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Re-Visit of OSHA Beryllium Rulemaking Alternatives on Frequency of Sampling

Regulatory Alternatives 9 through 11

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Background

- OSHA rulemaking proposal for a new 29 CFR 1910.1024 on beryllium
- OSHA also presented 24 regulatory alternatives to the proposal for public comment
- Sub-section (d) provides exposure monitoring requirements
- Three of the regulatory alternatives (9, 10, 11) were related to the exposure monitoring section
- Sampling and Analysis Subcommittee (SAS), at its November breakout meeting, suggested re-visiting this topic in a future SAS call
- I thought this might be of broader interest within the BHSC



Proposed 29 CFR 1910.1024 (d)

- **Exposure Monitoring**

- Breathing zone samples: at least one per shift, per job class, per work area
- STEL monitoring when likely to exceed the STEL
- Representative sampling allowed under specified conditions
- Accuracy of +25% at the action level ($0.1 \mu\text{g}/\text{m}^3$)
 - *ICP-AES may not be sensitive enough for this depending on sample volumes*
 - *Task group comments on this sub-section focused on this requirement*
- Initial monitoring is required unless there are reliable historical or objective data available that are representative of current operations/conditions
- Annual exposure monitoring if initial exposures are above action level but below PEL
- Additional monitoring within 30 days of either of the following:
 - *Changes in processes, equipment, materials, personnel, work practices, or control methods that can reasonably be expected to result in new or additional exposure*
 - *Employer has any other reason to believe that new or additional exposure is occurring*
- Written notification within 15 working days of receiving results
- Exposure monitoring may be observed by employee representatives



Regulatory Alternatives Affecting Sub-Section (d)

- Various scenarios for increasing the periodic exposure monitoring requirement in (d) (3) from “at least annually” to “at least every 180 days”
- **Alternative 9 – where exposures are:**
 - At or above the action level or above the STEL, and
 - At or below the TWA PEL
- **Alternative 10 – where exposures are:**
 - At or above the action level or above the STEL
 - (regardless of whether exposures are above or below the TWA PEL)
- **Alternative 11 – where exposures are:**
 - At or above the action level and
 - At or below the TWA PEL
 - Also would require monitoring at least every 90 days where exposures are above TWA PEL or STEL



What the Task Group Said

- **The task group made the following comment on alternatives 9 through 11:**
 - “Alternatives 9, 10, and 11 would call for sampling every 180 days, rather than annually, under different scenarios. The Task Group believes that sampling is generally needed more frequently than every 180 days, except for processes that occur less frequently than once every 180 days. This is based on the field experience of task group members at various locations. The Task Group has no further comment on these alternatives.”
- **In retrospect, perhaps the task group should have suggested Alternative 11 since it overall had the most frequent monitoring provisions**
- **BUT --- Let’s think about ...**
 - How this compares to 10 CFR 850
 - What is the right balance, and how do we get there?



How Does This Compare with 10 CFR 850?

- **10 CFR 850.24 (c)**
 - Periodic monitoring where airborne concentrations are at or above action level (0.2 mg/m³)
 - In a manner and at a frequency necessary to represent workers' exposure, as specified in the CBDPP
 - At least every three months
- **10 CFR 850.24 (d)**
 - Additional monitoring required "if operations, maintenance or procedures change, or when the responsible employer has any reason to suspect such a change has occurred"



Industries Affected by OSHA Rulemaking Proposal

As identified by OSHA (80 FR 47664)

1. Beryllium Production
2. Beryllium Oxide Ceramics and Composites
3. Nonferrous Foundries
4. Secondary Smelting, Refining, and Alloying
5. Precision Turned Products
6. Copper Rolling, Drawing, and Extruding
7. Fabrication of Beryllium Alloy Products
8. Welding
9. Dental Laboratories



Striking the Right Balance

- Unlike DOE, OSHA is required to consider costs versus benefits
- OSHA predicted their proposal would, annually, save 96 lives and prevent 50 non-fatal beryllium diseases
- At 7 percent discount rate, annualized costs estimated at \$39 million
 - Engineered controls (\$10 M)
 - Respirators (\$0.3 M)
 - Exposure Assessment (\$2.4 M)
 - Regulated Areas and Beryllium Work Areas (\$0.7 M)
 - Medical Surveillance (\$2.9 M)
 - Medical Removal (\$0.2 M)
 - Exposure Control Plan (\$1.8 M)
 - Protective Clothing and Equipment (\$1.4 M)
 - Hygiene Areas and Practices (\$0.4 M)
 - Housekeeping (\$12.9 M)
 - Training (\$5.8 M)
- At 7 percent discount rate, annualized benefits \$255 million
 - Fatal lung cancer, CBD-related mortality, morbidity



More on Striking the Right Balance

- It is probably safe to say that most of us in the BHSC would prefer to see quarterly monitoring (as required by 10 CFR 850) rather than annual or every 180 days
- How much would that increase the costs?
 - Some elements would not increase, but others could double or quadruple
 - For the sake of argument, let's suppose there would be a roughly 50% overall increase, from \$39 million to around \$60 million
- How much more would that reduce mortality and morbidity?
 - Again, for the sake of argument, let's suppose there would be a 50% improvement, meaning another 48 lives saved and another 25 non-fatal diseases prevented
- Would it be worth that additional cost?
 - “Yes” if it is your life being saved
 - But if some small businesses cannot absorb the cost, that could also affect lives
 - Where is the point of diminishing returns? (A legal consideration for OSHA)
- I'm not taking one position or the other here – just using this as an illustration of the challenges in striking the right balance



So ... Discussion?

