

Building Number/Name: 272-S  
Date prepared: Feb 10, 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: Mid 1990s

Location(s) in facility that contained beryllium materials: Shop

Description of beryllium activities: In July 2003, employees reported Beryllium tools (beryllium-copper alloy containing about 2% beryllium) may have been stored in the shop in the past. Prior to the 1980s, the building was used as a Tank Farm maintenance shop. In the early 1980s, the shop was remodeled and used as a paint shop for Tank Farms. The beryllium tools were used in the Tank Farms and then returned to the shop, 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 2003, 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 shop is being considered a potential source of past airborne beryllium exposure.

### **CURRENT OPERATIONS**

Building still present: YES

BCF: YES

### **BERYLLIUM SAMPLING DATA**

#### **2003 – 2005 Beryllium Sampling**

In July, 2003, 59 wipe samples were collected in 272S; 6 results exceeded the DOE release criterion for wipe samples of 0.2 micrograms of Be per 100 square centimeters ( $\mu\text{g}/100\text{ cm}^2$ ). The areas of exceedance were above the garage door, on a pipe/conduit run, on structural cross beams, and at the attic hatch, all of which were dust settling surfaces. A clean-up of the areas where sample results showed exceedance of the release criterion was conducted and in September, 2003, follow-up wipe (16) and air samples (2) indicated Be was below detectable levels. Analytical data from 2003 indicated a reporting level of 0.2  $\mu\text{g}$ , twice the stated method detection limit (MDL) of 0.1  $\mu\text{g}$ . Because of the reporting protocol, sample results reported as  $<0.2\ \mu\text{g}/100\text{ cm}^2$  may be interpreted as  $<0.1\ \mu\text{g}/100\text{ cm}^2$ , which is below the Hanford Trigger Level for wipe samples of  $0.1\ \mu\text{g}/100\text{ cm}^2$ .

The facility was not de-posted after cleaning in 2003 and has remained Be-controlled. The space above the drywall ceiling is posted as a Be-Controlled Area (BCA) as cleaning was not performed in the space, which is not large enough to enter.

In 2005, 28 additional wipe samples were collected from the floor, on top of light fixtures, ventilation grills, counter tops, cabinets and lockers. Be was below detectable levels and reported as <0.05 µg/100 cm<sup>2</sup>, except on a light fixture in the paint shop, reported at 0.07 µg/100 cm<sup>2</sup>.

### **2010 Beryllium Characterization**

In 2010, brown cabinets moved from 272S and used in 272WA, showed detectable Be in the 2010 272WA survey, but below the Hanford Trigger Level for wipe samples. On July 16 and August 23, 2010, 42 wipe samples and 10 bulk samples were collected in 272S to determine surface concentrations of Beryllium (Be). Laboratory sample results for the Maintenance/Paint Shop, 272S, were below the control levels. The compressor add-on, an exterior structure to Building 272S, has significant environmental dust intrusion in the room and on equipment. Concrete surfaces on the footers and compressor pad are pitted and irregular. Initial bulk samples were collected using the brush and spatula method. Some of the wipe samples collected after the bulk samples on the concrete footers and pad, were elevated. It was suspected that the elevated wipes were false positives attributed to heavy dust loading from sampling on an irregular surface. Follow-up bulk results were similar to initial bulk results. Follow-up wipe samples had detectable Be, but were below the Hanford Trigger level. Based on observation and sample results from both surveys, the IBOT allowed WRPS to change the status of the wipe samples collected on July 20, 2011, to "invalid," which allowed a status of Be-Clean for the Compressor add-on based on bulk sample results.