AMERICAN SOCIETY OF SAFETY PROFESSIONALS

September 15, 2022

U.S. Department of Labor
U.S. Occupational Safety and Health Administration
Docket Office: Docket No. OSHA-2018-0004; RIN 1218-AD10
200 Constitution Ave. NW
Washington, DC 20210

Advance Notice of Proposed Rulemaking (ANPRM): Blood Lead Level for Medical Removal

Agency:	U.S. Occupational Safety and Health Administration, [OSHA]
Date:	Federal Register; June 28, 2022
Agency/Docket Number:	Docket No. OSHA-2018-0004; RIN 1218-AD10
Regulation:	29 CFR Parts 1910 and 1926
Topic:	Advance Notice of Proposed Rule Making (ANPRM)—Blood Lead Level for Medical Removal

Per the June 2022 Federal Register announcement, we submit the following information to address this request:

> *On June 28, 2022, OSHA published an Advance Notice of Proposed Rulemaking (ANPRM) to seek input on potential revisions to its standards for occupational exposure to lead based on medical findings since the issuance of OSHA's lead standards that adverse health effects in adults can occur at Blood Lead Levels (BLLs) lower than the medical removal level (>=60 [mu]g/dL in general industry, >=50 [mu]g/dL in construction) and lower than the level required under current standards for an employee to return to their former job status (<40 [mu]g/dL). The agency is seeking input on reducing the current BLL triggers in the medical surveillance and medical removal protection provisions of the general industry and construction standards for lead. The agency is also seeking input about how current ancillary provisions in the lead standards can be modified to reduce worker BLLs.*

AMERICAN SOCIETY OF
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American Society of Safety Professionals (ASSP) is the oldest society of safety professionals in the world. Founded in 1911, we represent more than 36,000 professionals advancing workplace safety and health in every industry and state and around the globe. ASSP members have upheld the occupational safety and health (OSH) community's standards for excellence, ethics and practice for more than 100 years.

Technical Insights

ASSP recently reviewed the technical comments submitted by the American Industrial Hygiene Association (AIHA). We agree with those technical comments and support AIHA's recommended measures to reduce the risk of lead poisoning (Attachment 1).

ASSP holds in high regard the collective expertise and experience of AIHA members on this issue. We recommend that OSHA review and strongly consider AIHA's insights and comments during rulemaking on this matter.

Thank you for your time and attention to our comments. If we can be of any assistance in this matter, please let us know.

Respectfully,

Christine M. Sullivan

Christine M. Sullivan, CSP, ARM
2022-23 ASSP President

AMERICAN SOCIETY OF
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August 24, 2022

Douglas Parker
Assistant Secretary of Labor for Occupational Safety and Health
U.S. Department of Labor

AIHA Comments on OSHA's Advance Notice of Proposed Rulemaking on Blood Lead Levels for Medical Removal

Agency/Docket Numbers: OSHA-2018-0004
RIN: 1218-AD10

Dear Assistant Secretary Parker:

AIHA, the association for scientists and professionals committed to preserving and ensuring occupational and environmental health and safety (OEHS), appreciates the opportunity to provide feedback on OSHA's advance notice of proposed rulemaking (ANPRM) on blood lead levels (BLLs) for medical removal. We hope you find our feedback useful and are happy to answer any questions you may have.

Introductory Discussion

AIHA believes that the existing BLLs for medical removal are outdated and must be lowered to be protective of worker health.

Since the 1970's, when the OSHA lead regulations were promulgated, BLLs in the U.S. adult population have decreased more than 10-fold to <1 µg/dL approximately 45 years later.[i] The reduction is primarily due to the removal of lead in gasoline and consumer products. The bulk of adult exposure to lead is now from the workplace. Scientific advances have demonstrated that harmful effects occur at lower BLLs than previously thought. These include cardiovascular effects and effects on maternal health/pregnancy outcomes. This brings about a shift in the discussion surrounding the point of departure for adverse health effects. AIHA supports the recommendations of many allied organizations to lower the BLLs which trigger the medical removal of an employee in both general industry and construction in light of new scientific evidence of the harm lead has on the human body.

Furthermore, the pathway of exposure must include an evaluation of ingestion and inhalation. Settled surface dust and the potential for ingestion are overlooked in the regulations. Currently, only the concentration of lead in air is used to establish compliance activity with respect to medical surveillance. The airborne lead concentration of 30 µg/m as

an 8-hour time-weighted average is the action level where employers are required to perform medical surveillance. Evaluation of the workplace using the action level and PEL, in lieu of assessment of other pathways of exposure, can overlook lead exposures in the workplace that are sufficient to cause an elevated blood lead level. Any exposures that can cause an elevated BLL should be considered the threshold for medical surveillance in the workplace.

A. Blood Lead Triggers for Medical Removal Protection

Question: *Should OSHA consider changing the BLL at which an employee in general industry or construction is to be removed from lead exposure? Is there a different BLL trigger (or additions) for removing a worker from lead-exposed work?*

AIHA recommends that OSHA adopt the American College of Occupational and Environmental Medicine (ACOEM) blood lead levels over 20 µg/dL (measured in four weeks) or if any single blood lead level exceeds 30 µg/dL for medical removal (ACOEM 2016, p. e372, Table 1).

AIHA further recommends that OSHA accept all the ACOEM recommendations indicated in Section B below. These actions should also trigger a review of the efficacy of lead decontamination procedures and lead control measures for workers as they work and exit the work areas.

Summary of Medical Removal Provisions from Different Organizations

Organization	Single measurement	Over time period	Return to work
American College of Occupational and Environmental Medicine (ACOEM)	Greater than or equal to 30 ug/dL	over 20 µg/dL measured over four weeks.	Less than 20 µg/dL
CAL OSHA Law, Title 8, §1532.1. Lead. For construction and §5198 for general industry.	≥ 30 µg/dL	two monthly blood lead tests are ≥ 20 µg/dL	Less than 20 µg/dL
Washington DOSH Law. Title 296 WAC 296-62-07521.	≥ 30 µg/dL	≥ 20 µg/dL for multi-test	Less than 20 µg/dL
DOD Occupational and Environmental Health (OEH), DoD Instruction 6055.05. Chapter 4,	≥ 20 µg/dL (5 µg/dL for pregnant women or women looking to become pregnant)	≥ 20 µg/dL for any test	Less than 20 µg/dL

(p 55), Change 3, 08/31/2018, Armed Forces Health requirements.			
American Conference of Governmental Industrial Hygienists (ACGIH) Biological Exposure Index (BEI®). Reference (i).	200 µg/L (20 µg/dL) Note: BEI® "guidance value" does not indicate sharp distinction between hazardous and non-hazardous exposure.	200 µg/L (20 µg/dL) Note: "BEI generally indicates a concentration below which nearly all workers should not experience adverse health effects."	Less than 20 µg/dL Note: BEI® is interpreted only with an industrial hygiene exposure evaluation program.
OSHA 1910.1025 Appendix C and 1926.62, Federal Law.	≥ 50 µg/dL for workers in construction (1926.62), or ≥ 60 µg/dL for workers in general industry, (1910.1025).	≥ 50 µg/dL for second test within two weeks of first test	Less than 40 µg/dL

AIHA recommends that OSHA consider requiring compliance with the ACOEM return to lead-exposed work BLLs to be considered after two BLL measurements are below 15 µg/dL (ACOEM 2016, p. e372, Table 1). AIHA strongly concurs with the Position Statement published in the Journal of Occupational and Environmental Medicine (JOEM) Volume 58, Number 12, December 2016, for blood lead available at: https://acoem.org/acoem/media/News-Library/Workplace_Lead_Exposure.pdf

> "A discussion of the health effects of lead exposure in the Federal Register notice announcing the ANPRM states that blood lead levels as low as 5 µg/dL 'have been associated with impaired kidney and reproductive function, high blood pressure, and cognitive effects attributed to prenatal exposure.' Research has also shown that adults with blood lead levels of 5-19 µg/dL performed more poorly on neurocognitive and neuropsychologic assessments than adults with levels below 5 µg/dL."[ii]

AIHA strongly agrees with ACOEM "to urge OSHA to update its lead standard and lower both the action level and the trigger/threshold for medical removal." AIHA further strongly agrees with ACOEM that,

> "in addition to appropriate engineering controls and personal protective equipment to protect workers from airborne or surface contamination, workplaces should provide basic hygiene measures such as handwashing stations, lockers, and showering facilities, and lead-free eating and break areas to reduce lead dust ingestion. Workers should also receive annual training regarding lead health effects

and exposure controls and understand that both airborne lead inhalation and surface contamination and ingestion can result in elevated BLLs."[iii]

B. Medical Surveillance Provisions

ACOEM has recommended medical removal of workers who have repeat BLLs over 20 µg/dL measured over four weeks; or any single BLL equal or over 30 µg/dL.[iv] In their well-researched 2016 recommendations for lead exposures in the workplace, ACEOM recommends a series of actions and notifications of workplace monitoring with effective controls for any BLL greater than 10 ug/dL and with medical removal at 20 µg /dL continued with a second test four weeks later. BLL monitoring is considered necessary for all persons with workplace exposures above the action level.

AIHA recommends that OSHA accept all the following ACOEM 2016 recommendations for blood lead monitoring and worker protection measures:

- Initial baseline BLL every two months for first six months after workplace placement, or upon change to tasks resulting in exposure, BLL every six months; the goal should be <5ug/dL for all pregnant workers and as low as possible for all workers. (Frequent BLL monitoring may be needed for pregnant workers or those who are trying to or may become pregnant.)

- BLL 5-9 ug/dL evaluate workplace exposure and protective measures. (Levels between five and nine indicate possible health risks for women who are or may become pregnant. ACOEM does not recommend allowing pregnant workers or those who are trying to or may become pregnant continued exposure if BLL is >5ug/dL.)

- BLL 10–19 ug/dL monitor BLL every two months; evaluate occupational exposures and hygiene measures for reducing lead contact, evaluate and explore possible engineering controls, and work practices; revert to BLL monitoring every six months after two or three BLLs <10ug/dL.

- BLL >20 ug/dL evaluate exposure, evaluate engineering controls, PPE and work practices, and remove from exposure if repeat BLL measured in four weeks remains above 20 ug/dL; or if the first or any single BLL equals or exceeds 30 ug/dL. Monthly BLL testing is recommended, and consider return to lead work after two BLLs <15 ug/dL one month apart, then continue monitoring as above.

- BLL 30 ug/dL remove from exposure immediately. Evaluate exposures using standard industrial hygiene air and wipe sampling methods, evaluate engineering

controls, and work practices. In addition, monthly BLL testing is needed. Consider returning to work after two BLLs <15 ug/dL one month apart, then monitor as above.

C. Employee Notification of BLL Results

AIHA recommends that OSHA consider revising its lead standards to require both construction and general industry employers to notify all employees who receive blood lead testing of their results. AIHA believes that when employees are fully aware of their chemical exposures, they can make better-informed decisions about their health.

D. Discussion of Requirements for Medical Removal

Federal OSHA

Under current OSHA lead standards, the medical removal level is ≥60 µg/dL in general industry and ≥50 µg/dL in construction. OSHA medical removal in construction occurs when BLL reaches 50 µg/dl or 60 µg/dl in general industry rules and confirmed by a second follow-up BLL performed within two weeks after the employer receives the results of the first blood sampling test. Return of the employee to their job status depends on a worker's BLL declining to 40 µg/dl.

There is no health-based justification for having different medical removal levels between construction and general industry.

Cal/OSHA

Cal/OSHA's medical removal single measurement BLL of ≥ 30 µg/dL; or when the last two monthly blood lead tests are ≥ 20 µg/dL; or when the average of the results of all blood lead tests conducted in the last six months is at or above 20 µg/dL.

Washington State

Washington DOSH's medical removal BLL ≥ 30 µg/dL for a single test result and ≥ 20 µg/dL for multi-test results for both general industry and construction.

Department of Defense (DoD)

At the request of DoD, National Research Council study was done to determine whether current OSHA exposure standards used on firing ranges are protective (NRC, 2013), DOD lowered the medical removal triggers for BLLs in military and civilian DOD personnel, which previously were aligned with OSHA's standards. DOD's medical removal is now based on BLLs at or greater than 20 µg/dL (DOD, 2018).

The following are quotations from DODI for lead:
"C4.8.2.1.2. The U.S. national BLL geometric mean among adults was 1.2 micrograms per deciliter (µg/dL) during 2009-2010. The National Research Council has concluded that there is overwhelming evidence that the OSHA standard provides inadequate protection for DoD firing-range personnel and any other worker populations covered by the OSHA general

industry standard." The DoD requires written notification for employees whose BLL is at or above 20 µg/dl. (Source: DoD 6055.05-M, May 2, 2007)

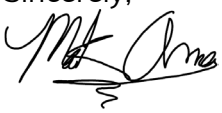
"C4.8.2.1.2.2.
The DoD requirements are more stringent than OSHA requirements. OSHA's medical removal BLL is based on one blood test at or greater than 60 µg/dl or three consecutive BLL tests at or greater than 50 µg/dl. OSHA allows employees to return-to-work when their BLL is at or below 40 µg/dl. DoD's medical removal is based on BLLs at or greater than 20 µg/dl, and employee return to work when BLL is at or below 15 µg/dl."

"The Navy must not use paints containing more than 0.009 percent lead by dry weight unless the cognizant headquarters command for the command, unit and activity responsible for the work specifically approves higher lead content paint and documents approval criteria."[v]

Conclusion and Next Steps

AIHA thanks you for the opportunity to provide feedback on OSHA's ANPRM on BLLs for medical removal. We hope you find our feedback useful and look forward to our continued work together, helping protect the health and safety of all workers and their communities. If you have any questions on these comments or other matters, please contact me at mames@aiha.org or (703) 846-0730.

Sincerely,



Mark Ames
Director, Government Relations
AIHA

About AIHA

AIHA is the association for scientists and professionals committed to preserving and ensuring occupational and environmental health and safety in the workplace and community. Founded in 1939, we support our members with our expertise, networks, comprehensive education programs, and other products and services that help them maintain the highest professional and competency standards. More than half of AIHA's nearly 8,500 members are Certified Industrial Hygienists and many hold other professional designations. AIHA serves as a resource for those employed across the public and private sectors as well as to the communities in which they work. For more information, please visit www.aiha.org.

References

(a) Title 29 CFR 1910.1025, Subpart Toxic and Hazardous Substances (Lead), Occupational Safety and Health Standard.

(b) Title 29 CFR 1915.1025, Subpart Toxic and Hazardous Substance (Lead), Occupational Safety and Health for Shipyard Employment.

(c) Title 29 CFR 1926.62, Subpart Occupational Health and Environmental Controls (Lead), Safety and Health Regulation for Construction.

(d) Holland, M.G., Cawthon, D. (2016 Dec.). ACOEM Position Statement, Workplace Lead Exposure. *JOEM*. 58(12) https://acoem.org/acoem/media/News-Library/Workplace_Lead_Exposure.pdf

(e) California Code of Regulations, Title 8, Section 1532.1 for construction retrieved from https://www.dir.ca.gov/title8/1532_1.html#:~:text=The%20employer%20shall%20notify%20each,k)(1)(A). Section §5198. Lead. For general industry retrieved from: https://www.dir.ca.gov/title8/5198.html

(f) Washington State Legislature. Title 296. Lead, WAC 296-62-07521. https://apps.leg.wa.gov/wac/default.aspx?cite=296-62-07521

(g) U.S. Navy Chief of Naval Operations. OPNAV Directive M-5100.23. 5 June 2020, Chapter 21, Lead. "The provisions of this chapter and references (a) through (c) apply to lead exposures in Navy general industry, shipyards, shipbreaking, and navy construction work. "

(h) Department of Defense DoD Instruction, DODI 6055.05, Occupational and Environmental Health (OEH), May 2, 2007, Incorporating Change 3, August 31, 2018. retrieved from: https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodm/605505mp.pdf?ver=2018-11-19-150151-020

(i) American Conference of Governmental Industrial Hygienists (ACGIH®) 2022 TLVs® and BEIs®.

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[i] NIOSH, Adult Blook Lead Epidemiology and Surveillance (ABLES), Available from URL: https://www.cdc.gov/niosh/topics/ables/ReferenceBloodLevelsforAdults.html

[ii] AIHA. "OSHA to Revise Lead Standards." https://www.aiha.org/news/220630-osha-to-revise-lead-standards

[iii] ACOEM POSITION STATEMENT Workplace Lead Exposure Michael G. Holland, MD, and David Cawthon, PhD. Dec 2016 *JOEM*. Volume 58, Number 12.

[iv] United States Department of Labor, Occupational Safety and Health Administration. "Advance Notice of Proposed Rule Making (ANPRM)--Blood Lead Level for Medical Removal". https://www.osha.gov/laws-regs/federalregister/2022-06-28

[v] https://www.secnav.navy.mil/doni/SECNAV%20Manuals1/5100.23%20CH-1.pdf