CHRONIC BERYLLIUM DISEASE (CBD) AND BERYLLIUM SENSITIVITY (BeS)
## SESSION BACKGROUND INFORMATION

<table>
<thead>
<tr>
<th>Session Title</th>
<th>Chronic Beryllium Disease and Beryllium Sensitivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructional Time</td>
<td>100 minutes</td>
</tr>
<tr>
<td>Session Description</td>
<td>This session focuses on beryllium, specifically chronic beryllium disease (CBD) and beryllium sensitivity (BeS). Definitions, eligibility criteria and medical diagnosis/medical documentation required to support the claim are addressed.</td>
</tr>
</tbody>
</table>
| Instructional Objectives|  • Explain the difference between beryllium sensitivity and chronic beryllium disease (CBD)  
  • Describe the eligibility requirements under Part B and Part E for CBD  
  • Explain the difference between pre-1993 and post-1993 statutory requirements for CBD  
  • Explain how to determine which statutory requirement applies to the claim  
  • Describe the CBD gold standard |
| Instructor Materials    | For this session, the following materials are required:  
  Beryllium PowerPoint Presentation  
  Case Study PowerPoint Presentation  
  Participant’s Guide |
| Trainee Handouts        | PM 2-1000                                           |
| Participant Guide       | CBD and BeS Session tab                             |
| Case Study             | After slide #22, conduct the case study activity.    |
#1

**Chronic Beryllium Disease**

**& Beryllium Sensitivity**

---

#2

**Acronyms and Terms**

- **CBD** Chronic Beryllium Disease
- **CAT** Computerized Axial Tomography
- **CT** Computed Tomography
- **BeS** Beryllium Sensitivity
- **DOE** Department of Energy
- **LPT** Lymphocyte Proliferation Test
- **LTT** Lymphocyte Transformation Test
CHRONIC BERYLLIUM DISEASE AND BERYLLIUM SENSITIVITY SESSION
INSTRUCTIONAL CONTENT, CONTINUED

#3

Beryllium is...

- A strong, lightweight metal used in manufacturing atomic weapons
- Also used in other industrial applications, ranging from battery contacts to jet engines
- The dangers of working with beryllium were initially unknown
- Later discovered that inhaling beryllium dust, particles or fumes could have serious health consequences

#4

Beryllium Doesn’t Make Everyone Sick

- Most people who are exposed to beryllium will not develop a medical problem
- Some people develop immunological responses to beryllium in their lungs, which is called beryllium sensitivity (BeS)
- Usually BeS does not produce symptoms, but a person sensitized to beryllium is at significant risk of developing chronic beryllium disease (CBD)
- A single exposure to beryllium dust, particles or fumes is enough to sensitize a person to beryllium
# Part B Eligibility Requirements for CBD Benefits

To establish eligibility for benefits, the evidence of record must establish:

- Covered employment and
- A diagnosis of CBD or BeS, that meets the statutory requirements of the EEOICPA

# Covered Employment

Employment at or physical presence at

- A DOE facility or a facility owned, operated, or occupied by a beryllium vendor because of employment by the United States, a beryllium vendor, or a contractor or subcontractor of a beryllium vendor
- During a period when beryllium dust, particles or vapor may have been present at such a facility
Covered Employment, continued

- If employment was outside of covered time frame, DEEOIC may ask the DOE to provide additional evidence that may support enlarging the covered time period.
- If employment at a non-covered facility, DEEOIC will deny the claim under Part B and Part E because the facility is not a covered facility.

Was Beryllium Present at the Facility?

The following resources provide information on whether beryllium was present at a facility:

2. Site Exposure Matrices (SEM)
CHRONIC BERYLLIUM DISEASE AND BERYLLIUM SENSITIVITY SESSION
INSTRUCTIONAL CONTENT, CONTINUED

#9
Part B Eligibility Requirement - Diagnosis

Written medical documentation showing a diagnosis of BeS or CBD that meets the EEOICPA statutory requirements for the diagnosis of those conditions.

#10
Requirements for a Beryllium Sensitivity Diagnosis

- Beryllium sensitivity is established with
  - One abnormal beryllium lymphocyte proliferation test (BeLPT) or
  - One abnormal beryllium lymphocyte transformation test (BeLTT).

- Only a physician can designate a BeLPT/BeLTT test result as abnormal.
How Does CBD Develop?
Exposed individuals develop an immune response to beryllium:

1. Inhalation of beryllium dust
2. Cells in the blood and lung proliferate (BeLPT)
3. Inflammatory response is initiated
4. Granulomas develop and eventually fibrosis

Specific Requirements for a CBD Diagnosis
Chronic beryllium disease has two separate criteria for meeting the statutory diagnosis requirements:

- Pre-1993 Criteria – before BeLPT/BeLTT
- Post-1993 Criteria – after BeLPT/BeLTT

Either criteria may be used for all claims.
#13

**Pre-1993 CBD Criteria**

The medical documentation must include at least three of the following:

- Characteristic chest radiographic (or computed tomography (CT)) abnormalities
- Restrictive or obstructive lung physiology testing or diffusing lung capacity defect
- Lung pathology consistent with chronic beryllium disease
- A clinical course consistent with a chronic respiratory disorder
- Immunologic tests showing beryllium sensitivity (skin patch test or beryllium blood test preferred)

#14

**Post-1993 CBD Criteria**

The medical documentation must include:

- An abnormal BeLPT/BeLTT and
- One or more of the following:
  1. Lung biopsy showing granuloma or a lymphocytic process consistent with CBD
  2. A computerized axial tomography (CAT) scan showing changes consistent with CBD
  3. Pulmonary function or exercise testing showing pulmonary deficits consistent with CBD
Granulomas and “Lymphocytic Process Consistent with CBD”

- **Granuloma**: Loose collection of epitheliod cells with ill-defined zone of lymphocytes
- **Lymphocytic Process Consistent with CBD**: Patients with CBD usually have bronchoalveolar lavage (BAL) lymphocytosis, which is a percentage of lymphocytes greater than 10%
- Both are significant because they help distinguish CBD from other pulmonary illnesses.
Sarcoidosis

- The hallmark of CBD is the presence of nonnecrotizing granulomas on lung biopsy. These CBD granulomas are histopathologically indistinguishable from sarcoid granulomas
- See PM 02-1000.10 regarding Sarcoidosis

**Training Handout**

*Be sure that a copy of PM 02-1000 is distributed at this time. The DEEOIC policy regarding Sarcoidosis set forth in PM 02-1000.10 was originally issued in EEOICPA Circular 08-07 on September 4, 2008.*
“Gold Standard” Exception

- A lung tissue biopsy is considered the “gold standard” for a CBD diagnosis
- Claims containing a normal or borderline BeLPT/BeLTT should not be denied without further development if a lung tissue biopsy confirms the presence of granulomas consistent with CBD
- CE should contact the employee’s treating physician and obtain any other information that may resolve the discrepancy.

For example, a history of steroid use may cause a false negative BeLPT/BeLTT. If the employee is deceased, and exhaustive efforts produce little or no results to resolve the discrepancy, and the claim contains the normal/borderline LPT results along with a biopsy of the lung showing the presence of granulomas, the CE may accept the claim.
CHRONIC BERYLLIUM DISEASE AND BERYLLIUM SENSITIVITY SESSION
INSTRUCTIONAL CONTENT, CONTINUED

#18

Criteria for Part E

Part E only requires:

1) A diagnosis of CBD by a qualified physician;
2) Exposure to beryllium during at least one day of covered employment, and;
3) Sufficient evidence to establish “it is at least as likely as not” that exposure to beryllium during covered employment was a “significant factor in aggravating, contributing to, or causing the illness.”

#19

Approving CBD under Part E

- It’s possible to approve a CBD claim under Part E even if CBD cannot be approved under Part B.
- The Part B statutory requirements need not be present.
- However, the CE should exhaust all avenues to obtain the statutory medical evidence needed for a Part B acceptance before denying CBD under Part B and accepting CBD under Part E.
CHRONIC BERYLLIUM DISEASE AND BERYLLIUM SENSITIVITY SESSION
INSTRUCTIONAL CONTENT, CONTINUED

#20
Beryllium Vendors and Beryllium Vendor Facilities
- Atomics International
- Brush Wellman, Incorporated, and its predecessor, Brush Beryllium Company
- General Atomics
- General Electric Company
- NGK Metals Corporation and its predecessors, Kawecki-Berylco, Cabot Corporation, BerylCo, and Beryllium Corporation of America

#21
Beryllium Vendors and Beryllium Vendor Facilities, continued
- Nuclear Materials and Equipment Corporation.
- StartMet Corporation and its predecessor, Nuclear Materials, Inc.
- Wyman Gordon, Inc.
- Any other vendor, processor, or producer of beryllium or related products designated as a beryllium vendor for purposes of the EEOICPA
**Case Study Activity**

The trainees are to review the materials and determine the following:

- Is CBD being developed under Part B and Part E or just under one? If so, which one?
- Is there evidence to support the requisite covered employment? If not, what additional information is required?
- Which statutory requirement applies – pre or post 1993?
- Is there sufficient medical evidence to support CBD?

After allowing sufficient time, review the case study outcomes eliciting information from the trainees.

**Case Study 1**

- Survivor Claim - Review the following evidence to determine what additional evidence is needed to fully adjudicate the CBD claim, if any.
Claim for Survivor Benefits Under the Energy Employees Occupational Illness Compensation Program Act

**Deceased Employee Information**

1. Name (last, first, middle initial): [ ]
2. Sex: [ ] Male [ ] Female
3. Social Security Number: [ ]

4. Date of Birth: [ ] Month [ ] Day [ ] Year
5. Date of Death: [ ] Month [ ] Day [ ] Year
6. Was an autopsy performed on the employee? [ ] Yes [ ] No [ ] Don't Know

**Survivor Information**

7. Name (last, first, middle initial): [ ]
8. Sex: [ ] Male [ ] Female
9. Social Security Number: [ ]

10. Date of Birth: [ ] Month [ ] Day [ ] Year
11. Your relationship to the deceased employee: [ ] Spouse [ ] Child [ ] Step Child [ ] Parent [ ] Grandparent [ ] Grandchild [ ] Other

12. Address (line 1, line 2, P.O. Box): [ ]
13. Telephone Numbers:
   - a. Home: [ ] [ ]
   - b. Other: [ ] [ ]

14. Identify the Diagnosed Condition(s) Being Claimed as Work-Related (check box and list specific diagnosis):
   - [ ] Cancer
   - [ ] Beryllium Sensitivity
   - [ ] Chronic Beryllium Disease (CBD)
   - [ ] Chronic Silicosis
   - Other Work-Related Condition(s) due to exposure to toxic substances or radiation (list specific diagnosis below):
     - a. Chronic Obstructive Pulmonary Disease
     - b. Other:

15. Date of Diagnosis: [ ] Month [ ] Day [ ] Year

**Awards and Other Information**

16. Did the employee work at a location designated as a Special Exposure Cohort (SEC)? [ ] Yes [ ] No
17. Have you or the deceased employee filed a lawsuit seeking either money or medical coverage for the claimed condition(s)? [ ] Yes [ ] No
18. Have you or the deceased employee filed any workers’ compensation claims in connection with the claimed condition(s)? [ ] Yes [ ] No
19. Have you, the deceased employee, or another person received a settlement or other award in connection with the above claimed condition(s)? [ ] Yes [ ] No
20. Have you or the deceased employee pled guilty or been convicted of any charges connected with an application for or receipt of federal or state workers’ compensation? [ ] Yes [ ] No
21. Have you or the employee applied for an award under Section 5 of the Radiation Exposure Compensation Act (RECA)? [ ] Yes [ ] No
   - If Yes, provide RECA Claim #: [ ]
22. Have you or the employee applied for an award under Section 4 of the Radiation Exposure Compensation Act? [ ] Yes [ ] No

Next Page
**Employment History for a Claim Under the Energy Employees Occupational Illness Compensation Program Act**

**Note:** Please provide as much information as possible. Do not write in the shaded areas.

| Employee’s Information (Print clearly) | | | |
|---|---|---|
| 1. Employee’s Name (Last, First, Middle Initial) | 2. Former Name (e.g., Maiden, Legal Change) | 3. Social Security Number (If Known) |

<table>
<thead>
<tr>
<th>Contact Information for Person Completing this Form (Print clearly)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Name (Last, First, Middle Initial)</td>
<td>5. Claim Type (check one)</td>
</tr>
<tr>
<td></td>
<td>Employee</td>
</tr>
<tr>
<td>6. Address (Street, apt. #, P.O. Box)</td>
<td>7. Telephone Number(s)</td>
</tr>
<tr>
<td>(City, State, ZIP Code)</td>
<td>a. Home:</td>
</tr>
<tr>
<td></td>
<td>b. Other:</td>
</tr>
</tbody>
</table>

**Employee’s Work History (Provide as much information as known - if necessary attach a separate sheet)**

In chronological order, starting with the most recent period of employment, provide the complete work history of the employee named above. Provide as much identifying information as known concerning the name of the employer and location (city & state) where the employee performed the work. If you require additional space to explain or clarify a point, attach a signed supplemental statement to this form.

| Employer - 1 | Start Date: | 02 | 08 | 1955 | End Date: | 10 | 01 | 1960 |
|---|---|---|---|---|---|---|---|
| Facility Name (spell out name) | Kewanee City Print |
| Contractor/sub-contractor or Vendor name(s) | Allied Beryllium Aerospace/ Beryllux Division |
| Position Title or Mine/ Mill Activity | Steelworkers Safety Corp |
| Work Identification Number | |
| Description of Work Duties (Describe in detail) | Boxed glove and shoes - collected and sold directly to the departments. Most of his job duties were "classified". This is all I know. |
| | |
| Describe or list the work conditions/ exposures you believe caused or contributed to the claimed work illness(es) at this facility | Laundry could have been contaminated. To my knowledge, he was not issued or required for ear/space clothing while performing his assigned duties. |

Indicate whether the employee participated in any employee health programs or unions at this facility (check all that apply)

| | | | | |
|---|---|---|---|---|---|
| Former or Worker Program (PWP) | Radiation Exposure Screening and Education Program (REESEP) | Other Medical Study |
| Other Medical Surveillance Program | Union Member | Other (specify): |
Doctor’s Report

March 4, 2003

Re: [Redacted]

DOB: [Redacted]

To Whom It May Concern:

The aforementioned individual was under my care until his death in 1990. I began taking care of Mr. [Redacted] in 1985 and at that time, he was noted to have significant chronic obstructive pulmonary disease. The patient had x-ray findings of which a report is included in his previous records, consistent with COPD along with consistently reduced Wright peak flow readings to 1/2 - 1/3rd of the expected for a man his age and size. These are also documented in his previous records. The patient had a significant disability related to his COPD and ultimately died from complications thereof. The patient’s overall course is indeed consistent with chronic Beryllium disease.

For more information, please refer to attached medical records.

Sincerely,

[Redacted]

Enclosures
## Death Certificate

**Missouri Department of Health Certificate of Death**

**File #: 116-2008**

<table>
<thead>
<tr>
<th>Field</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Decedent</td>
<td>Brown, John Doe</td>
</tr>
<tr>
<td>Date of Death</td>
<td>April 4, 1990</td>
</tr>
<tr>
<td>Date of Birth</td>
<td>January 1, 1920</td>
</tr>
<tr>
<td>Place of Birth</td>
<td>Springfield, MO</td>
</tr>
<tr>
<td>Sex</td>
<td>Male</td>
</tr>
<tr>
<td>Social Security No.</td>
<td>000-00-0000</td>
</tr>
<tr>
<td>City of Birth</td>
<td>Springfield, MO</td>
</tr>
<tr>
<td>County of Birth</td>
<td>Greene</td>
</tr>
<tr>
<td>State of Birth</td>
<td>Missouri</td>
</tr>
<tr>
<td>Country of Birth</td>
<td>USA</td>
</tr>
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<td>Place of Death</td>
<td>Springfield, MO</td>
</tr>
<tr>
<td>City of Death</td>
<td>Springfield, MO</td>
</tr>
<tr>
<td>County of Death</td>
<td>Greene</td>
</tr>
<tr>
<td>State of Death</td>
<td>Missouri</td>
</tr>
<tr>
<td>Country of Death</td>
<td>USA</td>
</tr>
<tr>
<td>Place of Burial</td>
<td>Springfield Cemetery</td>
</tr>
<tr>
<td>City of Burial</td>
<td>Springfield, MO</td>
</tr>
<tr>
<td>County of Burial</td>
<td>Greene</td>
</tr>
<tr>
<td>State of Burial</td>
<td>Missouri</td>
</tr>
<tr>
<td>Country of Burial</td>
<td>USA</td>
</tr>
<tr>
<td>Cause of Death</td>
<td>Pneumonia</td>
</tr>
<tr>
<td>Description of Injury</td>
<td>Acute respiratory failure due to pneumonia</td>
</tr>
<tr>
<td>Date of Injury</td>
<td>April 4, 1990</td>
</tr>
<tr>
<td>Date of Death</td>
<td>April 4, 1990</td>
</tr>
<tr>
<td>Time of Death</td>
<td>12:00 PM</td>
</tr>
<tr>
<td>Time of Injury</td>
<td>12:00 PM</td>
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<td>Place of Injury</td>
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<td>Springfield, MO</td>
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<tr>
<td>Location of Death</td>
<td>Springfield, MO</td>
</tr>
<tr>
<td>Place of Burial</td>
<td>Springfield Cemetery</td>
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<tr>
<td>Location of Burial</td>
<td>Springfield, MO</td>
</tr>
<tr>
<td>Date of Burial</td>
<td>April 5, 1990</td>
</tr>
<tr>
<td>Time of Burial</td>
<td>10:00 AM</td>
</tr>
</tbody>
</table>

**Registrar**

John Smith

April 5, 1990

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**Notes:**

- The death certificate is filled out by the registrar, who confirms the cause of death and the circumstances surrounding the death.
- The certificate includes the date, place, and time of death, as well as the cause of death and burial information.

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**Source:** Missouri Department of Health

**License:** 1234567890

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**Additional Information:**

- The certificate contains additional details such as the place of birth, residence, and occupation of the decedent.
- It also includes the signature of the registrar and the signature of the certifying physician.

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**Legal Considerations:**

- The certificate is subject to legal and regulatory requirements regarding the collection and use of personal information.
- It is important to ensure that all information is accurate and complete to avoid legal and ethical issues.
DOE Facility List printout

Energy Employees Occupational Illness Compensation Program

Home | Health and Safety

Facility List

There was one record found for the facility: Kansas City Plant.

1 - Kansas City Plant

State: Missouri  Location: Kansas City
Time Period: 1949-present
Facility Type: Department of Energy

Facility Description: The Kansas City Plant was constructed in 1942 to build aircraft engines for the Navy. After World War II, it was used for storage. In 1949, the AEC asked the Bendix Corporation to take over part of the facility and it began manufacturing nonnuclear components for nuclear weapons. Electrical, electromechanical, mechanical, and plastic components are manufactured or procured by this facility.

In 1993, the Department of Energy officially designated the Kansas City Plant as the consolidated site for all nonnuclear components for nuclear weapons.

As of 1996, production activities at the site were still occurring and expected to continue indefinitely.

Throughout the course of its operations, the potential for beryllium exposure existed at this site, due to beryllium use, residual contamination, and decontamination activities.

CONTRACTORS: Honeywell FM&T (1999-present); Allied- Signal Aerospace (formerly Bendix) (1949-1999)
Assumptions - Case Study 1

Assume the following:

- **Employment** - The Department of Energy confirmed the employee worked for Allied-Signal Aerospace (formerly Bendix) at the Kansas City Plant from February 8, 1955 through October 1, 1986
- **Survivorship** - The evidence of record establishes the claimant is the employee’s surviving spouse and only eligible beneficiary
- **Medical** - The claimant and the employee’s doctor tell you the employee’s medical records were destroyed about 10 years after his death and that no additional medical records can be produced.

Questions - Case Study 1

1) What evidence do we have that the employee was exposed to beryllium?

2) Is the case in posture for a recommended decision under Part B? If so, what would your recommendation be?

3) Is the case in posture for a recommended decision under Part E? If so, what would your recommendation be?

Distribute the **CBD Case Study Answer Sheet to the trainees upon completion of the case study activity.**
Answers – Case Study 1

1) What evidence do we have that the employee was exposed to beryllium?

   The DOE facility database shows the potential for beryllium exposure existed at the Kansas City Plant throughout the course of its operations.

2) Is the case in posture for a recommended decision under Part B? If so, what would your recommendation be?

   No, there is insufficient medical evidence to meet either the Pre-1993 or Post-1993 statutory requirements for CBD.

3) Is the case in posture for a recommended decision under Part E? If so, what would your recommendation be?

   Yes, accept the case under Part E because the employee was exposed to beryllium during covered employment, he was diagnosed with CBD by a physician, and it can be concluded CBD aggravated the employee’s death because his death certificate indicates COPD was the cause of his death.

Case Study 2

Employee Claim - Review the following evidence to determine what additional evidence is needed to fully adjudicate the CBD claim, if any.
Claim for Benefits Under the Energy Employees
Occupational Illness Compensation Program Act

U.S. Department of Labor
Employee Benefits Administration
Office of Workers' Compensation Programs

Note: Complete all information requested below. Do not write in the shaded areas.

Employee Information

1. Name (First, Last, Middle Initial)

2. Social Security Number

3. Date of Birth

4. Sex

5. Dependents

   1. Spouse / Child / Other

   2. Other

6. Address (City, State, Zip)

7. Telephone Number(s)

   1. Home

   2. Work

8. Identify the Diagnosed Condition(s) Being Claimed as Work-Related (check all that apply and specify dose)

   □ Cancer (list specific diagnosis below)

   □ Chronic Beryllium Disease (CBD)

   □ Chronic Silicosis

   □ Other Work-Related Condition(s) due to exposure to toxic substances or radiation (list specific diagnosis below)

9. Date of Diagnosis

   Month

   Day

   Year

Awards and Other Information

10. Did you work at a location designated as a Special Exposure Cohort (SEC)?

    □ YES  □ NO

11. Have you filed a lawsuit seeking either money or medical coverage for the above claimed condition(s)?

    □ YES  □ NO

12. Have you or any other person made a workers' compensation claim in connection with the above claimed condition(s)?

    □ YES  □ NO

13. Have you or any other person received a settlement or other award in connection with a lawsuit or workers' compensation claim?

    □ YES  □ NO

14. Have you or any other person been convicted of any charges related to the above claimed condition(s)?

    □ YES  □ NO

15. Have you applied for an award under Section 5 of the Radiation Exposure Compensation Act (RECA)?

    □ YES  □ NO

Employee Declaration

I, the undersigned, hereby declare that the information contained in this claim is true and correct to the best of my knowledge, belief, and belief.

Employee Signature

Date

Resources Center Data Stamp:

Form 18-1
April 2000
# EE 3

## Employment History for a Claim Under the Energy Employees Occupational Illness Compensation Program Act

**Employee's Information** (Print clearly)

1. Employee's Name (Last, First, Middle Initial)
2. Former Name (e.g., Maiden, Legal Change)
3. Social Security Number

**Contact Information for Person Completing this Form** (Print clearly)

4. Name (Last, First, Middle Initial)
5. Claim Type (check one)
   - Employee
   - Survivor

6. Address (Street, Apt., #, P.O. Box)
7. Telephone Number(s)
   - Home
   - Other

**Employee's Work History** (Provide as much information as known - if necessary, attach a separate sheet)

In chronological order, starting with the most recent period of employment, provide the complete work history of the employee named above. Provide as much identifying information as known concerning the name of the employer and location (city & state) where the employee performed the work. If you require additional space to explain or clarify a point, attach a signed supplementary statement to this form.

**Employer 1**

<table>
<thead>
<tr>
<th>Facility Name (spell out name)</th>
<th>Specific Location (building/department)</th>
<th>City/State where worked performed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rocky Flats Plant</td>
<td>Building 001, Research and Development</td>
<td>Golden, Colorado</td>
</tr>
</tbody>
</table>

**Contractor/Sub-contractor or Vendor name(s)**

- [ ] Department of Energy Facility
- [ ] Acme Weapons Facility
- [ ] Beryllium Vendor
- [ ] Unknown
- Transportation

**Position Title or Mine/Mill Activity**

- [ ] Research Engineer
- [ ] Other

**Work Identification Number**

- [ ] Yes
- [ ] No
- [ ] Unknown

**Description of Work Duties (Describe in detail)**

- Beryllium Weapon parts (GMG machining parts of beryllium)

**Describe or list the work conditions/exposures you believe caused or contributed to the claimed work illness(es) at this facility**

**Indicate whether the employee participated in any employer health programs or unions at this facility** (check if applicable)

- [ ] Former Worker Program (FPP)
- [ ] Radiation Exposure Screening and Education Program (RESERP)
- [ ] Other Medical Surveillance Program
- [ ] Union Member
- [ ] Other (specify):

*Form EEO-3*

*April 2, 1996*
### Employer 2

<table>
<thead>
<tr>
<th>Employer Name (spell out name)</th>
<th>Facility Name</th>
<th>Specific Location (building/site/miner/ mill)</th>
<th>City/State where worked performed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rocky Flats Plant</td>
<td>Building 776, Rev. &amp; Dev.</td>
<td>Golden, Colorado</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contractor/Sub-contractor or Vendor name(s)</th>
<th>Type of Facility/Employer (check one)</th>
<th>Description of Work Duties (Describe in detail)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dow Chemical</td>
<td>Atomic Weapons Facility</td>
<td>Weapon Parts of Beryllium - cut samples</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Employer 3</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Employer Name (spell out name)</th>
<th>Facility Name</th>
<th>Specific Location (building/site/miner/ mill)</th>
<th>City/State where worked performed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rocky Flats Plant</td>
<td>Building 777 and 771</td>
<td>Golden, Colorado</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contractor/Sub-contractor or Vendor name(s)</th>
<th>Type of Facility/Employer (check one)</th>
<th>Description of Work Duties (Describe in detail)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dow Chemical</td>
<td>Atomic Weapons Facility</td>
<td>Weapon parts were ground and polished; leaking (out of beryllium)</td>
</tr>
</tbody>
</table>

### Declaration of the Person Completing This Form

Any person who knowingly makes any false statement, representation, or omission of fact, or any willful act to obtain compensation as provided under BCRTPA or who knowingly accepts compensation to which he is not entitled is subject to civil or administrative remedies as well as felony criminal prosecution and may, under appropriate criminal provisions, be punished by a fine or imprisonment or both. I affirm that the information provided on this form is accurate and true. I also authorize the Department of Justice, Social Security Administration, any Former Worker Program, unions, medical study or medical surveillance program (or any other person, institution, corporation, or government agency) identified on this form to furnish any desired information to the U.S. Department of Labor, Office of Workers' Compensation Programs.

(Signature) 06/23/2007

Resource Center Date Stamp

Form EE-3
April 2005
DATE(S) OF SERVICE: July 11, 2007

ATTENDING PHYSICIAN: Lisa Maier, M.D.

CHIEF COMPLAINT:
Post bronchoscopy followup.

INTERIM HISTORY:
Mr. is an 83-year-old gentleman, with beryllium sensitization, here for followup after his bronchoscopy, performed on 05/30/2007. Mr. reports that he had some wheezing after his bronchoscopy. He saw his primary care physician, and at the time of his visit he was not wheezing. He was not given any medication for treatment. Mr. wife reports that he has had swelling in his feet. Of note, Mr. has a history of an abnormal bronchoalveolar lavage beryllium lymphocyte proliferation test in the past.

REVIEW OF SYSTEMS:
Constitutional: He denies fever or chills, no sweats. Allergy/Immunology: Mr. reports no rhinitis or sore throat. Ears/Nose/Mouth/Throat: He complains of some hoarseness, no postnasal drip. Respiratory: No significant change compared to his previous visit. Cardiovascular: Mr. reports worsened edema. Other: With regards to sleep, he has restless sleep. No snoring.

PAST MEDICAL HISTORY (UPDATE):
Mr. wife reports that he has an appointment with his cardiologist in 1 month.
CURRENT MEDICATIONS:
Current medications were reviewed. No changes compared with the 05/30/2007 visit.

PHYSICAL EXAMINATION:
Vital signs: Reviewed. See chart. General appearance: A well-developed, well-nourished, well-groomed gentleman in no acute distress. Neurological/Psychological: Mr. has a normal mood and affect.

NATIONAL JEWISH MEDICAL AND RESEARCH CENTER TEST DATA:
Spirometry: Mr. "spirometry is significant for restriction, with an FVC of 2.55 L or 66.2% of predicted, FEV1 is 2.21 L or 81.7% of predicted, and the FEV1/FVC ratio is 87%.

Bronchoscopy with transbronchial biopsies and bronchoalveolar lavage.
The bronchoalveolar lavage revealed a good recovery of 65.8%, absolute white blood cells were high at 39.5 (normal equals 29.4 to 35.2), macrophages were 83%, and lymphocytes were high at 16%. This indicates a lymphocytosis, consistent with chronic beryllium disease. This is increased, compared with 02/2006, when Mr. lymphocyte count was 3%. This likely indicates progression to chronic beryllium disease. Mr. bronchoalveolar lavage beryllium lymphocyte proliferation test was not performed secondary to a laboratory error. However, it was abnormal in 02/2006. The abnormal bronchoalveolar lavage beryllium lymphocyte proliferation test, in combination with a lymphocytosis at this time, is consistent with chronic beryllium disease. Pathology report from the transbronchial biopsies indicated patchy mild lymphoplasmacytic inflammation within the submucosa, and no granulomas. The APB and gram stains were negative for mycobacteria and fungi.

IMPRESSSION:
1. Mr. is an 83-year-old gentleman, with beryllium sensitization, who at this time, has progressed to chronic beryllium disease, given his previously abnormal bronchoalveolar lavage beryllium lymphocyte proliferation test and his lymphocytosis seen on bronchoscopy at this time. This indicates a lymphocytic inflammation consistent with chronic beryllium disease (CBD). Mr. also has abnormal pulmonary function testing, satisfying Department of Labor (DOL) Energy Employees Occupational Illness Compensation Program (EOICP) criteria for CBD.
2. Possible aortic stenosis.
3. Hoarseness, question aspiration versus postnasal drip.
4. Diabetes, for which Mr. should continue to follow up with his primary care physician.
Report from National Jewish  Page 3

PLAN/TREATMENT:
1. I counseled Mr. and his wife on his progression from beryllium sensitization to chronic beryllium disease. I advised Mr. to contact the Department of Labor claims examiner that he is assigned to, to notify them of the change. He will also forward them information regarding his bronchoscopy and this clinic visit, so that they can change his diagnosis in their system and compensate him accordingly.
2. Mr. should consider starting Flovent 110 mcg metered dose inhaler at two puffs twice daily, and albuterol 2 puffs as needed up to four times daily for his chronic beryllium disease. He should use the albuterol if he is experiencing any shortness of breath or cough.
3. Mr. should follow up with his cardiologist regarding possible aortic stenosis and any further treatment necessary.
4. Mr. should follow up with his primary care physician regarding his hoarseness. He should be evaluated, and his primary care physician may want to consider ordering a swallow study.
5. We will avoid steroid treatment for chronic beryllium disease, given his history of diabetes.
6. Mr. should follow up with us in 1 year. At that time, we will repeat pulmonary function testing, exercise tolerance testing, chest x-ray, and laboratories. He should follow up with us sooner if there is any significant change in his respiratory symptoms.

Enclosures: The bronchoscopy results, including pathology report, BAL cell count and differential, and BAL LFT.
## Pulmonary Function Test

![Pulmonary Function Test](image)

### Data Details

- **Performed Date/Time:** 05/29/2007 3:15 PM
- **Ordered By:** BODY PLETHYSMOGRAPHY
- **Physiology Unit:** Pulmonary Physiology Unit
- **Height:** 177 cm
- **Weight:** 100 kg
- **Patient:** OCC MED PATIENT
- **Date:** 05/29/2007
- **Time:** 04:45:11 PM

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<td>2.78</td>
<td>72</td>
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### Forced Expiration

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<td>87</td>
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<td>PEF50 / FEF50 (%)</td>
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<td>6.09</td>
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### Additional Studies

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<th>%Pred</th>
<th>% Change</th>
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<tr>
<td>Raw (cmH2O s/l)</td>
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<td>1.94</td>
<td>115</td>
<td>1.74</td>
<td>103</td>
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<td>sGaw (1/cmH2O s)</td>
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<td>0.186</td>
<td>121</td>
<td>0.221</td>
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<td>DLCOc SB (ml/min/mmHg)</td>
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<td>DLCO/VA (ml/min/mmHg/l)</td>
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<td>DLCOc/VA (ml/min/mmHg/l)</td>
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<td>3.86</td>
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<td>PI max Average</td>
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<td>PE max Average</td>
<td>111</td>
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### Weight (kg)

- **TLC:** 6.23
- **FRC-Pleth:** 3.85
- **A:** 6.23
- **A - B:** 6.23
- **K (1/cmH2O):** 0.162
- **P max 100% TLC (cmH2O):** 31.7
- **COEF Retraction (cmH2O/l):** 5.09
- **Compliance at 1/cmH2O:** 5.09
- **R upstream (cmH2O/l/s):**

---

Instructor Guide  Page 29
### BronchoAlveolar Lavage (BAL) Page 1

<table>
<thead>
<tr>
<th>Performed Date/Time: 05/30/2007 1:45 PM Ordered By: BAL CELL COUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAL CELL COUNT : Resulted</td>
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<tr>
<td>Resulted Components:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% RECOVERY</th>
<th>(61.1 - 62.9) %</th>
<th>65.8H</th>
</tr>
</thead>
<tbody>
<tr>
<td>RECOVERY ML</td>
<td>MLS</td>
<td>158</td>
</tr>
<tr>
<td>ABS. RBC</td>
<td>x10E6</td>
<td>45.0</td>
</tr>
<tr>
<td>ABS. WBC</td>
<td>(29.4 - 35.2) x10E6</td>
<td>39.5H</td>
</tr>
<tr>
<td>ABS. EPI CELLS</td>
<td>x10E6</td>
<td>0.0</td>
</tr>
<tr>
<td>% MACROPH</td>
<td>83L</td>
<td></td>
</tr>
<tr>
<td>(87 - 89)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comment:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CORRECTED ON 05/30 AT 1633:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PREVIOUSLY REPORTED AS 84</td>
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<td></td>
</tr>
<tr>
<td>ABS NO. MACROPH</td>
<td>32.8</td>
<td></td>
</tr>
<tr>
<td>x10E6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% NEUT</td>
<td>(1.5 - 2.1)</td>
<td>0.0L</td>
</tr>
<tr>
<td>ABS NO. NEUT.</td>
<td>x10E6</td>
<td>0.0</td>
</tr>
<tr>
<td>% LYMPHS</td>
<td>(8.9 - 10.1)</td>
<td>16H</td>
</tr>
<tr>
<td>ABS NO. LYMPHS</td>
<td>x10E6</td>
<td>6.3</td>
</tr>
<tr>
<td>% EOS</td>
<td>(0.3 - 0.5) x10E6</td>
<td></td>
</tr>
<tr>
<td>ABS NO. EOS</td>
<td>x10E6</td>
<td>0.4</td>
</tr>
</tbody>
</table>

**COMMENT:**


**NOTE:** DEMOGRAPHIC FACTORS AND SMOKING HISTORY MUST BE TAKEN INTO ACCOUNT WHEN COMPARING SUBJECTS.

IN SMOKERS: TOTAL WBC = 59.9 +/- 0.9

NEUT. 1.6 +/- 0.2

EOS. 0.56 +/- 0.13.
### BronchoAlveolar Lavage (BAL) Page 2

| Performed Date/Time: 02/07/2006 9:30 AM Ordered By: BAL CELL COUNT |
|-------------------------|-------------------------|
| BAL CELL COUNT: RESULTED |
| Resulted Components:    |
| % RECOVERY              | (61.1 - 62.9) %         |
| RECOVERY ML             | MLS                     |
| ABS. RBC                | $x_{10E6}$              |
| ABS. WBC                | (29.4 - 35.2) $x_{10E6}$|
| ABS. EPI CELLS          | $x_{10E6}$              |
| % MACROPH               | (87 - 89)               |
| ABS NO. MACROPH         | $x_{10E6}$              |
| % NEUT                  | (1.5 - 2.1)             |
| ABS NO. NEUT.           | $x_{10E6}$              |
| % LYMPHS                | (8.9 - 10.1)            |
| ABS NO. LYMPHS          | $x_{10E6}$              |
| % EOS                   | (0.3 - 0.5) $x_{10E6}$  |
| ABS NO. EOS             | $x_{10E6}$              |
| .COMMENT:               | [MEAN +/- S.E.M.] DATA BASED ON 191 NORMAL SUBJECTS (INCLUDES EX SMOKERS AND NEVER SMOKERS) AM. REV. RESPIR. DIS (MAY) 1990; 141:S163-S202. NOTE: DEMOGRAPHIC FACTORS AND SMOKING HISTORY MUST BE TAKEN INTO ACCOUNT WHEN COMPARING SUBJECTS. IN SMOKERS: TOTAL WBC = 59.9 +/- 0.9; NEUT. 1.6 +/- 0.2; EOS 0.56 +/- 0.13. |
Lymphocyte Transformation Test – Bronchoalveolar Lavage from Jewish Hospital

**RESULTS:**

<table>
<thead>
<tr>
<th>MITOGENS</th>
<th>MEAN STIMULATION INDEX</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>DAY 3</td>
</tr>
<tr>
<td>Phytohemagglutinin</td>
<td>24.8</td>
</tr>
<tr>
<td>Concanavalin A</td>
<td>3.9</td>
</tr>
<tr>
<td>BERYLLIUM SULFATE:</td>
<td></td>
</tr>
<tr>
<td>1 X 10^{-4} M</td>
<td>2.7</td>
</tr>
<tr>
<td>1 X 10^{-5} M</td>
<td>3.9</td>
</tr>
<tr>
<td>1 X 10^{-6} M</td>
<td>1.9</td>
</tr>
</tbody>
</table>

**INTERPRETATION:**

Normal response to mitogen. (Mitogen normal: >3.0)
Abnormal lymphocyte proliferation to beryllium sulfate.

Note: An abnormal result is 2 or more beryllium sulfate values above the cut-off value of 2.5

This assay is useful for clinical purposes and was developed, and its performance characteristics determined by National Jewish Clinical Reference Laboratories. It has not been claimed or approved by the US Food and Drug Administration. The FDA has determined that such evaluation or approval is not necessary. This laboratory is certified under the Clinical Laboratory Improvement Amendments of 1988 (CLIA) to perform high complexity clinical laboratory testing.
Case Study 2
Assumptions

Assumptions - Case Study 2

Assume the following:

• Employment - The Department of Energy (DOE) verified the employee worked for DOE contractors at the Rocky Flats Plant from July 27, 1953 through October 31, 1985. The Rocky Flats Plant was a covered DOE facility during that entire time period.

• Exposure – The potential for beryllium exposure existed at the Rocky Flats Plant throughout the course of its operations.

Case Study 2 Questions

Questions - Case Study 2

1) Is the case in posture for a recommended decision? If so, what would your recommendation be?

2) Can the claim be adjudicated using the Pre-1993 statutory requirements for CBD?

Trainee HANDOUT

Distribute the CBD Case Study 2 Answer Sheet to the trainees upon completion of the case study activity.
Answers - Case Study 2

1) Is the case in posture for a recommended decision? If so, what would your recommendation be?

Yes, the CBD claim should be accepted under Part B and Part E because the employee was exposed to beryllium during covered employment and there is sufficient medical evidence to meet the Post-1993 statutory requirements.

2) Can the claim be adjudicated using the Pre-1993 statutory requirements for CBD?

No, although 3 of the 5 statutory requirements are present, an employee claim cannot be accepted using the Pre-1993 requirements.

Questions