stress (or both) that is draining his energy.
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Chronic Beryllium Disease Prevention Program Controls

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Hanford Site Chronic Beryllium Disease Prevention Program (CBDPP)

- Establishes an integrated program
- Implements controls necessary to minimize beryllium exposure to Hanford employees
- Implements requirements established in [Federal Regulations](#)

CBDPP applies to Hanford contractors who are responsible for:

- Facilities where beryllium activities may have previously been conducted
- Any current activities that involve actual or potential exposures to airborne beryllium

The CBDPP addresses:

- Purpose
- Scope
- Hazard assessments
- Medical surveillance
- Medical removal/benefits
- Training
- Counseling
- Postings

This section will touch on the various controls in place in order to protect employees from being exposed to beryllium. You may view the [entire CBDPP document](#) by clicking on the link shown here.



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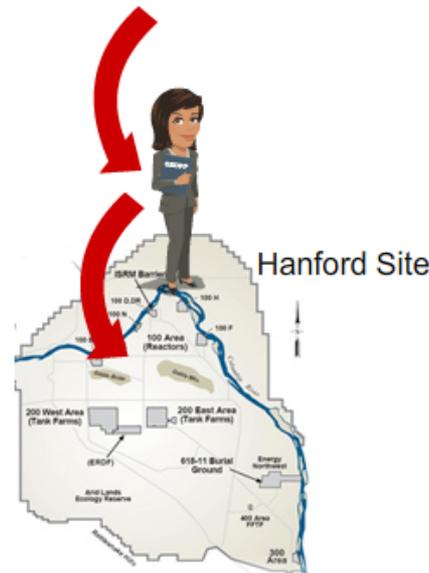
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Federal Regulations

10 Code of Federal Regulations 850 (CFR 850)

CLOSE

When finished reviewing this material, select Close Auxiliary **Window**

CLOSE Auxiliary Window

1 / 83 100% Find

DOE-0342
Revision 0

Hanford Site Chronic Beryllium Disease Prevention Program (CBDPP)

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

Done Unknown Zone (Mixed) 100%

Chronic Beryllium Disease Prevention Program Controls

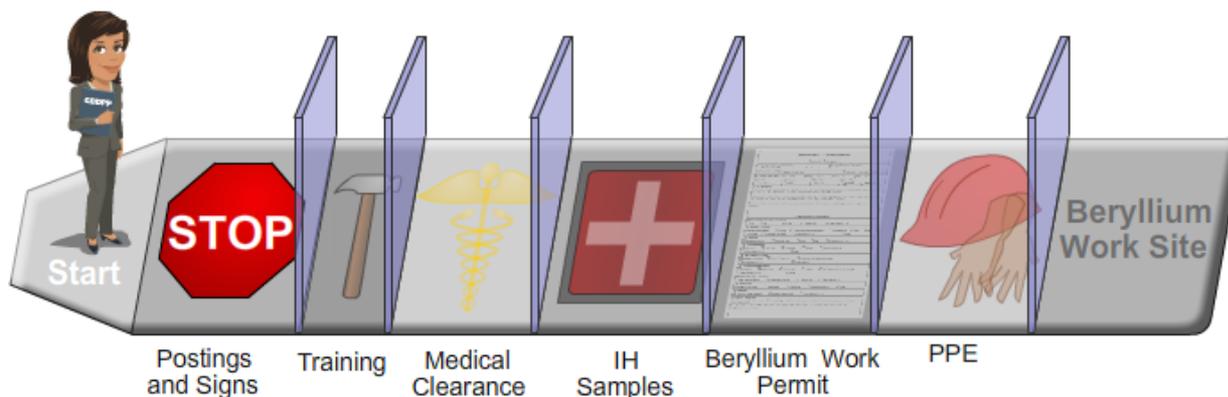
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Hanford Site Chronic Beryllium Disease Prevention Program (CBDPP)

The CBDPP is an integrated program in place at Hanford with the purpose of minimizing beryllium exposure. The program defines a number of processes and controls designed to protect you.

The higher the exposure potential, the more controls are in place.

Click the "Next Control" button below to learn more about each control.



Chronic Beryllium Disease Prevention Program Controls

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Hanford Site Chronic Beryllium Disease Prevention Program (CBDPP)

Postings and Signs

Postings and signs alert workers to the potential for beryllium and entry requirements. To protect your health, follow all signage.



A Caution sign indicates beryllium may be in the facility. Entry into this facility is allowed and individuals should be alert to any additional beryllium signs and postings.

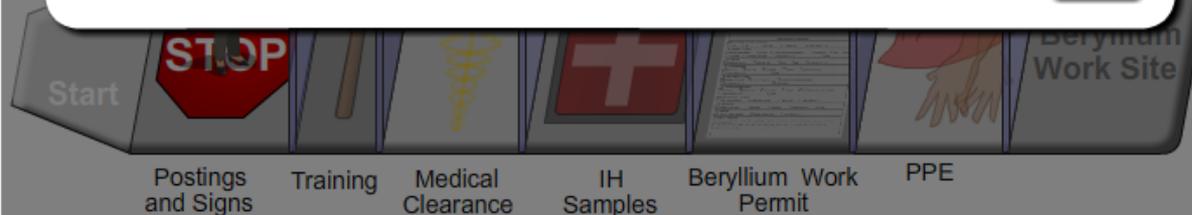


A Warning sign indicates a Beryllium Controlled Area (BCA). A Beryllium Work Permit is required for entry.



A Danger sign indicates internal contamination in a Beryllium Regulated Area (BRA). A Beryllium Work Permit is required for entry.

OK



Postings and Signs

Training

Medical Clearance

IH Samples

Beryllium Work Permit

PPE

Beryllium Work Site

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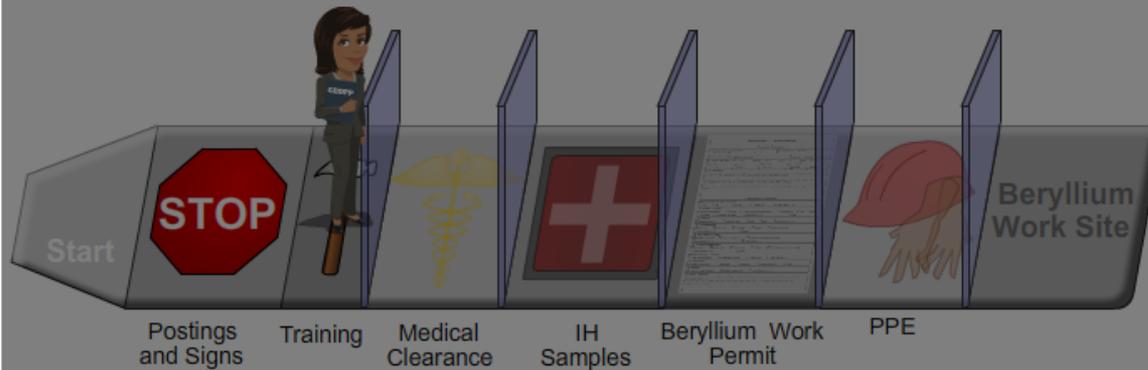
Hanford Site Chronic Beryllium Disease Prevention Program (CBDPP)

Training

Very specialized training is required before any beryllium activity may be performed.



OK



Chronic Beryllium Disease Prevention Program Controls

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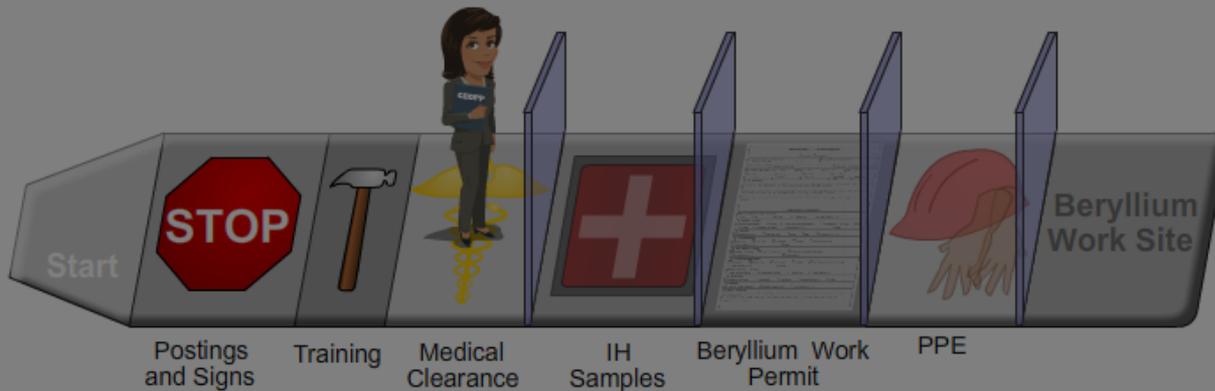
Hanford Site Chronic Beryllium Disease Prevention Program (CBDPP)

Medical Clearance

A medical clearance is needed before any beryllium activity may be performed in a Beryllium Controlled Area (BCA) or Beryllium Regulated Area (BRA).



OK



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Chronic Beryllium Disease Prevention Program Controls

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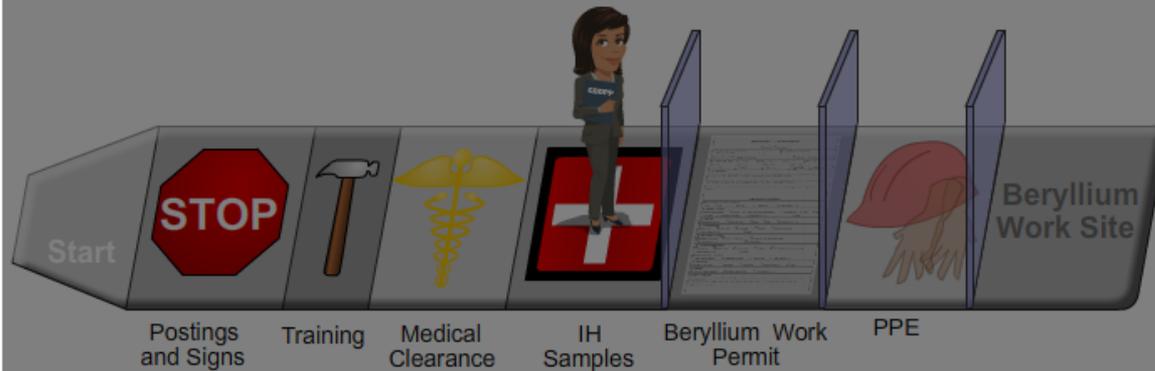
Hanford Site Chronic Beryllium Disease Prevention Program (CBDPP)

IH Samples

Industrial sampling (or characterization) was performed and beryllium found. Sample information is used to determine postings, hazard management, and work controls.



OK



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Chronic Beryllium Disease Prevention Program Controls

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Hanford Site Chronic Beryllium Disease Prevention Program (CBDPP)

Beryllium Work Permit

A Beryllium Work Permit is required for entry into a Beryllium Controlled Area. This permit describes the scope of work and specific instructions.

HANFORD BERYLLIUM WORK PERMIT			
Responsible Organization			
Rev. No.:	0	2) Work Document:	n/a
Author:		Phon:	
EW	Building: 234-52	Room: 221	
Editor:	7) End Date: 6/3/2011	8) Per:	
RC			

OK



Chronic Beryllium Disease Prevention Program Controls

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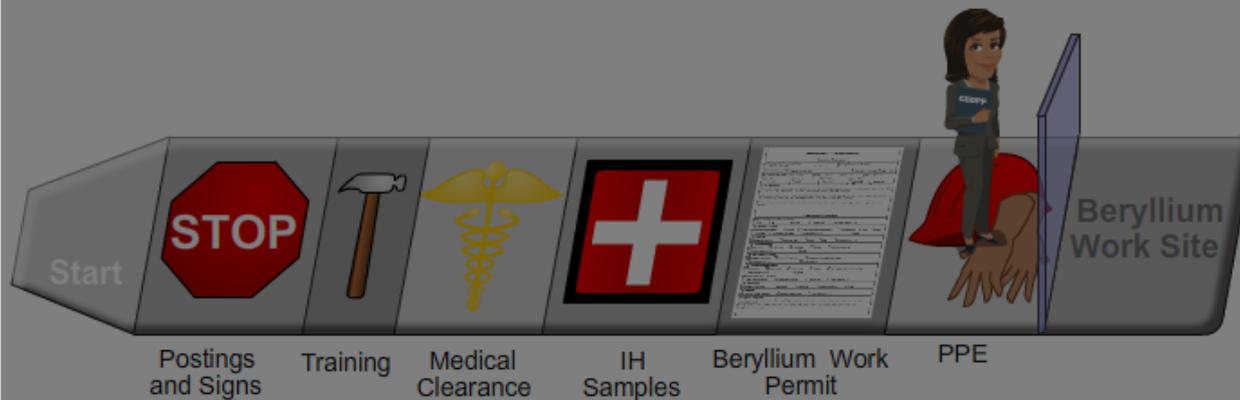
Hanford Site Chronic Beryllium Disease Prevention Program (CBDPP)

PPE

The required personal protective equipment, such as a respirator, gloves, etc. is specified in the Beryllium Work Permit.



OK



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Chronic Beryllium Disease Prevention Program Controls

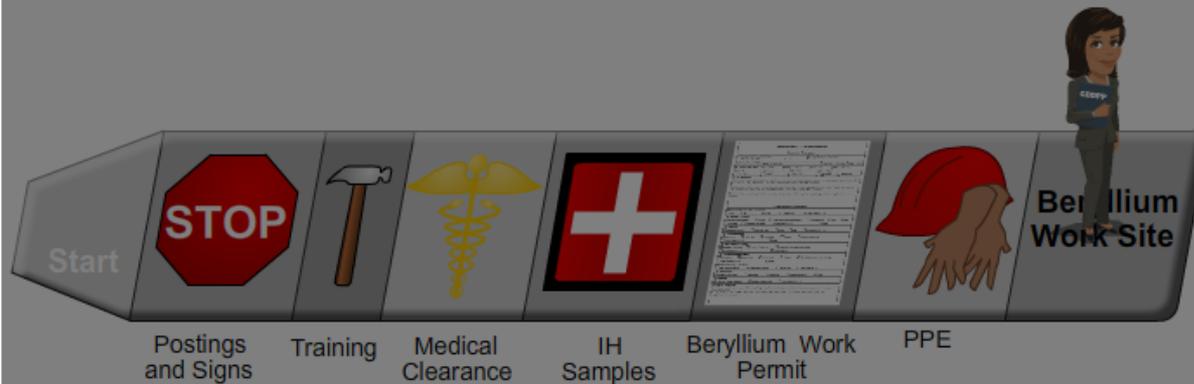
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Hanford Site Chronic Beryllium Disease Prevention Program (CBDPP)

Beryllium Work Site

All of these controls must be in place before any beryllium activity can be performed.

OK



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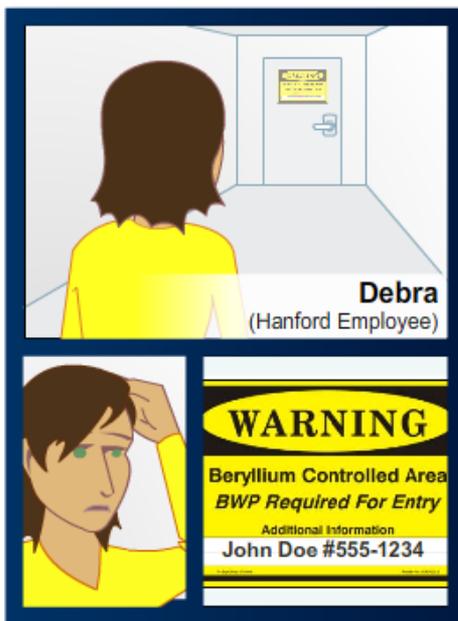
NEXT →

Chronic Beryllium Disease Prevention Program Controls

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What should Debra do in this situation?

Make a selection, and then click Check Answer.



- Call Hanford Patrol immediately at 373-0911 and inform them this building now has a Beryllium Warning Sign.
- Find a respirator just in case and quickly enter that location in the facility to retrieve the paperwork and equipment.
- Ask the next person she sees if they have beryllium training and could go retrieve the paperwork and materials for her.
- Contact/call the individual in the Additional Information Block on the sign or contact her manager.

Check Answer

Chronic Beryllium Disease Prevention Program Controls

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What should Debra do in this situation?

Make a selection, and then click Check Answer.



Debra protected herself by not entering the location in the facility, having a questioning attitude, and receiving answers to her questions that she could understand before proceeding.

OK

- Call Hanford Patrol immediately at 373-0911 and inform them this building now has a Beryllium Warning Sign.
- Find a respirator just in case and quickly enter that location in the facility to retrieve the paperwork and equipment.
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Beryllium Medical Monitoring Program

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Beryllium Medical Monitoring Program

- Includes a medical clearance to work with beryllium
- Provided by AdvanceMed Hanford (AMH)
- Includes blood screening test at no charge to Hanford workers



Beryllium Medical Monitoring Program

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Beryllium Medical Monitoring Program

[TABLE OF CONTENTS](#) [SUBMIT A COMMENT](#)

Beryllium Medical Monitoring Program

- Strictly voluntary and confidential
- However, if you are diagnosed with beryllium sensitization or Chronic Beryllium Disease, your employer will need to know in order to protect you from additional exposure

If you feel or believe you may have been exposed to beryllium from **any source**, (i.e., Hanford, another DOE site, or elsewhere), you are encouraged to be screened.



Beryllium Medical Monitoring Program

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Beryllium Medical Monitoring Program

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Available Resources

- For information about beryllium related to your specific job scope, contact your manager or supervisor
- [AMH Beryllium website](#) has a [Hanford Site Beryllium Questionnaire](#) (an aid in determining possible exposure)
- AMH [Beryllium Information Booklet](#) (details monitoring and provides benefits and risks of the testing procedures)
- AMH [Beryllium Hazards Informational Tri-Fold](#) (good general information about beryllium)

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AdvanceMed Hanford
Occupational Health Services

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Home > Occupational Health Services > Beryllium

Occupational Health Services

Beryllium

AMH's Beryllium Medical Monitor to provide professional service on the Hanford Site. AMH is the Beryllium Medical Monitor with 10 CFR 850. AMH also act Beryllium Registry Coordinator.

AMH is committed to health an education for Hanford workers the Beryllium Medical Monitor provide information to individual Medical Monitoring Program. T reviewed prior to your initial AI beryllium related materials and page.

Behavioral Health Services
Beryllium
Beryllium Registry
Emergency Preparedness
Employee Job Task Analysis (EJTA)
Epidemiology/Data Analysis
Human Reliability Program (HRP)
Industrial Rehabilitation & Ergonomics
Infection Control & Immunizations
Medical Exams
Occupational Health Interface Meetings
Return to Work
Risk Communication
Scheduling
Travel Medicine
Walk-in Medical Services
Worksite Visits

Privacy and Security Notice | Accessibility

USA.gov



When finished reviewing this material, select Close Auxiliary Window

CLOSE Auxiliary Window

The screenshot shows a web browser window displaying the AdvanceMed Hanford Occupational Health Services website. The page is titled "Occupational Health Services" and "Beryllium". The header includes the site logo, navigation menu, and search bar. The main content area features a sidebar with a list of services, a central text block about the Beryllium Medical Monitoring Program, and a large graphic titled "Beryllium Disease: Increasing Awareness/Protecting Worker Health". The right sidebar contains several links to related documents and programs. The browser's taskbar at the bottom shows the system tray with a clock, network status, and volume control.

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AdvanceMed Hanford
Occupational Health Services

U.S. DEPARTMENT OF **ENERGY**

| About AMH | Occupational Health Services | Training & Events | Health Education & Wellness | Newsletter & Updates | Resources & FAQs

Home > Occupational Health Services > Beryllium

Hanford.gov | Energy.gov

Occupational Health Services

Behavioral Health Services
Beryllium
Beryllium Registry
Emergency Preparedness
Employee Job Task Analysis (EJTA)
Epidemiology/Data Analysis
Human Reliability Program (HRP)
Industrial Rehabilitation & Ergonomics
Infection Control & Immunizations
Medical Exams
Occupational Health Interface Meetings
Return to Work
Risk Communication
Scheduling
Travel Medicine
Walk-In Medical Services
Worksite Visits
Influenza Immunization

Beryllium

AMH's Beryllium Medical Monitoring Program is designed to provide professional services in support of the workers on the Hanford Site. AMH is responsible for administering the Beryllium Medical Monitoring Program in accordance with 10 CFR 850. AMH also acts as the Hanford Site Beryllium Registry Coordinator.

AMH is committed to health and preventive care education for Hanford workers. On this page you'll find the Beryllium Medical Monitoring booklet designed to provide information to individuals enrolled in AMH's Medical Monitoring Program. This information should be reviewed prior to your initial AMH Beryllium Exam. Other beryllium related materials and links can be found on this page.

If you would like to participate in the beryllium surveillance program or if you would like information please contact the Beryllium Nurse Case Manager at (509) 376-6000

Email | Print | Text

[Voluntary Beryllium Program Poster](#)

[10 CFR 850 Final Beryllium Rule](#)

[Beryllium - Contractor Points of Contact \(pdf\)](#)

[Hanford Site Beryllium Questionnaire \(pdf\)](#)

[Beryllium Information Booklet \(pdf\)](#)

[Beryllium Hazards Tri-Fold \(pdf\)](#)

[Beryllium at Hanford Website](#)

[Former Worker Medical Screening Program \(FWP\)](#)

Beryllium Disease:

Increasing Awareness/Protecting Worker Health

The graphic features the chemical symbol "Be" and the number "4" in a box, representing Beryllium. Below this, there is a photograph of a person wearing a white lab coat and a mask, looking through a microscope. To the right of the person, there are various pieces of laboratory equipment, including a beaker and a flask.

Done Unknown Zone (Mixed) 100%

When finished reviewing this material, select Close Auxiliary Window

CLOSE Auxiliary Window

1 / 1 100% Find

HANFORD SITE BERYLLIUM QUESTIONNAIRE Beryllium Monitoring Program								
Name		HID #	H	Contractor				
Preferred Address			Work Phone #					
Job Title			Current Work Location <small>(area/bldg/room)</small>					
Current Date <small>(Mo/Year)</small>		Original Hanford Start Date <small>(Mo/Year)</small>						
Have you worked at any other DOE site?			<input type="checkbox"/> Yes (name of site) _____		<input type="checkbox"/> No			
Have you ever been screened for Beryllium?			<input type="checkbox"/> Yes <input type="checkbox"/> No					
Suspect Beryllium Facilities. Place a check (✓) next to any buildings you have worked.								
MSL-5	231-Z	272-W	305-B	311-TF	326	334-A	3706	3731-A
RTL-520	234-5Z	303-F	306	313	327	1154	3708	3745-B
100-DR	241-A	303-J	306-W	314	328	1706-KE	3712	3751-A
202-S	271-B	303-K	306-E	318	329	1713-F	3716	EDL
209-E	272-AW	303-M	308	324	331	2101-HV	3718	PSL
222-T	272-WA	304	309	325	333	2714-W	3720	2703-E
1234/36/ 50/52	272-S	6 TH ST Warehouse		2400 Stevens		2707 SX		
Other: Please list all other Area(s), building(s) and room(s) where beryllium work was conducted if not listed above:								

Done



Unknown Zone (Mixed)

100%

When finished reviewing this material, select Close Auxiliary Window

CLOSE Auxiliary Window

The image shows a presentation viewer window. The top toolbar includes icons for navigation (back, forward, search), a page indicator '1 / 27', a zoom level of '100%', and a 'Find' search box. The main content area displays the logo for AdvanceMed Hanford Occupational Health Services, which consists of a purple diamond shape containing a stylized white figure. Below the logo, the text 'AdvanceMed Hanford' is written in a large, black, serif font, and 'Occupational Health Services' is written in a smaller, purple, sans-serif font. The title 'Beryllium Information Booklet' is centered at the bottom in a bold, black, serif font. The bottom status bar shows 'Done', a network icon, 'Unknown Zone (Mixed)', and a zoom level of '100%'.

1 / 27 100% Find

 AdvanceMed Hanford
Occupational Health Services

Beryllium Information Booklet

Done Unknown Zone (Mixed) 100%

When finished reviewing this material, select Close Auxiliary Window

CLOSE Auxiliary Window

1 / 2 66.8% Find

CONTACTS FOR CURRENT AND FORMER WORKERS

- Energy Employees Occupational Illness Compensation Program Act (EEOICPA)
- Thousands of workers employed in the nation's atomic weapons programs during the Cold War may be suffering from illnesses caused by their work. Recognizing this, Congress passed the EEOICPA to provide compensation and medical benefits to those who qualify.
- Hanford workers or their survivors may be eligible for \$150,000 if the worker suffered a radiation-related cancer or Chronic Beryllium Disease.

For further information or to schedule consultation contact the local office:

- Phone: (509) 946-3333
- Fax: (509) 946-2009
- Toll Free: (888) 654-0014
- 303 Bradley Blvd., Suite 104, Richland, WA 99352
- <http://www.dol.gov/esa/owcp/energy/regs/compliance/ResourceMeetings/maps/resourcecenterHanford.htm>
- hanford.center@rrohio.com



CONTACTS FOR CURRENT HANFORD WORKERS

Beryllium Awareness Group (BAG)
Chairperson—509-539-7995

AdvanceMed Hanford (AMH)
Beryllium Case Manager—509-376-6000

WEBSITES OF INTEREST

AMH Beryllium Website
<http://www.hanford.gov/amh/page.cfm/beryllium>

Hanford Beryllium Website
<http://www.hanford.gov/page.cfm/Beryllium>

Beryllium (Rocky Flats Workers)
<http://www.beryllium.org>

National Jewish Medical Center
<http://www.nationaljewish.org>

DOE Beryllium Website
<http://www.hss.energy.gov/healthsafety/wshp/be/>

BUILDING TRADES NATIONAL MEDICAL SCREENING PROGRAM

Hanford Outreach Office
3021 W. Clearwater Ave., Suite 204,
Kennewick, WA 99336
Phone: 509-783-6830 - Fax: 509-783-6831
Attn: Sherry Gosseen—
Email: sgosseen@zenithadmin.com
www.btmed.org

BERYLLIUM
A Respiratory Hazard at the Hanford Site



AdvantageMed Hanford
Occupational Health Services

javascript:closeit(); Unknown Zone (Mixed) 100%

[Exit](#)

[Enter a comment](#)

Check Your Knowledge - Beryllium Associated Worker Training

Instructions

- Clicking the right arrow below will start the Knowledge Check questions.
- You must answer the questions as they are presented. Question security prevents a direct jump to any one question.
- If you exit the Knowledge Check before you answer all of the questions, you will have to start the Knowledge Check over. This is a consequence of the Question security process.
- Try each question.
- If you miss a question, the program will take you to a Review Page. It may be necessary to scroll down the review page to locate the information for the correct response. After closing that Review Page, you will get another chance to answer the question.
- You will get as many chances as you need to answer the questions correctly.
- You must answer each question correctly before you can proceed to the next question.
- When you are ready to begin, click on the right arrow below.



Questions are randomly selected from a bank designated by section. Specific questions have been earmarked for selection on each knowledge check



- [Exit](#)
- [Enter a comment](#)

Beryllium Associated Worker Training

Question 1 of 10

Beryllium is a:

Select the ONE best answer.

<input type="radio"/>	halogen
<input type="radio"/>	metal
<input type="radio"/>	noble gas
<input type="radio"/>	actinide

Submit Answer

Example Question. Note 10 questions will be asked.



End of Content