Cal/OSHA Advisory Meeting
General Industry and Construction Lead Standards
Thursday, June 12, 2014
Oakland, CA

Welcome: Juliann Sum, Acting Chief
Meeting Chairs: Steve Smith, Bob Nakamura, Peter Scholz
Notes: Mike Horowitz

Attendees:

Name	Affiliation
Frank Werbelow, Jr.	DPR Construction
Bonnie Feemster	So. Cal Gas Co.
Patricia Coyle	CA Dept. of Public Health. – Occ. Health. Branch
Howard Spielman	CA Industrial Hygiene Council (CIHC)
Eric Rozance	Phylmar Regulatory Roundtable
Lorna Benne	Caltrans, Construction
Michael Ely	Association of Environmental Construction
Ismael Pedroza	Trojan Battery Company
Wendy Plank	American Compliance Service, LLC
Steve Manthe	Association of Environmental Contractors
Randy Reyer	EnerSys Battery Co.
Terry Campbell	U.S. Battery
Rachel Blythe	Cal/OSHA Intern, UC Berkeley
David Woodard	East Bay Municipal Utility District
Tim Bormann	AGC/The Cohen Group
Brian Heramb	San Diego Gas & Electric
Kevin Thompson	Cal-OSHA Reporter
Christopher Lee	United Contractors
Jeremy Smith	State Building & Construction Trades Council of CA
Morena Tumiati	Caltrans
Vickie Wells	City and Co. of SF, SF Dept. of Public Health, & CIHC
Jim Dunnegan	Varian Medical Systems
Burt Olhiser	Soc. for Prot. Coatings; Painting & Dec. Contr. Of Amer.
Ruben Barga	Laborers Local #67
Andrew G. Salmon	Cal-EPA/OEHHA
Kathleen Vork	Cal-EPA/OEHHA-ACERB
Dave Sandusky	Forensic Analytical Labs
Hank Malek	Brand Construction
Jessica Ryman	International Lead Zinc Research Organization
Amir Fardin Sadlehinegiors	Caltrans

Patricia Becker	Assoc. of Gen. Contr. of California Safety & Hlth Council
Robert Ikenberry	California Engineering Contractors
Dorothy Wigmore	Worksafe
Randal Brown	Advanced Constructors, Corp.
Bill Taylor	Public Agency Safety Management Assoc.
Barbara Materna	CA Dept. of Public Health. – Occ. Health. Branch
Bruce Askanas	CA Dept. of Public Health. – Occ. Health. Branch
Mary Deems	CA Dept. of Public Health. – Occ. Health. Branch
Gerry Manley	RSR Corporation
Steve Johnson	Assoc. Roofing Contr. of the Bay Area Counties
David Weinberg	Battery Council International
Cathy Petito Boyce	Gradient Corporation
Deborah Gold	Cal/OSHA
Mitch Seaman	CA Labor Federation
David Harrington	CA Dept. of Public Health. – Occ. Health. Branch
Bob Blink	Western Occ. & Env. Medical Assoc.
Jay Weir	AT&T
Julie Pettijohn	CA Dept. of Public Health. – Occ. Health. Branch
Michael Kosnett	Univ. Of Colorado, Denver
Scott McAllister	M&M Occ. Health.& Safety Services

Introduction

Juliann Sum, Cal/OSHA Acting Chief, opened the meeting by welcoming the attendees to a meeting focused on strengthening the Cal/OSHA lead standards. She provided some history to the lead standards, and introduced Cal/OSHA staff.

Steve Smith made introductory remarks on the nature of the Cal/OSHA advisory process. He noted that there had already been two meetings on the lead standards mainly focused on the medical surveillance aspects of the standards. He reviewed the recent work of CDPH and OEHHA, looking at an appropriate PEL for lead. He reviewed the materials that had been handed out. He discussed the agenda and the plan for future meetings. He emphasized that this was an informal advisory meeting addressing 'discussion drafts;' this is not a rulemaking process.

Everyone in the room made self-introductions.

Bob Nakamura gave a history of Cal/OSHA's lead standard revision efforts. There was a petition to the OSHSB in 1992 to revise the medical surveillance section of the general industry lead standard. But evidence was thought to be inconclusive and nothing was changed. In 2009 CDPH recommended that the lead standards be revised and meetings were held in 2011 and 2012 . The 2011 meeting concentrated on medical surveillance and medical removal issues. He pointed out that Cal/OSHA standards must be at least as effective as the federal standards. Therefore a compromise was reached with FedOSHA on ZPP testing: it would be required for BLLs over 20 ug/dl. At the 2012 meeting it was decided to wait for OEHHA's report on the relationship between air lead and blood lead, and on CDPH's subsequent recommendation for a PEL.

Bob Nakamura noted that the current discussion drafts followed on the presentation of CDPH's PEL recommendation. He noted that the current meeting would discuss both general industry and construction draft language. But that, going forward, Cal/OSHA may split the advisory process into separate general industry and construction meetings. He noted that Cal/OSHA was not expecting this to be a short process.

Dr. Barbara Materna then gave a slide presentation based on the presentation she gave November 2013 at the symposium 'Lead in the Workplace – The New Science.' She noted that the full presentation and supporting documents are available at CDPH-OHB's website https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/OHB/OLPPP/Pages/LeadSymposium.aspx. She concluded by restating that, based on OEHHA's report, CDPH recommends that the lead PEL be set in the range of 0.5 to 2.1 ug/m^3 -- 0.5 ug/m^3 would maintain almost all BLLs over a working lifetime below 5 ug/dl, 2.1 ug/m^3 would maintain BLLs below 10 ug/dl.

Questions to Dr. Materna then followed.

Robert Ikenberry What about the initial 'background level' referenced in a slide which graphically laid out long-term BLL trend lines based on different airborne exposure levels? What was it, and why was it higher than standard US population background levels?

Kathy Vork The model used a background level of 1.5 ug/dl.

Burt Olhiser The model is based on constant exposure over 40 years which is not the case in construction. How can we justify lowering the PEL such a drastic amount, those things considered?

Barbara Materna This has to do with the definition of a PEL; it is premised on the conservative assumption of continuous exposure. We were aware that not all industries had continuous exposures; we just felt that this conservative assumption was required.

Steve Smith Protecting against continuous exposure for 40 years is the premise upon which both OSHA and Cal/OSHA PELs are set.

Michael Kosnett Construction-related exposures can run up BLLs quite high. Whether the exposures are constant or intermittent, bone lead levels indicate rising levels of cumulative dose.

Brian Heramb Can Barbara Materna or Michael Kosnett comment on health effects before 40 years' exposure?

Barbara Materna The Environmental Health Perspectives article (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1849937/) stated that a BLL above 10 ug/dl for a year or more would increase the risk of health damage. There is no known threshold for the amount of lead which causes ill health effects.

Michael Kosnett If you express cumulative dose as ug/dl x years (e.g. 20 ug/dl for 10 years equals 200 ug/dl x yrs.), you can get an increased risk of hypertension at levels of 200-300 ug/dl x yrs. Therefore, you don't have to wait 40 years for adverse health effects. Short-term exposure is important for

reproductive effects. The exact amount of time for cognitive effects or cardiovascular effects to manifest themselves is in the order of years to decades, not months. But it does not necessarily require 40 years.

Jessica Ryman To my knowledge bone lead measurements have not been validated.
Barbara Materna XRF used to measure lead in bone has been used for a number of years now and should not be considered unvalidated. Both NTP and EPA looked at both BLLs and bone lead.

Michael Kosnett No one is suggesting that bone lead be used for biological monitoring. But for scientific studies it has been well-validated. Most importantly, by tracking people's long-term BLL and then measuring bone lead: the correlation was 0.8, which is pretty high. It is a valid measure of long-term lead exposure.

Dorothy Wigmore I am pleased that the lead standards are finally being looked at. What does this model underestimate or ignore? I noticed that the IARC 2A carcinogen classification of lead was not mentioned. I am particularly interested in the differences between men and women.

Barbara Materna The issue of ingestion of lead was not easy to model given that there is not a lot of data out there on this. There are going to be differences between men and women on breathing rates and other parameters used. One issue is there are not a lot of workplace studies to rely on to make comparisons by sex.

Kathy Vork Most of the studies the modeling relied on are of men. There is a model by Ellen O'Flaherty that addresses the differences between men and women, but OEHHA chose instead the Leggett model because of how the bone compartment was modeled.

Jessica Ryman Bone lead validation is not at the same level as BLL validation; it is more experimental. Given that, how much has CDPH relied upon bone lead data for their recommendations?

Barbara Materna We looked at everything including bone studies. We looked at the overall body of evidence; both BLL data and bone lead data point to the same conclusions.

Brian Heramb What is the probability of developing any adverse health effects at, for instance,10 ug/dl.

Michael Kosnett There have been studies that have come up with relative risks. For example the Hu study in JAMA in 1996 http://jama.jamanetwork.com/article.aspx?articleid=400490 . Other studies have looked at cumulative lead exposure in adults and cognitive function and have come up with relative risks. The NHANES studies looked at the general US population, including adults in their 50s who grew up for decades with BLLs of 10 -25 ug/dl. That cohort has an increased risk of cardio-vascular mortality.

Permissible Exposure Limit

Steve Smith Cal/OSHA is starting the discussion with an AL of 2 ug/M^3 and a PEL of 10 ug/M^3. These are not the levels given to us by CDPH. Our goal is to get employees' BLLs below goal level of 10 ug/dl. One component of this effort is to reduce air lead levels; it is not the only way to do this. We are trying to complement these reduced air levels with other protections, such as triggering more requirements at lower levels, and introducing triggers that do not depend on air levels. We are hopeful that this

complementing of the air lead requirements with other protections will achieve the same goal of getting people down to a lower BLL, without necessarily putting all the burden on the protections triggered by the PEL. It is a discussion point. We are not necessarily saying these will be the final proposed levels; this is where we want to start the discussion. This is what we want your advice on.

Burt Olhiser Our organizations (SSPC and PDCA) have put forward a proposal that recognizes the need for change to better protect employees' health. We're proposing 25 ug/M^3 for the PEL and 12 ug/M^3 for the AL. We are also proposing that protections be afforded for Level 1 and Level 2 trigger tasks regardless of air monitoring. This needs to happen; there is a lot of reliance in this standard [construction std.] on air monitoring results. Cal/OSHA doesn't have the ability to enforce this regulation if the employer hasn't done air monitoring. There should be more reliance, for protecting employees' health, on the actual performance of the trigger tasks. For tasks like sand blasting, air monitoring has to be done frequently and accurately. That's another thing we see – employers not doing air monitoring frequently enough or competently enough, and that's never enforced.

Steve Smith The Division has been looking at changes to the 'trigger tasks'. A good comment, and we are certainly looking at beefing up the 'trigger task' requirements.

David Weinberg The Battery Council International has passed out a comprehensive statement, but Mr. Reyer would like to make a summary statement.

Randy Reyer [Director of Corporate Env. Hlth & Safety for Enersys, Chair of the BCI's Industrial Health Committee.] [Reads:] BCI member facilities employ more than 1200 workers in CA. When we last testified here in 2012, we described the battery industry's highly successful, voluntary program to reduce employee BLLs. On a national basis, at the end of 2013, less than 0.1% of employees in the battery manufacturing and secondary smelting employees had BLLs over 40 ug/dl. The industry's national average is below 15 ug/dl. Our voluntary target is to lower employees' BLLs to below 30 ug/dl by the end of 2016.

BCI has no objection to regulation catching up with the science and real world experience. BCI also appreciates that the Cal/OSHA process so far has been transparent, and that the regulators are committed to working with industry to craft a reasonable and appropriate standard. Any new standard can dramatically impact workers and businesses. If standards are set at unrealistically low levels or do not account for the differences between industries, companies will face compliance costs that exceed their financial capabilities.

Cal/OSHA also has the opportunity to address deficiencies in the original standards, such as the reliance on the 'hierarchy of controls'. This requires employers to use engineering controls and a PEL before using work practices, PPE and good hygiene. Because of improvements in PPE and hygiene practices, this is no longer a wise approach. The best approach is to use reasonable air lead controls in combination with work practices, PPE, and hygiene. Modern work practices, PPE and good hygiene are incredibly effective at reducing worker exposures. In some cases these may be more effective than air lead reductions, and are currently more cost effective. Compliance with PPE and hygiene requirements is excellent because of training. Cal/OSHA has the opportunity to rethink the 'hierarchy of controls' to reflect today's industry. Cal/OSHA should embrace the most effective protective controls rather than continuing to rely solely on ever-tightening extraordinarily expensive, facility-wide engineering controls.

Worker training is a key element in preventing worker exposure to lead. This includes training in good work practices, PPE, good hygiene methods, washing hands well, and showering well. These methods are as, or more, effective than facility-wide engineering controls.

BCI supports the prohibition of food and drink in work areas. However, employer-provided hydration stations must be provided particularly for employees working near hot machinery or in hot climates. BCI has been working on equipment and training to address this and looks forward to working with Cal/OSHA on this issue.

Cal/OSHA has an obligation to ensure that standards are economically and technically feasible, and reasonable under all circumstances. BCI has grave concerns that the PEL and AL proposed by Cal/OSHA are economically and technically unachievable. For a typical battery manufacturing facility, a PEL of 10 ug/M^3 is roughly equivalent to maintaining a Class 1000 clean room of the type used in pharmaceutical manufacturing. This would require a crippling level of investment for the acid battery industry. The impact on California businesses and workers is potentially severe. Cal/OSHA must develop an economic impact analysis. Given the small number of companies in California, and the fact that many are in different battery markets, this analysis will not be an easy one.

Regarding technical feasibility, BCI does not believe that the proposal is achievable with today's technology. For example the proposed AL of 2 ug/M^3 is below the level that can accurately be measured by existing monitoring equipment. Also systems required to reach Class 1000 cleanroom conditions may be physically incompatible with existing facilities.

Cal/OSHA also has an obligation to base standards on the latest available scientific data. To the extent that Cal/OSHA has relied on OEHHA's modeling and CDPH's recommendations, this does not reflect the current state of research in the field. BCI has provided a white paper that describes the particle-size distributions in the US battery manufacturing and secondary smelting industries. Scientific literature acknowledges the particle size plays an important role in the uptake and ingestion of lead. The particle-size distribution relied on by OEHHA, and in prior scientific articles, was not representative of modern industrial conditions. OEHHA dramatically underestimated the prevalence of large and very large particle sizes which present a much lower risk of absorption compared to lower-sized particles. Copies of BCI's particle-size distribution data are available to pick up on the table.

BCI has two recommendations to put the standard on solid ground: 1. Cal/OSHA must independently review the science, economics, and technology before setting a standard, and BCI would like to be involved in the feasibility analysis; and 2) Cal/OSHA should adopt a tiered workplace program that subjects industries that meet good work practices and documented particle-size distributions to a more tailored regime. Particle-size distributions are different in battery manufacturing than in radiator repair, and it is illogical to impose the same PEL on both industries.

Proper PPE and worker hygiene can have greater worker protection impacts and are more cost-effective than exclusive reliance on engineering controls. Cal/OSHA should encourage the adoption of best available protective equipment by allowing employers to develop facility-specific worker protection plans combining a combination of techniques to most effectively protect workers.

Steve Smith Cal/OSHA looks forward to getting your advice on feasibility issues.

David Weinberg There is a practical problem of measuring at 2 ug/M^3. Also it may bring in a population you haven't even thought about. And it would have an unnecessary economic burden on an awful lot of people. In terms of the PEL, we are reworking the OEHHA numbers with the accurate data on particle size that is relevant to this industry which is the largest lead-using industry in the State. There will be numbers we can talk about, that are well below the current OSHA standard, but are probably not 10 ug/M^3.

Robert Ikenberry Would the battery industry consider talking to SSPC in joining in our recommendation of a PEL of 25 ug/M^3 and a AL of 12 ug/M^3? SSPC would also like to be able to use PPE as the primary form of control when more engineering controls are not feasible.

David Weinberg We do believe that the 'hierarchy of controls' no longer makes sense. 35 years ago there were much higher levels of exposure and a very different attitude on the part of industry. Cal/OSHA is not bound to the 'hierarchy of controls' by the feds or by any statutory mandate. Anything you do will be at least as effective as the federal government. Using these respirators protects workers and ensures jobs. Imposing the costs described in the short paper discussing cleanroom standards does none of those things.

Mike Ely We agree with the lowering of the AL and the PEL. We operate under those guidelines now. In 2010, we had 1146 workers tested and 97% were under 10 ug/dl. Generally we are seeing manual demolition air levels of about 20 – 30 ug/M^3. With any modicum of controls you can knock that in half.

It is with sandblasting that you get into 20 – 30, 000 ug/M^3. If you lower the PEL to 10 ug/m3, using an airline respirator, you will only be able to blast for 2 hours. SCBA has a protection factor of 10,000 and an airline respirator has a protection factor of 1000. My understanding is the difference between the airline respirator and the SCBA is the escape capability. Perhaps an exemption could be made for abrasive blasting in terms of the PEL or the respirator protection factor.

Fewer than 1% of CA painters do BLL testing in a year (70 out of 15,000 active contractors). 553, 000 construction workers in the State, 4000 were tested for lead (less than 1%). There is a compliance problem overall. In 25 years of lead work we have never been inspected.

Steve Smith We have thought about the trigger-task issues and we look forward to more discussion when we break out into future construction-specific advisory meetings.

Mitch Seaman Based on the presentation made earlier, it sounds like (at discussion draft AL and PEL levels) we are asking workers to accept hypertension and reduced cognitive function as a direct consequence of their jobs. It seems like a tough thing to swallow. If that's the best we can do, then that's the best we can do. But that seems like a pretty tall order. But it seems like the conversation should focus on what BLLs are going to be and how we are going to get there. The levels at which we see health impacts should be the ceiling, we should not go beyond that. Reproductive harm, reduced cognitive function and hypertension have real costs. So when we spend money to reduce workers' lead exposure we are saving money in other places.

Dave Sandusky On the technical feasibility of being able to hit 2 and 10 ug/m^3: it is all possible; the technology exists. It is a matter of time, cost, and availability. Flame AA can go down to 5 ug/sample (equals about 5 ug/M^3 at 2 liters per minute. That can be $5/sample.) ICP is a factor of 10 below that. Graphite furnace is another 10 below that. The lower you want to get, the more it costs and the longer it takes. ICP will be $15 to $20. Graphite furnace will be $20-30. ICP-MS (which is another factor of 5 lower) is $40-50 per sample. We need to know what will be acceptable as a reporting limit. Will it be a factor of 10 below the AL of 2 ug/M^3?

Steve Smith That is good info and we will have to factor this in.

Michael Kosnett I want to respond to earlier comments that a PEL established by Cal/OSHA will exclusively rely on engineering controls and turn facilities into clean rooms. That is not necessarily the case. Cal/OSHA should review the preamble and text of the federal cadmium standard. The PEL for cadmium is 5 ug/M^3. FedOSHA realized that this could not necessarily be achieved entirely by engineering controls. They established 'SECAL's – separate engineering control air limits, higher than the PEL. So there is a precedent for this approach.

The chromium standard at 5 ug/M3. So there are two other hazardous metals where you have PELs of 5 ug/M^3. And the ACGIH TLV for respirable cadmium is 2 ug/M^3.

Steve Smith The original lead standard had implementation schedules for ratcheting down the levels understanding that there was a feasibility issue back then. We are open to these options.

Howard Spielman On the feasibility of sampling and analysis -- I made some calls to labs. If you went with 2 ug/M^3, based on AA analysis, that might be a bit of a challenge because most pumps reliably run at 2 liters per minute. If you use the ICP analysis, it is quite feasible. ICP is not significantly more costly than AA. Short-term sampling could be a problem however.

In the draft there is a significant amount of quality assurance of medical surveillance. It's strikingly absent that this is not required for an evaluation of air exposures. CIHC would strongly advocate that the evaluation by done under the supervision of a CIH. Also, we strongly advocate that you have qualifications of the laboratories that are analyzing the air samples and bulk samples. Section 5155 has language that requires competence in exposure evaluation. If you included a CIH requirement, 'CIH' is described in the Business and Professions Code.

Another concern is that the standard says that if you use respiratory protection to meet the PEL, you are considered to have met the PEL. I have not seen this in any other standard so far. Does the same apply to the AL?

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Dorothy Wigmore I'm concerned about comments about forgetting about the 'hierarchy of controls'. And instead focusing on training and hygiene, things that we know only limit the harm; it's not about real prevention. We support CDPH's recommendations, going lower than Cal/OSHA's draft discussion numbers. The science is there. If you talk about cost, we should talk about the cost to workers. There are things that are hard to count. But I urge Cal/OSHA to look at the cost of the problem, not just the cost of the solution.

We urge Cal/OSHA to not forsake the 'hierarchy of controls'. We need engineering methods. We need to push engineering solutions. Lead in the air – lead available for ingestion—needs to be less. I don't recommend that anyone work with a respirator on for 8 hours or longer. There are all kinds of consequences to that. Don't set a precedent with this standard by saying that training and respiratory protection are the first things that need to be done. That is turning public health principles upside down, and will have enormous effects on standards in this state and elsewhere.

Cal/OSHA should be more informed on 'green chemistry' principles.

Frank Werbelow One CEA member, who could not be here today, is not too happy with the draft proposal. Their comment or question is: [reads]"The allowable levels are more microscopic . I'm not even sure that the general contractor on the jobsite, where lead has been removed, would not be burdened by this proposed change, even if the actual removal is performed by the subcontractor. Can the environment that remains after removal meet the new PEL level?"

Burt Olhiser I have monitored in 'still workplaces' and have found that exposures are in the single digit range. This is in a containment, where blasting or chemical stripping is complete, and the inspector wants to crawl around and look at it. And there is some debris that may be left in the containment. So I think the gentleman's question is very legitimate.

Frank Werbelow Baseline testing would have to be done on any potential lead project. Medical surveillance will be required on anything we do. People come onto jobs with different BLLs. I'm all for the worker. And we'll put in to place whatever we need to. But to lower to the levels proposed will be a chore.

Bill Taylor A lot of our members are shooting ranges. Police officers shoot maybe 4 times a year for 30 minutes. But the range masters are there every day. The draft PEL is going to be difficult for us to meet. The BLL testing that we've done: we're below 20 ug/dl. I think that if we meet the BLL levels, there should be some kind of exemption from the PEL. The way they handle their guns has changed in the last few years and that will have an effect too. But this seems to be just focused on airborne exposure.

Steve Smith Air levels is just one component of what we are trying to do here. This is just what we are talking about now, but you will hear more about the other concepts as we move forward.

Vickie Wells We have monitored our police officers, and our range officers who work every day, and all our levels are non-detect. So we would have no problems achieving these levels. These are outdoor ranges.

Randall Brown We work exclusively within the lead recycling industry; we do construction and maintenance; we remove their furnaces and rebuild them. I'm in line with the BCI in that things do need to be tightened up a bit. But I know we couldn't meet this PEL.

Medical Surveillance and Medical Removal Protection

Peter Scholz Medical surveillance and medical removal were addressed back in 2011. So some of this is revisiting that language, and some of this has been 'tweaked' since then. In both standards we're doing three general things: 1. Changing what triggers enrolling someone in a medical surveillance program; 2. Changing the frequency of blood lead testing; 3. Changing the criteria for medical removal.

Looking at (j)(1). Steve talked about us trying to control BLLs in different ways, not just by reducing the air levels. We are trying to have medical surveillance carry more 'weight' within the standards.

[Reads draft (j)(1)(A) and (B) language in both draft standards].

The requirement to initiate medical surveillance for (d)(2) tasks is already in the standard, we have just clarified that requirement. The big change here is the requirement to fully enroll employees doing (d)(2) tasks in a medical surveillance program.

On the general industry side we've essentially done the same thing. We've come up with this "threshold amount of lead work" which is kind of a generalized trigger-task. What we are doing here in both standards is linking medical surveillance, and a given frequency of blood lead testing, to situations where air monitoring has not been conducted.

Burt Olhiser I see a lot of opportunity for argument here. How is Cal/OSHA going to demonstrate to the small employer that they fall under this requirement because their employee has worked with lead for more than 10 days in 12 consecutive months? I would argue: just put a period after "(d)(2)", rather than including the 'ten days' because I don't think Cal/OSHA is going to be able to enforce that.

Steve Johnson Including "may conduct…" is way too general because it could apply to any employee.

Howard Spielman We've been operating on the presumption that the 'trigger-tasks' were used as an surrogate measure of employee exposure if there was no actual exposure monitoring. But that, once monitoring was done, these monitoring results governed what happened. Here you are saying that even if you monitor and find you are below the AL while doing 'trigger tasks,' you have to do medical monitoring. I think that is a problem.

Peter Scholz We don't mean to say that here. So I'm hearing there is a lack of clarity.

David Weinberg Would cleaning a battery terminal constitute 'altering or disturbing' and therefore be a 'threshold amount of lead work'?

Robert Ikenberry Maybe the mention of ZPP testing here might be misleading because I understand the draft does not now routinely require it, only when BLLs are above 20 ug/dl.

Terry Campbell What is the definition of "a day"?

Peter Scholz Good point. He's talking about grave yard shift.

Vickie Wells I'm concerned about "may be exposed" language. Any employee "may be exposed." Also I don't think we should have to do medical surveillance if we've done an assessment which shows we are below the AL. I know you can get lead in other ways than inhaling it, but the assessment should include an assessment of cleanliness in the area and work practices.

Steve Smith "May" is language that has been there for a while and has not been abused by either side. If you anticipate the employee may be exposed, you don't have to wait the 10 days to start the medical surveillance.

Vickie Wells Anticipating the exposure is one thing; being required because it 'may' happen is another.

Howard Spielman The elephant in the room is that we've used an air concentration level as a trigger for medical surveillance. People do get exposed in other ways. I don't see this being handled in this standard.

Peter Scholz We're not going cover this today, but we are going to put forward 'basic hygiene requirements' that are not dependent on exposure over the PEL. This is another way we are proposing to make the standard more protective.

Burt Olhiser In support of Vickie's comments—there is precedent for changing the language to "where employees have been shown to be exposed." In the current construction standard employees have to be "shown" to be exposed over the PEL before showers are required. So that would support that sort of language rather than the "may be …." language.

Peter Scholz Just to be clear: we're 'arguing' over currently existing standard language. But that's legitimate.

Patricia Becker Regarding the construction standard: we are not looking at the changes in (d)(2), so I would like to be able to revisit this at a later date. It is hard for me to give full comments on this without seeing what is being put forward as changes in (d)(2).

Peter Scholz We are aware that a change in the PEL will mean there have to be changes in the (d)(2) tasks. We'll address that in our first construction-specific advisory meeting.

Randall Brown The blood sampling works well for us, even if it is required more frequently. The men look forward to getting tested to see how they can improve their hygiene, to get their BLL down. We're doing it every 60 days.

Peter Scholz Moving on to (j)(2) we're talking about the frequency of BLL testing once enrolled. [Shows bar chart modeling different blood lead removal levels for the different testing regimens.] What came out of the 2011 meetings was testing 'upon placement, every month for the first 3 months, and then every 6 months after that.' But if the BLL goes above 10 ug/dl, then to shift the testing to every 3 months. And if it went above 20 ug/dl, the employee would be tested every month. Different testing regimens will inevitably lead to different BLLs at which the worker will be removed, even if the removal levels stay the same. The lower the removal BLL, the more protective the testing regimen. The most protective regimen appears to be testing every 2 months for the first 6 months, and then testing every 2

months if it goes over 10 ug/dl. And this is the language that we have put forward today for your feedback. All of these regimens include being tested every month if you go above 20 ug/dl.

Burt Olhiser Under the current standard you are required to test every 2 months for the first 6 months of employment. No one does that. Most everybody defaults to every six months. We've proposed through SSPC that the frequency of testing needs to increase based on the amount of exposure. We are arguing that when exposures are over 2500 ug/M^3, blood lead testing needs to go to monthly. There needs to be discussion about when you cease doing that. For example, if you get a number of low blood lead levels, or they stay the same, then you could back to 6 months. When you have high exposures [BLLs can go up very fast]. I've had a guy go up 72 points in 22 days.

Robert Ikenberry I appreciate the graph. I was one of those people who was an advocate for monthly testing, but I can see it probably doesn't have much benefit. But I want to second Burt's comment.

Blood lead testing needs to be thought of from a cost-benefit perspective. It is an invasive medical procedure, you are puncturing a vein. On rare occasions, you will get significant hematomas. We are talking about vastly increasing the number of people that get blood lead tested if you drop the AL to 2 ug/M^3. For significant exposures, I am a big proponent of blood lead testing. For office staff who might have exposure on 10 separate days in a year, there is some question in my mind as to whether that is a reasonable return by expanding the blood lead testing so much.

Vickie Wells I support the concept of basing the frequency of blood lead testing on exposure levels. I have trouble getting people to go for repeated blood lead testing. You have to consider that if they get their blood tested too often they are going to be no longer interested.

Randall Brown We do our blood lead testing every 60 days and we enforce it along with all the other rules.

Brian Heramb We have very infrequent lead work-- for example cable splicing, pipeline repairs, sometimes under emergency conditions. This could take half an hour, or a couple of hours. So this goes back to (j)(2): how useful is medical monitoring if you have highly intermittent, short-duration exposures?

Peter Scholz Highly intermittent exposures and blood lead testing is a problematic issue. We should wrestle with this as part of a future construction-specific meeting.

Jim Dunnegan I want to second what Vickie said. It is very difficult to get people to test when you have a history of not finding significant BLLs.

Bob Blink WOEMA is very supportive of lowering the thresholds. On my own behalf, I have two additional comments: 1) ZPP testing has been shown not to useful. So I recommend that no ZPP testing be added to what is required in the federal standards; 2) I strongly urge that we make the medical surveillance language identical in the two standards; and 3) In (j)(2) 'may conduct tasks' should be changed to 'has a job that is subject to possible performance of tasks.'

Mike Ely How do you propose to enforce the medical surveillance program? How are you going to get compliance?

Peter Scholz We're going to hold the employer to whatever the final language is. By interviewing employers, making document requests of employers, and interviewing employees privately.

Mike Ely I represent 34 contractors and I'm not currently aware of anyone that has been inspected or monitored.

Randy Ryer Has Cal/OSHA done an analysis of how many more people would be covered when the numbers drop to 2 ug/dl and 10 ug/dl?

Peter Scholz Good question. I don't know the answer.

Randy Ryer The folks in this room are currently being affected by the standard. When these levels drop, it will affect people who are not here today.

Paul Papanek We have some data from the state blood lead registry, and from LA County which was gathered about 20 years ago. The total number of workers exposed above these new levels would be about 100,000. That's the ballpark.

David Weinberg Your definition of "threshold amount of lead work" will greatly increase this number by many times.

Steve Smith This advisory process is to provide us input on where you think these numbers are going. And we'll tease that out more as we get into the groups for construction and general industry.

Peter Scholz ZPP tests will now be required for workers whose last BLL test was above 20 ug/dl. Any feedback on that? This came up in 2011.

Howard Spielman Since ZPP is a marker of long-term exposure, does requiring ZPP after just one BLL over 20 ug/dl mean we are going to get any value out of the ZPP?

Steve Smith Initially in 2011, we were trying to go with the opinion of most people in the room and eliminate ZPP altogether. Then we went to FedOSHA and this is what they thought they could live with.

Robert Ikenberry To the extent that it can be eliminated, that's fine; if FedOSHA wants to keep it, that's fine too.

Steve Smith And since we are just talking about people over 20 ug/dl, we are talking about a much smaller percentage of the people being tested.

Randy Ryer I don't see the value in ZPP testing. It's not used for any specific purpose. Why spend the money? It brings no value to the table.

Steve Smith We agree with you. FedOSHA told us this was their 'line in the sand.'

Dave Weinberg If you think ZPP is useless, BCI would be happy to go with you and visit with FedOSHA on this issue.

Peter Scholz There are two areas in (j) where there is new language. In the construction draft in (j)(2)(B) you'll see a strike-out of the requirement for follow-up blood sampling tests. The same language is struck in the general industry version. If a second BLL is over 20 ug/dl, you wouldn't have to do a follow-up blood lead test to put a worker on medical removal. The same with a single BLL over 30 ug/dl. We'd like some feedback on that idea.

Michael Kosnett I think that is fine. Because you are permitting it if the physician wants to do it, but you are not requiring it. There might be a situation, when you get a very high level, when you'll want to repeat it.

Peter Scholz Talking about accuracy of blood lead sampling and analysis, the draft reads:

[reads]"(B~~C~~) Accuracy of blood lead level sampling and analysis. Blood lead level sampling and analysis provided pursuant to this section shall be analyzed by a laboratory which meets Federal OSHA accuracy requirements in blood lead proficiency testing (PT) and is on the OSHA List of Laboratories Approved for Blood Lead Analysis~~have an accuracy (to a confidence level of 95 percent) within plus or minus 15 percent or 6 µg/dl, whichever is greater, and shall be conducted by a laboratory approved by OSHA~~."

So we struck the language that detailed the numerical criteria.

Michael Kosnett Why did you do this?

Peter Scholz Because this is what the employer can verify --what the medical provider can also verify—that this lab is on the list. They cannot independently verify the numerical values.

Michael Kosnett The problem with the current OSHA list is that the precision metric is outdated. The federal list is not stringent enough. The standard today would be +/- 3 ug/dl or 10%. And laboratories can generate this kind of accuracy and precision given today's technology. To defer to FedOSHA might not be the best thing. The precision has been upped to deal with the childhood blood lead testing.

Peter Scholz So you're not saying go back to the original language? You're saying there is better language we could have used here?

Michael Kosnett Yes.

Burt Olhiser But going back to the point made earlier: I as the employer cannot confirm what the lab performance is; all I can confirm is whether the laboratory is OSHA-approved or not.

Robert Ikenberry I would second that. We are not qualified to evaluate a laboratory. If the performance of laboratories needs to be upgraded industry-wide, that is a separate issue. My other question would be: If we're talking about increasing the number of blood lead tests, are we going to have the capacity within the industry to support that, or is that going to be a problem?

Gerry Manley The federal standard uses 'ug/100 grams'. Why are we using a different measure than the federal standard? It just adds confusion.

Howard Spielman California regulations require that the lab be a certified clinical lab registered in California. I don't think the clinical lab certifications have any specific requirements for lead. Also I've seen samples sent to a lab get sent somewhere else because they don't know how to do them. I wonder where that fits into the whole scheme.

Michael Kosnett There is a CLIA proficiency requirement for blood lead. I think the CLIA standard is a precision of +/- 4 ug/dl. And they have been urged by CDC to go down to 3 ug/dl.

Pat Coyle It was CDPH's suggestion to use the 'it should be a FedOSHA-approved laboratory' language rather than put in numerical requirements. And partly for the reason the Peter mentioned: that it is hard for an employer to know how accurate a lab is. But if you look at what FedOSHA requires to get on their list at this point, you will continue to meet the greater future proficiency requirements. So this is good for employers, and it continues to be updated as the CDC makes more demands on labs.

Peter Scholz The changes in (k) Medical removal protection all came out of the 2011 meeting.

Michael Kosnett I noticed that you are proposing that removed employees be returned when two BLLs, at least 15 days apart, indicate a BLL "at or below 15 ug/dl." Was the original set of recommendations "below 15 ug/dl"?

Peter Scholz CDPH's recommendation was "at or below 10 ug/dl" and "30 days apart." And we're open to that.

Training

Peter Scholz Following along on the construction standard, let's go to (l)(1)(B) where the new language begins. We're putting forth a new criterion for enrolling someone in a training program.

[Reads] *"(B) For all employees who are subject to exposure to lead at or above the action level on any day or who are subject to exposure to lead compounds which may cause skin or eye irritation (e.g. lead arsenate, lead azide), and to employees conducting tasks as listed in subsection (d)(2) the employer shall provide a training program in accordance with subsection (l)(2) and assure employee participation."*

So if you are doing trigger tasks, you need to be enrolled in the full lead training program. That is not the current requirement. Any feedback on that?

Burt Olhiser That makes all the sense in the world. Rarely does the employer give employees the 'hazcom' level of training before the work starts. Then gets the air monitoring data, stops the work, and then gives the full (l)(2) training. They do that up front.

Brian Heramb Following up on Howard Spielman's comment earlier: if trigger tasks have been assessed in a negative exposure assessment [found to be below the AL], why would we provide extensive lead training?

Peter Scholz Remember (d)(2) applies if you don't have historical sampling data. If you have this data showing exposures below the AL, then this requirement would not require the full training for those employees.

Brian Heramb So, this needs to be clarified.

Steve Smith You are doing the negative exposure assessment to get out of (d)(2), so you are not in (d)(2).

Brian Heramb But it says "conducting tasks as listed in (d)(2)", it doesn't refer directly to (d)(2) requirements.

Steve Smith That's a good point; we'll look at it.

Scott McAllister Did you mean 'and to employees conducting ' or 'or'? Make sure that is logically correct. Also having one exposure assessment doesn't release you from further exposure assessments.

Michael Kosnett Under (k) you have 'periodic BLL' as triggering medical removal protection. I think it should be 'any BLL'.

Bob Blink I agree with Michael Kosnett on this. I think the language should be identical in the two standards on this point. That should fix it.

Peter Scholz Moving back to training. Under (l)(2)[construction std.] we are adding quite a bit of language recommended by CDPH because we like the language; we think it strengthens training.

[Reads]
"This subsection requires the employer to provide effective training to employees. The training must be comprehensive, understandable, and recur at least annually, and more often as necessary, making appropriate use of "toolbox" or "tailgate" safety meetings as required by subsection 1509(e) . The employer shall ensure that each employee is trained so as to be able to demonstrate knowledge of at least the following:"

Burt Olhiser I have employees that I've trained for close to 20 years, who still can't tell me what the PEL is. My only concern is that this language could be an enforcement issue through no fault of the employer. The training may be good, but employees may not be able to reproduce information. They know the practical aspect of things, how to protect themselves. But if Cal/OSHA shows up and interviews them about the PEL….(not so much). The would be my concern.

Vickie Wells I second that concern. The employer can be responsible for providing a certain level of training. But there is no way the employer can force the employee to learn it, or to remember it.

Dorothy Wigmore I want to go further than what is here. As an educator, I accept responsibility for what people understand when they walk out the room. I would be concerned because these requirements are consistent with other standards. In Hazcom and IIPP the training has to be comprehensive and understandable. And Cal/OSHA evaluates this by asking the worker. One thing that is not in here, is a discussion of the language used. It is also important to have updates to training; you

may want to add in there : "when conditions change." Also under the health effects people are being told about, it does not mention cancer. IARC has said that lead is a Category 2A carcinogen and people need to know that. It should be there as result of the IIPP and Hazcom.

Peter Scholz Carrying on with construction draft (l)(2)(E), we are putting forward the idea of striking the language on reproductive hazards and giving it its own paragraph.

[Reads] *"(E) ~~including~~ information concerning the adverse health effects associated with ~~excessive~~ exposure to lead ~~(with particular attention to the adverse reproductive effects on both males and females and hazards to the fetus and additional precautions for employees who are pregnant),~~ and the health damage associated with chronic low-level exposure;"* Any comments on this?

Michael Kosnett This is fine. Why, in the section before that-- (l)(1), are chronic effects not mentioned?

Peter Scholz Moving on to (l)(2)(F), this is where we discuss reproductive effects.

[Reads] *"(F) Information on the adverse reproduction effects on both males and females of low-level lead exposure, associated with blood lead levels even under 5 ug/dl. And of the employer's duty, as required by subsection (j)(3)(A), to make available medical examination and consultations to each employee desiring medical advice concerning the employee's ability to procreate a healthy child*."

Any feedback on this?

Howard Spielman What is "..medical advice concerning the employee's ability to procreate a healthy child"? It may concern an employer to have tests done if there was no pre-employment baseline to compare results to. The employer will be concerned about their liability.

Vickie Wells I was surprised to see that there was a requirement in the existing standard for fertility testing for males and pregnancy testing for females. But that is a little different than "medical advice concerning the employee's ability to procreate a healthy child."

Peter Scholz Would the wording 'reproductive health' suit you better?

Michael Kosnett This is in the training section and does not require anything more of the employer.

Vickie Wells But I think you have broadened what the standard actually says.

Pat Coyle [reads from existing (j)(3)] *"…as soon as possible, upon notification… that the employee desires medical advice concerning the effects of current or past exposure to lead on the employee's ability to procreate a healthy child…"* So this is not new language.

Michael Kosnett The CDC recommends that a woman who is pregnant, and has a BLL of 10 ug/dl or higher, have her exposure reduced and possibly go on medical removal protection.

Brian Heramb It would be useful to have appendix language that guides employers as to what to tell employees regarding health effects.

Steve Smith We will be rewriting the appendices.

Burt Olhiser Under (l)(4)(A) the standard requires that employers make a copy of the standard and its appendices readily available. In the training I do, I hand out the appendices. They are supposed to be in understandable language.

Jerry Manley 5198(j)(3)(A) reads: *"The content of medical examinations made available pursuant to subsections (j)(3)(A)3-4 shall be determined by an examining physician and, if requested by an employee, shall include pregnancy testing or laboratory evaluation of male fertility"* Has this always been there? In the federal standard too? [responses: yes]

Peter Scholz The next draft section reads:

[reads]*"(G) That lead contamination brought into personal vehicles and home on clothes, shoes, and body can endanger the health of a worker's household members, especially young children and pregnant women;*
(H) That showering is recommended for employees immediately upon returning home from work to avoid take home lead exposure where provision of workplace shower facilities by the employer is not feasible."

Burt Olhiser '(H)' is a non-starter. Let's ask Cal/OSHA when are showers 'not feasible'?

Peter Scholz So you think this opens up an 'enforcement trap?'

Burt Olhiser Exactly. It gives an employer the sense that they can get around having a shower because it 'not feasible.'

Dorothy Wigmore I agree with Burt. People should shower before they leave work, so they don't take lead home. And that people understand why, are given the time to do it, and are provided the facilities to do it.

Peter Scholz The standard requires showering for people over the PEL. This is meant to address those people under the PEL.

Burt Olhiser Still. It's a fine distinction people are not going to make.

Vickie Wells I think there is some benefit to addressing this here. Maybe it just needs to be reworded.

Steve Smith So, maybe something like: 'Where a shower is not required to be provided at the work place …"

'Threshold Amount of Lead Work'

Peter Scholz Let's move on to 'threshold amount of lead work' in the general industry discussion draft. The function of this is a non-air level-based trigger for medical surveillance and training.

Michael Kosnett You have in the standard that, under medical removal, that an employee should be removed from lead, but you don't define that. You struck out "…above the Action Level." So I think 'threshold amount of lead work' would affect medical removal as well.

Peter Scholz I think that if we get rid of "Action Level" and just go with "exposure to lead," there is no definition of that. And I don't think the feds would let us do that since they have no definition of that term.

Michael Kosnett Well, I think what a worker is removed from needs to be defined. And in general industry it should be defined as: 1) Work above the Action Level, or 2) Work that involves a "threshold amount of lead work." In construction it should be: 1) Work above the Action Level, and 2) a 'trigger task.' Otherwise, if you leave it as "remove the worker from lead," there will be a lot of questions about what this means. Does anyone disagree with this?

Peter Scholz We'll revisit this issue.

Let me read the definition of 'threshold amount of lead work' and then read the definition of 'altering and disturbing'. [Reads:]

Threshold amount of lead work.

(1) Altering or disturbing any work surface or material that:

(A) Is known to contain lead at a concentration equal to or greater than 1.0% by weight as specified by its safety data sheet or similar specification sheet; or

(B) Is reasonably anticipated to contain lead at a concentration equal to or greater than 1.0% by weight. Such materials include, but are not limited to, materials purchased as scrap lead, solder, bullet fragments, lead sheeting, lead cable housing , lead billets, and lead acid batteries.

(2) Torch cutting any scrap metal.

(3) Part time and low levels of lead work are exempt from this definition if the employer can document that employees are performing such work less than 8 hours per month.

[Goes on to read…]

Altering or disturbing. *Subjecting to a process that may result in the release of dust, mist, fume, or other particles. Such processes may include, but are not limited to welding, brazing, torch soldering, torch cutting, melting, pouring, cutting, shredding, grinding, polishing, machining, scraping, sanding, abrading, spraying, sweeping, raking, and shoveling.*

We do not have 'trigger tasks' on the general industry side. All the important employee protections are contingent on air sampling results. In many small workplaces air sampling is not often done, so that leaves workers unprotected. We are not giving up on the requirement for air sampling. But this is an attempt to offer some protection to employees in workplaces where air sampling has not been done.

David Weinberg While respectful of the goal, I think the definition needs a lot of thought and a lot of work. As I read it, anyone working with lead acid batteries, more than 8 hours a month, would be subject to all the requirements triggered by the 'threshold amount of lead work.' Handling batteries may result in the release of dust of some sort. Automotive dealers would start worrying about whether they have employees subject to these requirements. Also automotive dealers, repair shops and gas stations may be included. We will be happy to work with you to improve this definition. It's overly broad, the way it is written. Anyone who sells or installs batteries might be included in this. Handling a battery could raise dust, and 'dust' is not defined; it could be shop dust.

Howard Spielman In the construction standard, everything is triggered based on 'contains lead.' Here you are using a 1% criterion. I don't know how you rationalize these two different approaches. Lead-based paint has a definition of 0.5%. So I think this needs a lot of thought. I understand 1% and MSDSs, but I think this is problematic given the construction standard criterion.

Peter Scholz 1% is the amount that is most likely to crop up on an SDS. I asked myself: what is an employer most likely to know? It is not meant as a distinction between 'lead' vs. 'not-lead'.

Vickie Wells Police officers do clean their weapons. I can't guarantee that they won't spend more than 8 hours cleaning their weapon in an given month. This might imply that I have to put them in training and medical surveillance for weapon cleaning.

Also employees working in buildings with lead paint might bump their chairs into the walls multiple times. Are we including those people in training and medical monitoring? Movers may also hit walls from time to time. This is overly broad and needs some clarity.

Howard Spielman A client has a quarterly, high-exposure process that they control with respiratory protection. They would qualify for the 'part-time' exemption, and I don't see why they should.

Peter Scholz This would only apply where there has been no monitoring done.

Howard Spielman It doesn't say that. This needs to be looked at.

Jessica Ryman A number of materials not normally thought of as lead can have lead content of over 1%. For example, brass can have content over 1 %.

Peter Scholz This is premised on the assumption that the lead content would show up on the SDS or 'spec sheet' for that metal.

Michael Kosnett People working on brass can have appreciable lead exposures. A patient I had would polish brass at his desk, while eating lunch. And he had a BLL of 60 ug/dl. Some brass can contain up to 8% lead. I also have concerns about the 1% criterion. I think it should be changed to 0.5% for a number of reasons. EPA has made a major educational push as part of its renovation, remodeling and painting bill, and they base their requirements on 0.5%. And the fee structure for the Occupational Lead Poisoning Prevention Program defines lead materials as containing greater than 0.5%. So for consistency's sake, and because paints with over 0.5% lead can lead to significant exposures, it would be prudent to lower it to 0.5%.

Dorothy Wigmore The new GHS amendment of the Hazcom rule would have lead appearing on SDSs at 0.1%. So if it is considered a hazard at that level, it ought to be in here at that level. Also there ought to be consistency between the general industry and construction regulations. In this case, the construction workers have the better rule, and that's what we should head towards.

David Weinberg In the last half-hour there has been a failure to recognize an important responsibility that Cal/OSHA has to wrestle with. This definition triggers medical surveillance and a lot of expensive, burdensome activity on the part of employers who are not now covered by this standard. We are going to have to evaluate the economic feasibility of doing things. And the broader you throw the net, the greater the obligation on you to evaluate the economic feasibility. If you meant to pick up everybody who places a battery in an automobile, you would have to figure out what that meant. I don't think you intend that. But those who are promoting a restrictive standard have not come to grips with your responsibility.

Steve Smith This part of the proposal is our way of looking at different ways of protecting workers by requirements that are not just air level-triggered. This is one way to get beyond the AL and PEL concepts. We had this concept suggested to us early on and this is our first attempt at this. So this is some language for you to give us some advice on. Take it home, look at it, and give a some ideas. We'll develop this idea further when we break into the general industry group. Send us suggestions about how this could be better worded. We'd like this feedback by the end of July. We anticipate that we will schedule specific industry advisory meetings – the construction standard and the general industry standard.

Paul Papanek I heard suggestions of a different way of prioritizing the 'hierarchy of controls'. I heard questions about feasibility; data on that would be helpful. If anyone has BLL data that they can share, that would be helpful.

Gerry Manley The last bullet point on your 1-page summary sheet talks about an employer being required to investigate any BLL of 10 ug/dl or higher. Is that referenced in the general industry discussion draft we have?

Steve Smith This is a concept we are looking at that didn't make it into this draft. We will look at this concept more when we get into the general industry advisory meeting. Again, we are trying to supplement the protection offered by the PEL and AL with other protections. This is the concept of an exposure assessment, similar to what is part of any good IIPP.

Randy Reyer Are the written comments, as they come in from different folks, going to be posted so that we can see them?

Steve Smith Typically, we have not done that. But, we could look into that. We will certainly post Barbara's presentation and the minutes. If people want their submissions shared, these would need to be supplied to us in electronic form.

ADJOURNED