

Mario Moreno, 21 FEB 11, Question # 8, surface area action levels should be established in lieu of establishing a low airborne action level that precludes Beryllium settling out on the surface, Docket No. HS-RM-10-CBDPP

Yes, surface area action levels should be established in lieu of establishing a low airborne action level that precludes Beryllium settling out on the surface.

Primary Reference:

Commentary: Keeping Beryllium Workers Safe: An enhanced Preventive Model, Journal of Occupational and Environmental Hygiene, 4:D23—D30: David Deubner, MD, MPH and Michael Kent, CIH: Brush Wellman Inc., Elmore Ohio.

One practical conclusion is that industrial hygiene concepts developed for the control of general toxicants in relatively high concentrations (mg/m³) need significant modification when control of very low concentrations (<1 µg/m³) of airborne particles is the goal. In the latter case, very small process upsets with escape of a fraction of a milligram of particulate matter can generate significant upward air level variation that cannot be perceived at the time.

Discussion:

Two problems with low airborne action level, one of which is stated in the referenced section of the paper - a very low concentration requires significant modification. A low action level also that cannot be either perceived and direct reading instrument (DRI) lead to lack of real time protective actions. Before surface action levels can be established the IH Control Hierarchy; elimination, engineered controls, administrative controls, and PPE should be formally established. The surface action levels should be seen as an indicator of loss of control of containment, spread of contamination or identification of Be source material. The three indicators are needed for DOE given the current mission of Be work, legacy Be contamination for DOE mission, and identification of previously undiscovered source Be. Under separate email the Hanford surface level action levels will be provided for consideration.

Question # 11, Should the Department continue to require the beryllium workers consent for medical removal, Docket No. HS-RM-10-CBDPP

The Department should not require the beryllium workers consent for medical removal , Docket No. HS-RM-10-CBDPP

Discussion:

Clarification is needed to question typically if a Be worker becomes sensitized, a medical restriction is identified by the SOMD and provided to both employee and Contractor with instructions to keep Be exposure as low as possible essentially to the limits of detection (LOD) – the employee becomes unqualified as a Be worker. Given the nature of legacy contamination at many DOE sites versus ongoing production type of operations, a medically un-cleared Be worker may have other comparable work assignments not associated with Beryllium, therefore not needing medical removal.

Medical basis for not requiring a newly sensitized Be worker consent for removal from exposure to non-natural Beryllium:

There are potentially several factors that influence the probability that workers exposed to beryllium will develop CBD. Presenters at the symposium, "Beryllium: Effect on Worker Health" addressed some of the issues, including (1) genetic susceptibility, (2) varying risks for different manufacturing processes, (3) different toxicities of different forms of beryllium, (4) particle size, and (5) pulmonary and extra pulmonary exposure pathways as possible contributors to the risk of CBD.

Kent, M.; Robins, T.; Madl, A.: Is Total Mass or Mass of Alveolar-Deposited Airborne Particles of Beryllium a Better Predictor of the Prevalence of Disease? A Preliminary Study of a Beryllium Processing Facility. *Appl Occup Environ Hyg* Submitted (2001).

The removal from further occupational exposure to non-natural Beryllium for a sensitized worker is one of the risk contributors for reducing the risk of CBD. Question # 11 should be seen as part of the DOE regulatory policy for worker safety: prevent Be sensitization, prevent transition to CBD for sensitized employees and provide resource for employees with CBD .