Roby D. Enge
Director

ESH/QA (ESQ)
Argonne National Laboratory
9700 South Cass Avenue, Bldg. 201
Argonne, IL 60439-4832

1-630-252-1581 phone
1-630-252-5778 fax
renge@anl.gov

February 22, 2011

Jacqueline D. Rogers
Office of Worker Safety & Health Policy
Office of Health, Safety and Security
U.S. Dept. of Energy
1000 Independence Avenue, SW
Washington, DC 20585
Jackie.rogers@hq.doe.gov

RE: Docket No. HS_RM-10-CBDPP

Subject: DOE 10CFR Part 850 Chronic Beryllium Disease Prevention Program Information Request, Federal Register/Vol. 75, No. 246/ Thursday, December 23, 2010

The following comments resulted from a review by Argonne National Laboratory's Industrial Hygiene Section in response to the subject information request. Question numbers are those used in the Federal Register request.

1. **Should the Department continue to use the OSHA PEL?**
   COMMENT
   DOE should not lock their efforts to OSHA since OSHA's timeline appears to be considerably slower than may be necessary to meet DOE needs. Since a good portion of the Be user community work at DOE and contractor facilities, timely action to protect their health is certainly in DOE's best interest.

2. **Should the Department use the 2010 ACGIH threshold limit value (TLV) of 0.05 µg/m3 (8-hour time-weighted average of 0.05 microgram of beryllium, in inhalable particulate matter, per cubic meter of air), for its allowable exposure limit?**
   COMMENT
   Yes. DOE should consider establishing this level as at least an Action Level. ACGIH Documentation of the Threshold Limit Values, 7th Edition indicates the 0.05 ug/m3 level as sufficiently protective to limit development of Be sensitization.

3. **Should an airborne action level that is different from the 2010 ACGIH TLV for beryllium (8-hour time-weighted average of 0.05 microgram of beryllium, in inhalable particulate matter, per cubic meter of air) be established?**
   COMMENT
   No. See answer to #2. If an action level is desired, DOE could consider 0.05 ug/m3 as the Action Level and 0.2 ug/m3 as the exposure limit (currently recommended in 10CFR850).

4. **Should the Department require the use of wet wipes?**
COMMENT
Yes. When the goal is to determine if a surface or equipment is sufficiently clean to be returned to unrestricted service, wet wipe sampling is the preferred method. Argonne has never considered any other choice to demonstrate effectiveness of beryllium cleaning. Several articles from the AIHA Journal and its successor Journal of Occupational and Environmental Hygiene demonstrate the improved effectiveness of wet wipe methods over dry wipes for collection of Be in surface dust.
Gronka, P. A., Tomchick, G. J., Bobkoskie, R. L. and Suroviec, H. J. (1971) 'Beryllium Decontamination
of a Plant Shell', American Industrial Hygiene Association Journal, 32: 3, 199 — 202
Sanderson, Wayne T., Leonard, Stephanie, Ott, Darrin, Fuortes, Laurence and Field, William (2008) 'Beryllium Surface Levels in a Military Ammunition Plant', Journal of Occupational and Environmental Hygiene, 5:7, 475— 481
Ashley, Kevin , Braybrooke, Geoffrey , Jahn, Steven D. , Brisson, Michael J. and White, Kenneth T.(2009) 'Analytical Performance Criteria', Journal of Occupational and Environmental Hygiene, 6: 12, D97 — D100, First published on: 01 December 2009

Improved effectiveness of wet wipe methods over dry wipes for particle collection was also demonstrated for lead in surface dust.
Millson, Mark , Eller, Peter M. and Ashley, Kevin(1994) 'Evaluation of Wipe Sampling Materials for Lead in Surface Dust', American Industrial Hygiene Association Journal, 55: 4, 339 — 342
Chavalitnitikul, Chaiyuth and Levin, Lester(1984) 'A Laboratory Evaluation of Wipe Testing Based on Lead Oxide Surface Contamination', American Industrial Hygiene Association Journal, 45: 5, 311 — 317
Lichtenwalner, Charles P.(1992) 'EVALUATION OF WIPE SAMPLING PROCEDURES AND ELEMENTAL SURFACE CONTAMINATION', American Industrial Hygiene Association Journal, 53: 10, 657 — 659

5. **Since the use of wipe sampling is not a common occupational safety and health requirement, how do current wipe sampling protocols aid exposure assessments and the protection of beryllium workers? How reliable and accurate are current sampling and analytical methods for beryllium wipe samples?**
COMMENT
Wipe sampling for determination of surface dust levels for elements of concern has been a regular Industrial Hygiene practice at Argonne National Laboratory since the establishment of EPS/HUD guidelines for lead abatement and 10CFR Part 850. Wipe sampling can aid exposure assessment by emphasizing the housekeeping component. Establishment of surface levels provides clear guidance for return of equipment and areas to routine operations.

8. **Should surface area action levels be established, or should DOE consider controlling the health risk of surface levels by establishing a low airborne action level that precludes beryllium settling out on surfaces, and**

administrative controls that prevent the buildup of beryllium on surfaces? If surface area action levels are established, what should be the DOE surface area action levels?

COMMENT

Surface area levels should be established since DOE sponsored research has demonstrated dermal contact to be a suspect factor in development of Be sensitization. With Be sensitization as a consideration, then the housekeeping component clearly needs to be addressed.

Establishing a low airborne action level that precludes beryllium settling out on surfaces should not be attempted. Most operations produce a range of particle sizes, some of which are outside the inhalable range. These will settle on equipment and surrounding surfaces. Since there is no reliable correlation of surface levels to airborne concentration (Caplan, Knowlton J.(1993) 'THE SIGNIFICANCE OF WIPE SAMPLES', American Industrial Hygiene Association Journal, 54: 2, 70 — 75), attempts to establish a sufficiently low air level to preclude surface dust will be difficult. Current surface area action levels should be considered sufficient if consistently enforced.

10. **Should the Department establish both surface level and aggressive air sampling criteria (modeled after the U.S. Environmental Protection Agency's aggressive air sampling criteria to clear an area after asbestos abatement) for releasing areas in a facility, or should the Department consider establishing only the aggressive air sampling criteria?**

    COMMENT

    Aggressive air sampling should be considered for releasing an area only if the Department intends to fully enforce the containment requirements which accompany the EPA model cited.

    Considering the health outcomes of Be exposure, establishment of aggressive air sampling criteria without enforcement of surface level criteria and containment provisions similar to the EPA model would result in a higher level of risk.

Sincerely yours,

Roby D. Enge, Director
Environment, Safety, Health/Quality Assurance (ESQ)