HANFORD ADVISORY BOARD

A Site Specific Advisory Board, Chartered under the Federal Advisory Committee Act

Advising:
US Dept of Energy
US Environmental Protection Agency
Washington State Dept of Ecology

CHAIR:
Susan Leckband

VICE CHAIR:
Rick Jansons

BOARD MEMBERS:

Local Business
Harold Heacock

Labor/Work Force
Mike Keizer
Thomas Carpenter
Susan Leckband
Jeff Luke
Rebecca Holland

Local Environment
Gene Van Liew

Local Government
Maynard Plahuta
Pam Larsen
Rick Jansons
Rob Davis
Julie Jones
Richard Leitz
Bob Parks

Tribal Government
Russell Jim
Gabriel Bohnee

Public Health
Margery Swint
Jim Trombold

University
Doug Mercer
Gene Schreckhise

Public-at-Large
Norma Jean Germond
Keith Smith
Bob Parazin
Bob Suyama

Regional Environment/Citizen
Todd Martin
Greg deBruler
Paige Knight
Gerald Pollet
Susan Kreid

State of Oregon
Ken Niles
Barry Beyeler

Ex-Officio
Confederated Tribes of the Umatilla
Washington State Department of Health

April 3, 2009

Dave Brockman, Manager
U.S. Department of Energy, Richland Operations
P.O. Box 550 (A7-50)
Richland, WA 99352

Shirley Olinger, Manager
U.S. Department of Energy, Office of River Protection
P.O. Box 450 (H6-60)
Richland, WA 99352

Re: Beryllium Disease Prevention at Hanford

Dear Mr. Brockman and Ms. Olinger,

Background

Beryllium represents a very serious potential risk to many Hanford employees, often without their knowledge. When certain sensitive individuals are exposed to even minute amounts of inhaled Beryllium, they are at considerable risk of becoming beryllium sensitized and contracting a potentially fatal granulomatous lung disease called chronic beryllium disease (CBD) and an increased risk of lung cancer.

To date there have been twenty-seven verified cases of CBD in employees at Hanford. Six of these cases have been diagnosed since 2007. One CBD employee has died of lung cancer and one employee uses oxygen twenty-four hours a day. Many need chronic or intermittent steroids for less advanced CBD. In addition, there have been eighty-eight confirmed cases of sensitivity to beryllium from the surveillance program using the Beryllium Lymphocyte Proliferation Test (BeLPT). This test of activated sensitivity can be a precursor to future CBD.

From a worker safety perspective based on the number of affected workers, beryllium currently rates as a greater hazard than radiation.

Not every individual who is exposed to beryllium will experience adverse health effects. Studies have shown that on average, 2% to 6% of exposed workers develop sensitivity, although the rates can be as high as 20% among workers with the highest exposures, such as beryllium machinists.

EnviroIssues Hanford Project Office
713 Jadwin, Suite 3
Richland, WA 99352
Phone: (509) 942-1906
Fax: (509) 942-1926

Workers are exposed to beryllium, carry a lifelong risk of developing CBD, even if the exposure amount was small or the worker is no longer exposed.

Extent of Contamination

Beryllium contamination may be more widespread at the Hanford Site than is currently appreciated:

- Battelle tested for and found beryllium in surface areas in the 300 area.
- The coal fired plants in the 200 and 300 areas have potentially spread beryllium contamination as they are a source of environmental beryllium
- The fuel rod button processing left a residue of beryllium byproducts.
- Prior to the Federal Beryllium Rule, materials and equipment were transferred across the site without recognizing the beryllium risk.
- Beryllium was used in some circuit breakers, old style fluorescent lights, and some non-sparking tools.
- The Material Test Reactor core mockup contained large quantities of beryllium.
- Testing at Hanford and at other Department of Energy (DOE) sites has indicated there may be beryllium higher up in buildings and in areas that were originally unsuspected.

Hanford Beryllium Facilities List:
100-DR, 1154, 1252, 1713-F, 1240, 1706-KE, 747-B, 2400 Stevens, 6th Street Warehouse, 6266, 202-S, 209-E, 2101-HV, 222-S, 222-T, 231-Z, 234-5Z, 241-A, 2703-E, 2707-SX, 2714-W, 271-B, 272-AW, 272-WA, MSL-5, EDL, PSL, LSLA, 303-K, 303-J, 303-F, 303-M, 306-E, 306-W, 304, 309, 313, 314, 308, 311-TF, 318, 324, 325, 326, 327, 328, 329, 331, 333, 305-B, 303-C, 334-A, 350, 3712-N, 3716 3708, 3706, 3712-S, 3751-A, 3745-B, 3731-A, 3720, RTL-520, 236-Z, 2736-Z, 2736-ZB, 338, and PDL.

Implication of the Affected Employee Data

Testing at National Jewish Medical and Research Center has shown that people do not test positive unless they were exposed to beryllium. The BeLPT test does not reveal a predisposition to the sensitivity. At present, only genetic testing can identify those individuals who have an increased probability of beryllium sensitivity.

Approximately 2.5% (27 + 88) of the 4583 Hanford employees tested have CBD. Since 2% to 6% of people exposed to beryllium develop this sensitivity, one has to deduce that 42% to 100% of the workers that were tested had been exposed to

beryllium. This is an indication of the potential widespread Beryllium contamination at Hanford.

Based on these statistics, for every 1000 workers that have not yet been tested about 25 workers will test positive and six might get CBD. Further or repeated exposure to beryllium of sensitized workers would increase the risk of developing CBD. Therefore, DOE and its contractors have a great responsibility to encourage all Hanford employees to take the beryllium sensitization test and identify which of them are susceptible. Certain employees, such as janitorial, service personnel and machinists, might have a higher potential to have been exposed to beryllium dust.

DOE facilities representatives and contractor employees have a potential for beryllium exposure from unrecognized contamination. Environmental testing for beryllium should include many buildings not historically believed to have contained beryllium. The risk could increase since the surfaces of the old facilities currently not on the beryllium list are being disrupted as part of decommissioning and have not been fully tested.

DOE is to be commended for its proactive approach to this issue. One initiative of particular satisfaction to the Hanford Advisory Board (Board) is the ongoing but still incomplete development of a Hanford Site Chronic Beryllium Disease Prevention Program (CBDPP). The program includes one uniform site-wide set of standards as recommended by the Hanford Joint Council for Resolution of Significant Employee Concerns. The Board recognizes the significance of this achievement to enhance worker protection and standardizing expectations with regard to 10CFR850 requirements, including facility characterization, worker exposure and protecting affected workers from further harm related to Beryllium exposure.

Additionally, the Board recognizes AdvanceMed Hanford for encouraging employees to participate in the volunteer beryllium testing program and assisting the Hanford workforce in all medical aspects related to beryllium. They are taking a leadership role in standardizing the surface and airborne detection techniques and actively communicating the potential risk to encourage employees to take the volunteer test.

Any funding required for testing or compensation is sourced through a separate fund; therefore, there is no financial impact on the cleanup mission.

Advice

1. DOE should enhance the effort to pinpoint the sources of beryllium contamination and mitigate the risks that led to worker sensitivity:

    a. Reactivate the practice of interviewing all employees that are Beryllium sensitized to confirm that they worked in the current list of Beryllium facilities.

    b. Maintain the current Hanford Beryllium Facilities List since it is a valuable source of information to current and retired workers and add to it as new areas are found.

    c. Create a new, shorter list of the remaining facilities, ensuring that these facilities are posted for beryllium contamination and that all current employees in those facilities are either tested or moved.

    d. Expand the detection sweeps to areas greater than eight feet above the floor. Include assessing the dust on piping and ventilation above that level; and place special emphasis on the dust generated during decommissioning activities. Spread these improved procedures across the Hanford Site, and incentivize the contractors, if necessary. Ensure that ISMS is being executed at the worker level when there is a potential risk from Beryllium.

    e. Determine the level of beryllium contamination in the surface soil across the site. The approach suggested in the CBDPP, i.e. the Multi-Agency Radiation Surveys and Site Investigation Manual, seems appropriate. Give special consideration to the grid size near facilities on the Hanford Beryllium Facilities List and the entire 300 area and the 200 area near the coal plant. Use ISMS to formulate a risk mitigation plan based on these surface data.

    f. Apply the As Low As Reasonably Achievable (ALARA) philosophy to beryllium and require contractors to remove Beryllium contamination where practicable as the first priority in protecting worker's health. Only when removal is not practicable should administrative controls or personnel protective equipment be utilized. Because beryllium cannot be effectively and assuredly removed, workers in buildings with potential beryllium contamination should be monitored and given personal protective equipment whenever potential dust

disturbing activities are occurring. Monitoring and characterization results should be posted for workers.

2. DOE should enhance the site-wide educational program to encourage employees to take the Beryllium sensitivity test:

a. Require/motivate broad participation in the beryllium sensitivity blood test within the restrictions of applicable laws. This includes both active and retired employees.

b. Analyze the reasons why employees are reluctant to volunteer and design approaches within DOE's authority to mitigate their concerns. Ensure by action and written documentation that workers who do test BeLPT positive will not be subjected to discriminatory practices that diminish their employment rights, legal or defacto.

c. Since sensitivity to beryllium may surface years after exposure, encourage employees to be tested, at least, every three to five years. Adopt a goal of having 90% of the site's workforce tested for beryllium every five years. Decontamination and decommissioning workers should be tested annually. Include an individualized risk communication program mailing information to each worker regarding facilities or areas they may have worked in or entered with potential for beryllium exposure. This was the recommendation of the Hanford Joint Council, which the site said it would adopt.

d. Have the entire work force understand the risks of beryllium and beryllium sensitivity. Educate both active and retired workers why they should be tested for beryllium sensitivity especially those known to have worked in the currently beryllium listed buildings, as well as any future sites found to be contaminated.

e. Make certain that former workers are aware of the Hanford Beryllium Facilities List. Determine the most effective way to communicate the historical risk to temporary employees, e.g. student workers and subcontractors.

f. Include strong language in the contracts for all subcontractors describing the beryllium risks and required preventative measures.

g. Include beryllium awareness training in Hanford General Employee Training, including a question about whether an employee has ever worked/been in contact with beryllium in present or previous employment.

Because of the recent contract changeovers, DOE should continue to facilitate the uniform site-wide Beryllium protection program by all contractors and subcontractors as advocated by the Board in Advice #196.

Sincerely,

Susan Leckband

Susan Leckband, Chair
Hanford Advisory Board

This advice represents Board consensus for this specific topic. It should not be taken out of context to extrapolate Board agreement on other subject matters.

cc: Michelle Pirzadeh, U.S. Environmental Protection Agency, Region 10
Jay Manning, Washington State Department of Ecology
Doug Shoop, Co-Deputy Designated Federal Official, U.S. Department of Energy, Richland Operations Office
Steve Pfaff, Co-Deputy Designated Federal Official, U.S. Department of Energy, Office of River Protection
Richard Campbell, Environmental Protection Agency
Jane Hedges, Washington State Department of Ecology
Catherine Brennan, U.S. Department of Energy Headquarters
The Oregon and Washington Congressional Delegations
Senator Mark Udall, Colorado
Dr. Tim Takaro, Simon Fraser University