

Building Number/Name: 2703-E  
Date prepared: Jan 28, 2012  
Responsible Contractor: WRPS  
Contact: C M Smith; E A Hill

### **PAST OPERATIONS**

Beryllium brought in facility: YES

Form of beryllium: SOLID

Period of beryllium operations (dates): Start: Early 1980s End: Present

Location(s) in facility that contained beryllium materials: Tool Crib

Description of beryllium activities: Beryllium tools (beryllium-copper alloy containing about 2% beryllium) are stored in a drawer in the tool crib and given to employees for use in Tank Farms. These tools are then returned to the tool crib, and may have small amounts of dust containing beryllium on them. Based on contacts with tool manufacturers, the potential for significant airborne exposure to beryllium from these tools is very low. However, because air sampling was not performed prior to the FDH beryllium assessment project, nor were measures taken to reduce the potential for employee exposure, the potential exists for exposure to low levels of airborne beryllium dust. As such, the tool crib is being considered a potential source of past airborne beryllium exposure.

Building monitoring data summary: None identified.

Personnel monitoring data summary: None identified.

Specify Engineering/Administrative controls used during operations: Tools are wet-wiped before and after use.

### **CURRENT OPERATIONS**

Building still present: YES

BCF: YES

### **BERYLLIUM SAMPLING DATA**

#### **1999 Study Results**

Ambient air samples were collected on 7/15/99 on the ground floor of 2703E. One sample was collected at the west end of the building just north of the sprinkler pipe valves, and the other was collected near the south wall of the building immediately east of the oversized sliding door. A personal air sample was also collected on 7/15/99 in the breathing zone of a technician while wipe sampling surfaces for beryllium. Results reported for these samples were below the Method Detection Limit (MDL) of 0.004  $\mu\text{g}/\text{m}^3$  and 0.019  $\mu\text{g}/\text{m}^3$  for the ambient and personal samples, respectively. Surface samples were collected from 29 sites throughout the building on 7/15/99. Results reported for these samples were below the MDL of 0.5  $\text{mg}/100 \text{ cm}^2$ . Areas that were unable to be sampled but could possibly be contaminated with beryllium include the interiors of the high-bay exhaust ducts servicing the facility.

#### **2003-2009 Beryllium Sampling**

In 2003, surface sampling of the high bay was repeated, this time using ghost wipe media and lowered instrument detection levels. Be above the DOE Release Criterion of 0.2 micrograms of beryllium per 100 square centimeters of surface area ( $\mu\text{g}/100\text{cm}^2$ ) was detected on a tool box in the SE grinding area of the bay. In 2004, additional sampling of the structural supports at the 8-foot, 16-foot, and 24-foot level of the high bay was conducted and surface Be exceeding the DOE Release Criterion was identified along the east (E) and south (S) walls, SE bay corner, top of the roll-up door and on the jib crane.

The following areas were posted and controlled for Be:

- SE corner of the high bay around the grinder and *Kennedy* tool box (The SE corner was roped-off);
- Floor sumps because they were uninvestigated;
- Tool drawer in crib where Be alloy tools were stored;
- E and SE walls and access points to the East wall (the lower mezzanine was roped off under the upper mezzanine and at the stairs to the upper mezzanine to prevent access to the E wall).

Re-sampling of the roll-up door occurred in 2007, presumably after cleaning, and surface Be was not detected on the housing or in the vicinity of the roll-up door. An airborne Be hazard assessment was conducted during routine electrical assembly operations in 2007, with the roll-up door open. Samples were collected throughout the bay and lower mezzanine; airborne Be was not detected.

In December, 2009, 2703E was posted with revised signage in accordance with requirements of DOE-0342, the then newly-issued Hanford Chronic Beryllium Disease Prevention Program (CBDPP). Revised postings were placed in the same locations of previous Be postings. 2703E was posted as a Be-Controlled Facility (BCF) and the tool crib and SE portion of the high bay including E wall and access points, were posted with Be-Controlled Area (BCA) signs.

### **2010 Beryllium Characterization**

On July 20, 21, 29 and August 31, 2010, 88 Be surface wipe (33) and bulk (55) samples were collected in 2703E; sample results were compared with the Hanford Be Trigger Levels of  $0.1 \mu\text{g}/100\text{cm}^2$  for wipe samples and 1 part per million (ppm), for bulk samples. The Be Trigger Level was exceeded in one location of a wipe sample on top of a bookcase in the lab area; follow-up bulk sampling was conducted in the area of the elevated wipe and found to be consistent with other bulk sample results in the facility. All bulk sampling results were below the 1 ppm or microgram per gram ( $\mu\text{g}/\text{g}$ ) Trigger Level for bulk samples, with a set average of  $0.33 \mu\text{g}$ .

All 2010 sample results in 2703E were below the Hanford Be Control Levels of 0.2 micrograms  $\mu\text{g}/100\text{cm}^2$  with the geometric mean of the wipe sample data  $<0.1 \mu\text{g}/100\text{cm}^2$ ; and 2 ppm with the geometric mean  $<1$  ppm for the bulk sample data. Be surface levels in 2703E were found to be consistent with natural soil background.