



# Beryllium Health and Safety Committee

Kathy Creek, Committee Chairman

creek@lanl.gov 505.667.3954

---

---

## Meeting Minutes

April 27, 2004

Atomic Weapons Establishment (AWE) Training Centre  
Portland House, Aldermaston, England

Meeting Minutes:

William Haight (MD, AWE) provided the welcome, Kathy Creek provided the mornings announcements, and J. McKenney went on an overview of the last meeting minutes.

### Kathy Creek – Announcements, Old Business:

#### **Announcements:**

Kathy revisited the idea having a symposium that invites the international community to hear the presentations that are given at the BHSC meetings. This would enable the community to participate in a more international setting. Any volunteers for a potential conference community were asked if they could dedicate the time and had the support of their respective organizations. Contacts for those in the EU were also requested. The vision of the meeting would be to have it extremely open for a well attended and useful meeting.

A new Analytical Sub-Committee was formed at the last meeting, and substantial work has done. A medical surveillance and medical sub-committees are being formed, and have been historical aspects of the BHSC. This process is still underway and the list of potential members is being put together by Debra Hurst.

### Tony Quinn – History of Beryllium Manufacturing Operations at AWE:

Tony Quinn gave a brief history of beryllium manufacturing activities at AWE. The briefing was unclassified:

1952 – Beryllium processing begins, both R&D and production (including melting, hot pressing and powder handling)

1962 – New building constructed – used for research and development, production (including new hot press)

1964 – Main production transferred to AWE Cardiff – Aldermaston concentrates on R&D

1989 – New building closed for refurbishment – all operations were transferred back to the original building

1993 – Refurbishment completed, emphasis shifted from beryllium

April 27, 2004

1996 – AWE announces rationalization plan – AWE Cardiff to close – new building to become only beryllium facility

1997 – Machining activities recommence in new building

1998 – Rationalization plan commences – extra machine tools and ancillary equipment installed

2001 – AWE Cardiff decommissioned

u 2001 – Consolidation Programme – Concentration of all beryllium processed in one facility

Present Status:

- Basic machining capability and associated processes
- Consolidation Programme – All beryllium processes being concentrated in one facility
- New glovebox being commissioned for handling SWARF and legacy material
- No current plans for powder processing – could change

Brief History

We have also carried out at various times:

- Rolling and extrusion
- CIP and HIP
- Plasma Spraying
- Deep drawing

Since opening all buildings have had as a minimum of 3 ventilation systems

Low pressure extract – machine enclosures, fume cupboards, and space extract

High velocity extract – tool tip extraction

High pressure extract

Monitoring – AWE has always monitored for beryllium – PAS, area sampling and smear (swipe) sampling

Personal air sampling – AWE has an extensive database of personal air sampling results

**Alex Romero – Self Assessment / Best Management Practices:**

Self Assessment Best Management Practices:

- Digestion Analysis
  - o Air sample/Smear
    - Nitric Acid digestion
    - Atomic Absorption Spectroscopy
    - 0.02ug/sample, 0.2ug/samp.
  - o Stack Samples
    - Nitric Acid / Perchloric acid
    - GFAAS
    - 2.5 ng/sample
    - 1 week analysis

**Andy Fox-Boudewijn – Beryllium Hydrodynamics Operations at AWE:**

Brief UK Legislative overview

AWE Arrangements

- Be risk assessment process
- Be air sampling limits
- Be surface contamination limits
- Analysis procedures for air/smear samples
- Health surveillance arrangements
- Be area designation
- Be Clean up

UK Legislation overview

- Control of Substances Hazardous to health regulations 2002
- UK Maximum exposure Limit (MEL) for Be
- Guidance limit short term exposure
- Adequate control: Less than MEL and ALARP
- No limit

COSHH Assessment identifies:

- Risks to health from work/process
- Measures required to adequately control exposure

Typical Exposures were considered and reviewed

Be Air Sampling was covered, as well as the Personal Air Sampling techniques, alert levels, action levels, facility internal investigation levels, etc.

Be Air Sampling: Static air sampling with no specific limits,  
Risk assessment determines – number, location, filter change frequency  
'Standard' results are below the detection threshold  
Any 'higher' readings are abnormal  
Stack Air Sampling, has environmental concerns

Be Surface Contamination Limits:

Dry Smears, 10 % pick up assumed  
Two Surface contamination Limits (controlled area versus non-controlled area  
Specific 'small item' rules

## Analysis of PAS, SAS and Smears

### Routine PAS and SAS

- Flame AAS
- Approx. 50 samples/week
- Detection threshold, 0.02 ug

### Routine Smears

- Flame AAS\approx 60 samples/week
- 0.2 ug / week

### Stack Results

- Graphite Furnace AAS
- Approx. 3 samples/week

### Be Health Surveillance

#### Flagged up via COSHH Assessment

#### HS Categories dependent on:

- Significant Risk Current//historic exposure

#### Significant risk:

- Initial and annual medical examination
  - o Respiratory questionnaire and lung function test

### Be Area Designation

Supervised Area – Potential risk from Be considered low

Clean Be handled /stored

Demarcated, barrier on mandatory

PAS not mandatory

#### General points for all Be Areas:

Access controlled

AWE Be surface contamination limits applied

#### Be Area Designations:

Controlled Area – Principal work areas for handling beryllium

- Controls:
  - o Barrier System
  - o Full PPE
  - o PAS, Coveralls, Gloves, Shoes (over shoes)
  - o Specific change room procedures

### Be Area Designations

- Exclusion Area – Potential risk from Be Considered
  - o Controls
  - o Full Safe System
  - o RPE

- Barrier System
- Full PPE
- Specific Change room Procedures

**David Weitzman – Update on DOE Release Criteria:**

David walked us through the release criteria updates for sites for a topic of discussion. There is some discussion as to whether the gray areas should be empirically defined or left up for site specific judgment.

Three Major Sections

- Release Criteria
- Characterization
- Remediation and Handling

Since there are consolidated efforts, methods, and techniques, there are still some inconsistencies that have to be ironed out.

Characterization:

- Statistics
- Strategies
- Methods
  - Surface
    - Wet
    - Dry
    - Vacuum
  - Air
  - Bulk
- Analytical Methods

Remediation and Handling

- Waste Disposal
- Servicing Vehicles
- D&D Activities
- Servicing Building Systems\Posting and Labeling\Packaging for internal transfer
- Dermal contamination

Includes Examples

Include Examples rather than selecting one method?

Needed Enhancements

- New Title
- Fill Content Gaps
- Overlap

Gaps:

April 27, 2004

