Manganese Advisory Committee
Meeting Minutes
September 15. 2017

Location: Oregon OSHA Portland Field Office

Meeting Started: 2:00 PM

Present:

Heather Case (Oregon OSHA)
Tasha Chapman (DCBS)
Aaron Corvin (Oregon OSHA)
Dave Ciolek (Lincoln Electric)
Jenny Dresler (OR Farm Bureau)
Scott Eversmeyer (NW Natural)
Gina Facca (Vigor)
Matthew Kaiser (Oregon OSHA)
Kathleen Kincade (Oregon OSHA)
Tyson Lindekugel (ODOT)
Les Nelson (ESAB)
Jeff Powell (Gunderson)
Russ Reasoner (Oregon OSHA)
Renée Stapleton (Oregon OSHA)
Alden Strealy (AGC)
Matt Svaglic (Gunderson)
Trena VanDeHey (Oregon OSHA)
Michael Wood (Oregon OSHA)
Chuck Worley (L&M Industrial)

By Phone:

Jeff Jackson (Oregon OSHA)
Mike Jewett (Nortec Air)
Dru Silva (Cascade Steel Rolling Mills)
Susanna Wagner (Oregon Health Authority)

Welcome and Introductions

The group introduced themselves.

Renée opened with remarks outlining the role of advisory committees, and gave some context to the group regarding Oregon OSHA's commitment to re-evaluate at least four -- and possibly up to six -- Permissible Exposure Limits (PELs.) She talked about how manganese ended up near the top of that list and how, due to on-going research, the scientific community now has a better understanding of its toxicology. Oregon OSHA wants to hear from stakeholders about modifying this PEL, specifically in regard to any potential fiscal impact that a different PEL would have.

Kathleen gave the group an overview of the last meeting and addressed the action items from the previous meeting:

- Kathleen reached out to other employers (including welders and other metal workers) and union representatives. This increased the size of the advisory committee; however we are still actively seeking additional participation, especially from union representatives. (The group was encouraged to call/contact any union members/ employee representatives they know who may want to be involved.)
- Susanna Wagner spoke to the group regarding her manganese toxicology research. She shared information from a copyrighted study that showed a (modeled) dose dependent progression of Parkinsonism among welders. The paper is noteworthy in

that it attempts to provide dose dependent research. There is currently no known research identifying a 'no adverse effect level' for manganese.
- California OSHA's record of rulemaking (including their fiscal impact statement and testimony from stakeholders) in now posted on the Manganese PEL advisory committee topic page on the Oregon OSHA website.
- Oregon OSHA reached out to the National Institute for Occupational Safety and Health (NIOSH) about their recommended exposure level (REL) for manganese, and on-going research which was discussed by the group. (See more below under discussion of the PowerPoint presentation).
- Several handouts were provided at this meeting and Kathleen stated she would send copies or links to people who attended by phone.
- The group was encouraged to provide Kathleen with any other information they think important so she can disseminate it to others in the group, as appropriate.

Discussion:

Review of background materials: The group had a chance to review handouts from the previous meeting. No one had any questions or comments regarding those materials. One addition will be made to the comparison of PELs/ TLVs/ REL document about Washington State's OSHA PEL.

Review of New Information:

NIOSH Powerpoint presentation:

Kathleen went through some slides from a PowerPoint presentation shared with Oregon OSHA by Shannon Berg, MS and Robert Park, MS of the National Institute of Occupational Safety and Health (NIOSH)). The slides had been presented at a Neurotoxicology Conference last September and reflected an evaluation of several studies showing dose/response data for Manganese. Although recommendations from NIOSH do not have the force of law, part of its role is to provide guidance to regulatory agencies such as OSHA.

Of particular interest to the group was the slide, titled "PBPK Prediction of Brain Concentrations of Mn". This showed the cumulative predicted brain concentrations of manganese with different animals (including humans as "simulated"), based on exposure concentrations of manganese. The California OSHA PEL and the Federal OSHA PEL were noted on this slide. (The group also the noted where the proposed-but-remanded Federal OSHA PEL of 1 mg/m3 would fall on the response curve.) This research presented suggested that the threshold limit value (TLV) of 0.02 mg/m3 has good support in the literature, but noted that long term effects were not assessed. Of course, there would likely be differences between animal exposure and human exposure.

Renée provided some history about the NIOSH REL. When federal OSHA made their PEL proposal in 1988, NIOSH did not provide a full study, but supported the proposal of a 1 mg/ m3 PEL and a 3 mg/m3 ceiling but and hasn't updated their REL for Mn fume since then. Renée spoke to Ms. Berg regarding NIOSH's current process for establishing a new REL. There are many steps before NOISH will be publishing a new REL; however, the opportunity for public comment may be available in 2018.

Discussion of Economic Impact:

Last meeting, the group started the discussion about potential economic impacts of changing the PEL. Manganese monitoring done by Oregon OSHA over the previous sixteen years showed results that were above the 0.2 mg/m3 level. It was noted that the half-mask respirator could only be used for exposures up to 10 times the PEL, whatever that number is. (The group also noted the steep increase in health effects shown on the NIOSH PBPK Prediction of Brain Concentrations graph at around 0.2 mg/m3.)

Some industry representatives stated that a PEL of 0.02 mg/m3 would be problematic, because using engineering controls alone are not likely to be strict enough for that level and adding effective respirators would likely result in significant increased costs to outfit all workers in the area – especially if (more protective) Powered Air Purifying Respirators were required. These representatives stated that 0.2 mg/m3 may be a better place to start.

American Conference of Governmental Industrial Hygienists (ACGIH) Information:

The group asked about the ACGIH's documentation for their recommended manganese Threshold Limit Values (TLV) exposure levels. Kathleen provided a summary of that information to the group. (The full "documentation" document is copyrighted) Oregon OSHA will inquire about the possibility of providing full copies of the documentation to the group.

OSHA Lab Results:

Most of the historical monitoring data from the OSHA lab was measured at between 0.2 and 2.0 mg/m3. About 50% of the results were over 0.2 mg/m3. A group member pointed out that some clarifications were necessary about OSHA sampling data. It was noted that the lab numbers may have been from long duration sampling. In the 16 years of data, reflecting 1,675 samples, 56% of people sampled would have been overexposed at the 0.02 level and 14% would have been overexposed at the 0.2 level..

Powered Air Purifying Respirators (PAPR) and Other Controls:

The group discussed the idea of welders wearing PAPRs. Although potentially more effective in preventing exposure, increased use would mean increased costs. Some group members noted that, if the PEL went low enough, employers may have to not only put PAPRs on their welders, but also on other people working near the welders. Other group members pointed out that this may be a significant initial cost, but could save money in the long run on health claims.

Employers in the group spoke about the different types of controls necessary to reduce exposure to manganese at different levels. In terms of feasibility, it was said that getting to a PEL of 0.02 mg/m3 was going to be a much bigger difference than getting to a PEL of 0.2 mg/m3. Employers also noted that the AGCIH study looked at both respirable and inhalable types of manganese exposure. The group also pointed out that high turn-over in the workforce (of welders especially) could mean a huge cost outlay to outfit them all with PAPRs.

The group discussed other protections such as the use of lower manganese “consumables” in welding, engineering support for the use of lower manganese consumables, and exhaust ventilation options.. One representative spoke about the cost “premium” associated with the use of low manganese consumables such as welding wire. Currently, it was said to be impractical to remove all manganese from manufactured wire because this affects quality elsewhere. Group members stated that it is hard for employers to see the benefit of spending more on a low manganese consumable if they will also have to use a PAPR and buy that as well. Right now, manufacturers of low manganese wire can reduce manganese by about 50-60% but thought that it would still likely result in an exposure over 0.2 mg/m3 exposure during welding. Group members remarked that using ventilation could bring this down further but this is not currently practical for non-fixed worksites. It may be that low manganese wire would be more feasible for maintenance welders at fixed worksites.

Comments from stakeholders:

Kathleen asked each one of the stakeholders in attendance and on the phone to speak about their issues and concerns for this rulemaking. Group members brought up a variety of concerns and topics:

- Some mentioned that all of the stakeholders are here “for the right reasons:” to protect workers, and that manganese exposure needs to be lowered, but want it done in a fiscally responsible manner. They or their association members would be ready to give some cost estimates to the group based on the number chosen and other details.
- Members are very interested in the research regarding medical issues and exposure to manganese at different levels. (It was mentioned that mangansm and Parkinsonism are challenging to get accurate numbers for due to difficulties in diagnosis, time to manifest, and the prevalence of misdiagnosis between the two.)
- The challenges of making sure all employees are trained, kept up on training, and are invested in training; and of meeting workers preferences, for personal protective equipment (PPE) was discussed. Also wearing respirators with other welding PPE can be a challenge.
- Although some stakeholders already provide quite a few engineering controls, particularly for other substance exposures (such as hexavalent chromium), 0.02 for Mn was anticipated to be a “hard target for a lot of employers to meet and would be hard to manage through ventilation.
- Not all welding is done in fixed worksites where welders have an opportunity to increase ventilation. A lower PEL would also mean preventing exposure for non-welders in a shop environment. (There is some research and development being done by some PPE and ventilation manufacturers regarding this issue.)
- The life expectancy of a typical PAPR and typical replacement and maintenance costs associated with that type of respiratory protection was discussed.
- The feasibility of relying on engineering controls “on the ground.” It may look good “on paper” but actually using them can be problematic.
- What are the implications of moving from a “ceiling limit” (a high a short term exposure) as compared to an 8 hour time-weighted average exposure.

- A request to reach out to SAIF Corporation and to the Workers' Compensation Division for information about what kinds of claims are associated with manganese exposure. Some people remarked that it was likely that the number of claims would be very small due to misdiagnosis and the difficulty of getting an estimate for cost of treating chronic disease.

Recommendations: The committee recommended that Oregon OSHA keep the next meeting in place, which will occur two weeks from this meeting.

Action Items:

- Oregon OSHA will inquire about purchasing the (copyrighted) ACGIH study.
- Oregon OSHA will contact the Oregon Health Authority, Workers' Compensation Division, and SAIF Corp. about reported cases of manganism as well as work-related claims and rates. (Perhaps occupational physicians in Oregon could add to the discussion, as well.)
- Oregon OSHA will clarify their lab data about levels of exposure to manganese and bring a clearer summary of the OSHA lab sampling data. This will include an inquiry about the possibility of separating data based on different types of welding or types of cores used.
- Members with ties to union groups will invite them to participate in the advisory committee and will inquire about any union-related or sponsored studies regarding medical issues associated with manganese exposure.

Meeting Adjourned: 3:55 PM

Next Meeting: Friday, September 29, 2017, 10:00AM-12:00PM, Oregon OSHA Portland Field Office (16760 SW Upper Boones Ferry Rd #200, Tigard, OR 97224)