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Comments on HS-RM-10-CBDPP, Comments Solicited on specific questions regarding 10 CFR 850

Should the Department use the 2010 ACGIH threshold limit value (TLV) of 0.05 [$\mu\text{g}/\text{m}^3$] (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? Please explain your answer and provide evidence to support your answer.

And

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? If so, what should be the level? Please explain each of your answers and provide evidence to support your answers.

A true positive from a laboratory is a result that exceeds a Limit of Quantification and not the Limit of Detection. Air Samples being compared to the 2010 TLV would be difficult based on how close this will be to what is generally used as a Limit of Quantification at most AIHA accredited laboratories. It is close enough that having a detectable level above the LOQ may trip any new action level that would accompany this changed limit or be very close and anything just above an LOQ would almost certainly do so. Is it the goal to have controlled areas for any work with any detectable levels? When considering that many DOE sites, such as Nevada and Idaho, have natural beryllium levels in the soil and it can be expected that air samples or even some swipes taken anywhere in the area may have detectable quantities it does not seem that applying this limit change would be feasible or would be able to be linked to beryllium that actually comes from the work being conducted.

In the past DOE encouraged, but did not require, the use of wet wipes rather than dry wipes for surface monitoring. DOE's experience with wipe testing leads the Department to consider requiring the use of wet wipes, unless the employer demonstrates that using wet wipes may cause an undesirable alteration of the surface, in order to achieve greater comparability of results across the DOE complex and in response to studies demonstrating that wet wipes capture more of the surface contamination than do dry wipes. Should the Department require the use of wet wipes? Please explain your answer and provide evidence to support your answer.

Designating an accepted method would have been a prudent measure when this law was created. However, mandating either at this point will create as many questions as it answers. What will sites do with the many, many samples that were taken using a different method than the one that may be mandated. And, will that require a re-assessment of any areas or work previously done by a different wipe method? Though

it is difficult to compare results from different sites/areas, before mandating such a change DOE would first have to address what would be required of sites that have/had already complied with 10 CFR 850 using dry swipes and have build control methods and decisions based on that data. As these decisions would have been made with information done in compliance with the law, such a decision may mandate considerable, additional work above the scope of their current contract. It is also noteworthy that swipes taken in a radiological contaminated area sometimes have complicating factors that may even inhibit sending them in for analysis and can be impacted based on which method is used.

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? Please explain your answers and provide **evidence to support your answers**

Though wipe sampling may provide information regarding beryllium contamination, that information does not always give a corollary to actual exposures. As stated in the question, it is rare that such methods are used in occupational exposure assessments because they cannot always be correctly extrapolated to an airborne exposure level. Swipe information would be more applicable in determining a dermal exposure for a compound with a SKIN notation in the TLV manual and applied to a process with known contact. Though skin effects may come from beryllium, there is no specific dermal limit to apply. The implication from 10 CFR 850 is that the surface level has a direct correlation with airborne levels and this is not always the case. The environment and tasks being conducted are more responsible for what the airborne levels would be than results of surface swipes. Surface swipes identify contamination levels and migration. It is also noteworthy that swipes taken in a radiological contaminated area sometimes have complicating factors that may even inhibit sending them in for analysis.

What is the best method for sampling and analyzing inhalable beryllium? Please explain your answers

And

How should total fraction exposure data be compared to inhalable fraction exposure measurements? Please explain your answer and provide evidence to support your answer

Though beryllium is known to cause its main toxicity via deposition in the lungs, the research determining Exposure Limits takes into account that particle sizing has not been done and most limits do not require sizing. The current limit, as is listed, should remain in use with accepted, NIOSH or OSHA sampling and analytical methods being used for sampling strategies. NIOSH has the technical research capabilities and background to establish sampling protocol. These established methods are also the basis for "A Strategy for Assessing and Managing Occupational Exposure", the AIHA model being used by most sites for

exposure assessment and management. The DOE should not attempt to devise its own revision of any NIOSH method for sampling or analysis but should advocate use of the consensus standards.

Should warning labels be required for the transfer, to either another DOE entity or to an entity to whom this rule does not apply, of items with surface areas that are free of removable surface levels of beryllium but which may contain surface contamination that is inaccessible or has been sealed with hard-to-remove substances, e.g., paint? Please explain your answer and provide evidence to support your answer.

What purpose would this serve regarding an entity to which this rule does not apply? A warning label implies that an existing hazard is present. How could it be justified to require this label and yet a beryllium article, such as a spark free tool, can be ordered, used, and "excessed" with no restriction or label though it would have a greater likelihood of having the recipient do something with it to generate airborne beryllium? Would the goal of this label be to inform the recipient that this "item" has beryllium fixed to it that, if manipulated, might generate airborne levels that are of no legal application to them or would this only be for items that could, if manipulated correctly, generate levels above the OSHA limit? If the OSHA limit is the goal, then why would we apply this to beryllium and not other metals and items that if manipulated could generate airborne levels of concern?