URS

February 16, 2011

Attn: Jacqueline D. Rogers

SUBJECT: Response pertaining to Department of Energy's Request for Comments, Docket No. HS-RM-10-CBDPP

The attached letter contains responses to the Department of Energy's most recent request for information, Docket No. HS-RM-10CBDPP, pertaining to 10 CFR 850, Chronic Beryllium Disease Prevention Program.

If you have any further questions with regards to the attached letter, please feel free to contact our resident SME, Roland Chretien, at the numbers provided within the letter itself.

Sincerely,

John C. Walter

John C. Walter, Project Manager
URS Liquid Waste Management Project

Cc: R. Chretien
J. Hay
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Transmittal #: Y-12-WTO-11-L-0006

February 16, 2011

Ms. Jacqueline D. Rogers
Office of Worker Safety and Health Policy
Office of Health, Safety, and Security
U.S. Department of Energy
Docket No. HS-RM-10-CBDPP
1000 Independence Avenue, SW.
Washington, D.C. 20585

SUBJECT: Comments pertaining to Docket No. HS-RM-10-CBDPP

To: Ms. Jacqueline D. Rogers

In response to the Department of Energy's most recent request concerning DOE 10CFR850, *Chronic Beryllium Disease Prevention Program*, the following comments and suggestions are offered from a field implementation purview. It should be duly noted that additional time would be necessary to provide financial data that would address the cost impacts of implementation of the suggestions related to the respective questions. Regardless of the lack of financial data, each suggestion provided stems from "on the ground" field experience of twenty-three years from the perspective of an industrial hygiene professional. Though the minute details of each suggestion may have not been expanded upon, the overall intent should be easily understood.

In order to lessen potential confusion, all questions shall be listed; however, for those questions that were not addressed a simple, "NO REPONSE", shall follow signaling the reviewer that the author had not formulated an answer to address the specific question.

Q1. DOE currently defers to the Occupational Safety and Health Administration (OSHA) for establishing the permissible exposure limits (PEL) and uses an action level as the administrative level to assure that controls are implemented to prevent exposures from exceeding the permissible exposure limits. Should the Department continue to use the OSHA PEL? Please explain your answer and provide evidence to support your answer.

A1. The Department should NOT continue to use the OSHA PEL. On September 2, 1999, OSHA issued a Hazard Information Bulletin stating, "...recently obtained information suggesting that OSHA's current 2 micrograms per cubic meter of air (micrograms/m^3) eight-hour time-weighted average (TWA) permissible exposure limit (PEL) for beryllium in the workplace may not be adequate to prevent the occurrence of chronic beryllium disease (CBD), a disabling and often fatal lung disease, among exposed workers" and "The OSHA limits have been in place for nearly 30 years and have not been revised in that time." Knowing that OSHA PEL is outdated and that the ACGIH has updated its TLV (0.05 micrograms/m^3 averaged over an 8-hour work shift) [updated 02/23/2010] coupled with improved analytical technology, the Department should lower the allowable exposure limit to 0.2 micrograms/m^3 averaged over an 8-hour work shift which is currently being employed by the Department as the action limit for beryllium.

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Q2. 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? Please explain your answer and provide evidence to support your answer.

A2. The Department should NOT 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; however, it should consider using the 2010 ACGIH TLV for its action limit. The reason for not reducing the current allowable exposure limit to less than the current action limit currently used by the Department is two-fold: a) if reduced to 0.05 $\mu g/m^3$ (TWA) then the established action limit of 0.2 $\mu g/m^3$ (TWA) would be further reduced to at least 0.025 $\mu g/m^3$ (TWA); b) the current analytical methods would have to be enhanced in order to ensure statistical confidence of the data - basically our current technology only provides a LDL of 0.025 $\mu g/m^3$ at best.

Q3. 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.

A3. The Department should NOT establish 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). The Department should establish the airborne action level to mirror that of 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). The reason for establishing an action limit mirroring that of 2010 ACGIH TLV for beryllium stems for the identical reasons stated within the response to question numbered 2 above. In addition to the reasons stated earlier, another reason to differ from the 2010 ACGIH TLV for beryllium stems from an economic position as current technology of the present can be utilized as it is used by many throughout the DOE Complex; therefore, would not have a significant financial impact.

Q4. 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.

A4. NO RESPONSE

Q5. 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.

A5. NO RESPONSE

Q6. What is the best method for sampling and analyzing inhalable beryllium? Please explain your answers and provide evidence to support your answers.

A6. NO RESPONSE

Q7. How should total fraction exposure data be compared to inhalable fraction exposure measurements? Please explain your answer and provide evidence to support your answer.

A7. NO RESPONSE

Q8. 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? If a low airborne action level should be established in lieu of the surface area action level, what should that airborne action level be? What, if any, additional administrative controls to prevent the buildup on surfaces should be established? Please explain each of your answers and provide evidence to support your answers.

A8. Surface area action levels should be established if for no other reason than the fact that not all sources of contamination are in a state that is easily disturbed resulting in an airborne concentration which may exceed the exposure limit. An example of such a condition may be found within an industrial wastewater facility where the beryllium contamination is "wet"; thereby, hardly able to become airborne but easily transferred from facility to the employee's skin, shoes, and clothing, subsequently potentially carried to the employee's home.

If surface area action levels are established, the following four different levels should be considered: a) 3.0 $\mu g/100cm^2$ + (high contamination area); b) 0.2 $\mu g/100cm^2$ to 3.0 $\mu g/100cm^2$ (contamination area); c) 0.05 $\mu g/100cm^2$ to 0.2 $\mu g/100cm^2$ (buffer area); and d) 0.05 $\mu g/100cm^2$ (action limit level differentiating between a clean area and buffer area)

Lastly, if any, additional administrative controls to prevent the buildup on surfaces were to be established, the Department should consider somewhat mirroring those incorporated within 10CFR835, *Occupational Radiation Protection*, and more specifically, 10CFR835.603, *Radiological areas*. Naturally, the terminology and units may be different; however, the premise is the same.

Q9. 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.

A9. NO RESPONSE

Q10. 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? Please explain your answers and provide evidence to support your answers.

A10. The Department should consider establishing only the aggressive air sampling criteria unless the facility is being considered for release to the public for use. If the facility is being considered for release to the public for use then 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 should be considered. If the facility is NOT being considered for release (e.g., demolition) then the Department should only consider the aggressive air sampling criteria.

The primary reason for employing the aggressive air sampling criteria lies with occupational and public safety as those employed by the demolition company and those within close proximity of the

demolition project may become exposed to airborne concentrations exceeding even current permissible limits for beryllium as a result of transferrable contamination becoming airborne during the final act of demolition. By adhering to the aggressive air sampling criteria, as was already strongly suggested to one of our demolition projects within the recent past, it provides the project with a level of confidence that exposure limits (airborne or surface) will not be exceeded PRIOR to the act of demolition whereas if the aggressive air sampling criteria was not established then the project would only be able to quantify the airborne levels of beryllium AFTER the completion of the project - the difference of preventing an exposure (proactive) versus NOT (reactive).

The costs to a project as a result of establishing the aggressive air sampling criteria is negligible when compared to the costs associated with exceeding the exposure limits and the costs associated with the affected health of employees and the general public.

Q11. Currently, after the site occupational medicine director has determined that a beryllium worker should be medically removed from exposure to beryllium, the worker must consent to the removal. Should the Department continue to require the worker's consent for medical removal, or require mandatory medical removal? Please explain your answers.

A11. As part of human nature, workers noted as being sensitive to beryllium as a result of exposure to beryllium may still desire to work in such environments for financial reasons, (e.g., overtime, hazard pay) which would be counter to their own health; therefore, consent by the worker should not be the only requirement. When the worker must perform activities within a Regulated Area or highly contaminated area, the DOE should consider mandatory removal as the only option. Naturally, if the worker can perform his or her duties by simply entering buffer areas or storage areas, the DOE should provide the worker with the right to medically remove himself or herself from performing work within such areas.

In closing, it was noted that the Department did not pose the question concerning the definition of a beryllium worker. As the role of a worker encompasses more than simply working within an beryllium airborne area, the definition should be modified to reflect such or create a new definition to capture those worker(s) who work within facilities performing activities involving beryllium contaminated surfaces or equipment that may not have an exposure issue from the position of airborne concentration but from that of skin and clothing contamination which would include cross-contamination as the worker traverses from one facility to another.

It is hoped that the suggestions provided will assist those in the position to modify the regulation in question. If any further questions are needed to be answered regarding this submittal, please feel free to contact Roland Chretien at (865)-241-6072.

Sincerely,

Roland S. Chretien III

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