

Building Number/Name: 272-WA
Date prepared: February 7, 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 inside Maintenance Shop Supply Room

Description of beryllium activities: Beryllium tools (beryllium-copper alloy containing about 2% beryllium) are stored 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 Maintenance Shop Supply Room is being considered a potential source of past airborne beryllium exposure.

Building monitoring data summary: None identified.

Personnel monitoring data summary: Four breathing zone and two area samples related to personnel were collected in 1998 to evaluate worker exposures to beryllium in the vicinity of the tool cribs. All six samples were below the detection limits of 0.2 mg/m^3 .

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

Maximum Estimated Past Be exposure: LOW

CURRENT OPERATIONS

Building still present: YES

BCF: YES

BERYLLIUM SAMPLING DATA

1999 Study Results

An ambient air sample was collected in the south end of the Maintenance Shop Supply Room on 6/8/99, and another sample was collected at the north end on 6/24/99. A personal air sample was also collected on 6/8/99 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 $0.006 \text{ }\mu\text{g/m}^3$ and $0.004 \text{ }\mu\text{g/m}^3$ for the two ambient air samples, and $0.010 \text{ }\mu\text{g/m}^3$ for the personal sample, respectively. Surface samples were collected from 59 sites throughout the building on 6/8/99. Results reported for all

samples were below the MDL of 0.5 mg/100 cm². Areas that were unable to be sampled but should be considered as potentially contaminated with beryllium include the interiors of exhaust ducts servicing the Tool Crib, Maintenance Supply Shop, Electrical Shop, Grinding Area, Maintenance Shop, and Rooms 25-1 through 25-3.

2010 Beryllium Characterization

On June 7, 8, 9, 21; July 14 and 27; and September 15, 2010, IH staff conducted wipe and bulk sampling in the above facility to determine surface concentrations of beryllium (Be). The total number of surface samples collected in the 2010 initial survey was 153 (127 wipes and 26 bulk). Personal air samples were collected on IH staff conducting surface sampling.

The 2010 Be survey focused on four areas that were either previously un-sampled or identified as areas of potential concern, and, to verify hygiene was maintained in lunchrooms and change rooms:

- 1) Shop areas above the 6-to-8 foot level;
- 2) Furnishings, including legacy furnishings from 272S in the shops;
- 3) Above-ceiling sampling in the offices addition and lunchrooms; and
- 4) Status check of hygiene facilities (change rooms and lunchrooms).

In 2010, the Be Trigger Level and/or Release Criterion for wipes was exceeded in several sample 272WA locations:

- Lunchroom 17 above the ceiling on tile and a light fixture (2 exceedances);
- Instrument Shop/Craft Offices in Room 38 on top of a light fixture (1 exceedance);
- Electrical/Sign/Sheet Metal Shop in Room 42 in the brown tool chest (1 exceedance);
- The return duct of the HVAC located at the S entrance (1 exceedance);
- HLAN Corridor 33 by the red fire suppression equipment (4 exceedances).

Follow-up inspection with bulk and wipe sampling was conducted in all areas where wipe Trigger Levels were exceeded. Follow-up bulk sampling results were found to be consistent with other facility bulk sample results, all of which were below the 1 ppm bulk Trigger.

- At the time of initial sampling, heavily loaded wipe samples from tops of light fixtures and ceiling tile showed elevated wipe results in the Lunchroom and Room 38. Bulk follow-up results from these surfaces did not indicate elevated Be.
- The brown tool chest in Room 42 was exceeded prior to re-sampling but several tools stored in the on the shelf where the exceedance was observed were wipe sampled and Be was not detected.
- The return duct of the HVAC unit at the outdoor duct access door had heavy dust loading from environmental dust intrusion; bulk sampling of both the outdoor supply and return ducts at the HVAC unit did not show elevated Be.
- Follow-up wipe sampling results indicated one persistent area of concern in 272WA: the red fire suppression equipment outside the HLAN room in Corridor 33. A Bulk sample of settled dirt on the floor in the area of the equipment was not elevated, however the equipment (valves, piping, and angle-iron support structure) show surface wipe criteria were exceeded. The equipment was posted as a BCA.

In November, 2010, and additional 11 wipe and 8 bulk samples were collected in the garage and shop areas in advance of a facility modification. Sample results were below Hanford trigger levels.