Occupational Safety and Health Standards Board

Public Meeting, Public Hearing, and Business Meeting

April 20, 2023

Cal/EPA Building
Byron Sher Auditorium
1001 I Street
Sacramento, California

AND

Via teleconference / videoconference

Occupational Safety and Health Standards Board

Meeting Agenda

STATE OF CALIFORNIA GAVIN NEWSOM, *Governor*

DEPARTMENT OF INDUSTRIAL RELATIONS
Occupational Safety and Health Standards Board
2520 Venture Oaks Way, Suite 350
Sacramento, CA 95833
Tel: (916) 274-5721
www.dir.ca.gov/oshsb

MISSION STATEMENT

The mission of the Occupational Safety and Health Standards Board is to promote, adopt, and maintain reasonable and enforceable standards that will ensure a safe and healthful workplace for California workers.

AGENDA

PUBLIC MEETING, PUBLIC HEARING AND BUSINESS MEETING
OF THE OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

April 20, 2023 at 10:00 a.m.

Attend the meeting in person:

Cal/EPA Building
Byron Sher Auditorium
1001 I Street
Sacramento, CA 95814

Attend the meeting via Video-conference:

1. Go to www.webex.com
2. Select "Join"
3. Enter the meeting information: **268 984 996**
4. Enter your name and email address then click "Join Meeting"
5. Video-conference will be opened to the public at 9:50 a.m.

Attend the meeting via Teleconference:

1. Dial (844) 992-4726
2. When prompted, enter **268-984-996**
3. When prompted for an Attendee ID, press #
4. Teleconference will be opened to the public at 9:50 a.m.

Live video stream and audio stream (English and Spanish):

1. Go to https://videobookcase.com/california/oshsb/
2. Video stream and audio stream will launch as the meeting starts at 10:00 a.m.

Public Comment Queue:

Those attending the meeting in person will be added to the public comment queue on the day of the meeting.

Those attending the meeting remotely who wish to comment on agenda items may submit a request to be added to the public comment queue either in advance of or during the meeting through one of the following methods:

ONLINE: Provide your information through the online comment queue portal at https://videobookcase.org/oshsb/public-comment-queue-form/

PHONE: Call **510-868-2730** to access the automated comment queue voicemail and provide*: 1) your name as you would like it listed; 2) your affiliation or organization; and 3) the topic you would like to comment on.
**Information requested is voluntary and not required to address the Board.*

I. **CALL TO ORDER AND INTRODUCTIONS**

II. **PUBLIC MEETING (Open for Public Comment)**

This portion of the Public Meeting is open to any interested person to propose new or revised standards to the Board or to make any comment concerning occupational safety and health (Labor Code section 142.2). *The Board is not permitted to take action on items that are not on the noticed agenda, but may refer items to staff for future consideration.*

This portion of the meeting is also open to any person who wishes to address the Board on any item on today's Business Meeting Agenda (Government Code (GC) section 11125.7).

Any individual or group wishing to make a presentation during the Public Meeting is requested to contact Sarah Money, Executive Assistant, at (916) 274-5721 in advance of the meeting so that any logistical concerns can be addressed.

A. PUBLIC COMMENT

B. ADJOURNMENT OF THE PUBLIC MEETING

III. **PUBLIC HEARING**

A. EXPLANATION OF PROCEDURES

B. PROPOSED SAFETY ORDERS (Revisions, Additions, Deletions)

1. TITLE 8: **CONSTRUCTION SAFETY ORDERS**
Section 1532.1
GENERAL INDUSTRY SAFETY ORDERS
Sections 5155 and 5198
Lead

IV. **BUSINESS MEETING – All matters on this Business Meeting agenda are subject to such discussion and action as the Board determines to be appropriate.**

The purpose of the Business Meeting is for the Board to conduct its monthly business.

A. PROPOSED VARIANCE DECISIONS FOR ADOPTION

1. **Consent Calendar**

B. REPORTS

1. Division Update

2. Legislative Update

3. Executive Officer's Report

C. NEW BUSINESS

1. Future Agenda Items

Although any Board Member may identify a topic of interest, the Board may not substantially discuss or take action on any matter raised during the meeting that is not included on this agenda, except to decide to place the matter on the agenda of a future meeting. (GC sections 11125 & 11125.7(a).).

D. CLOSED SESSION

Matters Pending Litigation

1. Western States Petroleum Association (WSPA) v. California Occupational Safety and Health Standards Board (OSHSB), et al. United States District Court (Eastern District of California) Case No. 2:19-CV-01270

2. WSPA v. OSHSB, et al., County of Sacramento, CA Superior Court Case No. 34-2019-00260210

Personnel

E. RETURN TO OPEN SESSION

1. Report from Closed Session

F. ADJOURNMENT OF THE BUSINESS MEETING

Next Meeting: May 18, 2023
County Administration Center
Room 310
1600 Pacific Highway
San Diego, CA 92101
10:00 a.m.

CLOSED SESSION

1. If necessary, consideration of personnel matters. (GC section 11126(a)(1)).

2. If necessary, consideration of pending litigation pursuant to GC section 11126(e)(1).

PUBLIC COMMENT

Efforts will be made to accommodate each individual who has signed up to speak. However, given time constraints, there is no guarantee that all who have signed up will be able to address the State body.

Each speaker is invited to speak for up to two minutes. The Board Chair may extend the speaking time allotted where practicable.

The total time for public comment is 120 minutes, unless extended by the Board Chair.

The public can speak/participate at the meetings before items that involve decisions.

In addition to public comment during Public Hearings, the Occupational Safety and Health Standards Board (Board) affords an opportunity to members of the public to address the Board on items of interest that are either on the Business Meeting agenda, or within the Board's jurisdiction but are not on the noticed agenda, during the Public Meeting. The Board is not permitted to take action on items that are not on the noticed agenda, but may refer items to staff for future consideration. The Board reserves the right to limit the time for speakers.

DISABILITY ACCOMMODATION NOTICE

Disability accommodation is available upon request. Any person with a disability requiring an accommodation, auxiliary aid or service, or a modification of policies or procedures to ensure effective communication and access to the public hearings/meetings of the Occupational Safety and Health Standards Board should contact the Disability Accommodation Coordinator at (916) 274-5721 or the state-wide Disability Accommodation Coordinator at 1-866-326-1616 (toll free). The state-wide Coordinator can also be reached through the California Relay Service, by dialing 711 or 1-800-735-2929 (TTY) or 1-800-855-3000 (TTY-Spanish).

Accommodations can include modifications of policies or procedures or provision of auxiliary aids or services. Accommodations include, but are not limited to, an Assistive Listening System (ALS), a Computer-Aided Transcription System or Communication Access Realtime Translation (CART), a sign-language interpreter, documents in Braille, large print or on computer disk, and audio cassette recording. Accommodation requests should be made as soon as possible. Requests for an ALS or CART should be made no later than five (5) days before the meeting.

TRANSLATION

Requests for translation services should be made no later than five (5) days before the meeting.

NOTE: Written comments may be emailed directly to oshsb@dir.ca.gov no later than 5:00 p.m. on the Tuesday prior to a scheduled Board Meeting.

Under GC section 11123, subdivision (a), all meetings of a state body are open and public, and all persons are permitted to attend any meeting of a state body, except as otherwise provided in that article. The Board Chair may adopt reasonable time limits for public comments in order to ensure that the purpose of public discussion is carried out. (GC section 11125.7, subd. (b).)

Members of the public who wish to participate in the meeting may do so via livestream on our website at https://videobookcase.com/california/oshsb/. The video recording and transcript of this meeting will be posted on our website as soon as practicable.

For questions regarding this meeting, please call (916) 274-5721.

Occupational Safety and Health Standards Board

Public Hearing

Lead

TITLE 8

CONSTRUCTION SAFETY ORDERS

SECTION 1532.1

GENERAL INDUSTRY SAFETY ORDERS

SECTIONS 5155 AND 5198

LEAD

HYPERLINKS TO RULEMAKING DOCUMENTS:

NOTICE/INFORMATIVE DIGEST

PROPOSED REGULATORY TEXT

INITIAL STATEMENT OF REASONS

From: Armatas, Christina@CDPH
To: DIR OSHSB
Subject: Lead standards CDPH comments
Date: Tuesday, March 7, 2023 6:48:38 AM
Attachments: CDPH letter in support of lead standards_ Aragon Final_3.6.23.pdf

Hi OSHSB,
Please see attached comments in support of the occupational lead standards from CDPH.

Thank you,
Christina

Christina Armatas MD, MPH
Public Health Medical Officer
COVID-19 Occupational Health Team
California Department of Public Health, Occupational Health Branch
850 Marina Bay Pkwy, P-3, Richmond, CA 94804
(510) 620-5714 | Christina.Armatas@cdph.ca.gov
Center for Healthy Communities

State of California—Health and Human Services Agency
California Department of Public Health

TOMÁS J. ARAGÓN, MD, DrPH
Director and State Public Health Officer

GAVIN NEWSOM
Governor

March 6, 2023

Mr. David Thomas
Board Chair
Occupational Safety & Health Standards Board
2520 Venture Oaks Way, Suite 350
Sacramento, CA 95833

Dear Mr. Thomas:

CDPH COMMENTS IN SUPPORT OF CAL/OSHA'S PROPOSED REGULATIONS "LEAD," CCR, TITLE 8, §5198 FOR GENERAL INDUSTRY AND §1532.1 FOR CONSTRUCTION.

I am writing on behalf of the California Department of Public Health (CDPH) regarding the proposed regulations to protect workers from occupational lead exposure in general industry and construction. CDPH strongly supports adoption of these regulation revisions to enhance the protection of workers from lead poisoning.

CDPH has a long-standing collaboration with the Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA), on worker health and safety. For over ten years, CDPH has provided technical input to Cal/OSHA on updating the state's lead standards to reflect a growing body of scientific literature indicating detrimental health effects from lead exposure at lower levels than previously recognized.

The proposed regulations incorporate numerous health protective measures, many of which are consistent with recommendations made by CDPH to Cal/OSHA, and have the added benefit of protecting workers' vulnerable household members, including pregnant women and children, by decreasing workplace exposure and requiring that workers are trained on hygiene practices to avoid taking lead dust home where family members can be exposed.

CDPH's Occupational Lead Poisoning Prevention Program (OLPPP) conducts surveillance of worker blood lead levels (BLL) in California and has industrial hygiene, clinical, and epidemiologic expertise to provide technical assistance to employers, clinicians, workers, and other stakeholders. In 2019, CDPH updated its guidance for clinicians on management of lead poisoning in adults, including from occupational exposures, due to the availability of compelling literature on the chronic health impacts of lead and published recommendations for improving public health guidance.[1] The recommendations on clinical management from the CDPH guidance have been incorporated in the proposed regulations.

In 2018, the Michigan Occupational Safety and and Health Administration (MIOSHA) became the first state agency to update the state's lead standards that were based on the decades-old federal regulations. MIOSHA adopted a more stringent cutoff for removing lead poisoned workers from lead work, which is aligned with the measures that CDPH supports in the proposed standards for California. The addition of a lower permissible exposure limit in Cal/OSHA's proposed regulations will prevent airborne exposure to lead at levels that contribute to severe lead poisoning requiring medical removal from work.

The dated standards currently in place allow lead poisoning to occur in the workplace at levels that far exceed what we now know are injurious to health. These proposed regulations are a critical step in protecting workers from occupational lead poisoning through enhanced training, reduction of workplace exposure limits, and medical surveillance.

I appreciate the Standards Board's consideration of CDPH's strong support for adopting revised occupational lead regulations. Please contact me or the Chief of the Occupational Health Branch, Dr. Kristin Cummings, at Kristin.Cummings@cdph.ca.gov if you have any questions.

Sincerely,

Tomás J. Aragón, MD, DrPH
Director and State Public Health Officer
California Department of Public Health

[1] Kosnett MJ, Wedeen RP, Rothenberg SJ, Hipkins KL, Materna BL, Schwartz BS, Hu H, Woolf A. Recommendations for medical management of adult lead exposure. Environ Health Perspect. 2007 Mar;115(3):463-71.

cc:
Terri Sue Canale-Dalman, Deputy Director
California Department of Public Health
Center for Healthy Communities
P.O. Box 997377, MS 0508
Sacramento, CA 95899-7377

Kristin J. Cummings, MD, MPH, Chief
California Department of Public Health
Occupational Health Branch
850 Marina Bay Parkway, P-3
Richmond, CA 94804

From: Money, Sarah@DIR
To: DIR OSHSB
Subject: FW: lead regulations
Date: Thursday, March 9, 2023 2:02:17 PM
Attachments: osha.docx
image001.png

Sarah Money
Executive Assistant
OSH Standards Board
2520 Venture Oaks Way #350
Sacramento, CA. 95833
Main Office: (916)-274-5721
Direct Line: (916)-274-5739
Cell: (916)-693-7809
smoney@dir.ca.gov

From: DIR CalOSHAAppealsBoard <OSHAB@dir.ca.gov>
Sent: Thursday, March 9, 2023 1:52 PM
To: Money, Sarah@DIR <SMoney@dir.ca.gov>
Subject: FW: lead regulations

Hi Sarah,

I am forwarding the following email, we mistakenly received in our General Mailbox.

Many Thanks,
Marlene Harris
Office Technician
Dept. of Industrial Relations
Occupational Safety and Health Appeals Board
2520 Venture Oaks Way, Suite 300
Sacramento, CA 95833
(916) 274-5751 (Main)
(916) 274-5785 (Fax)

From: Noel Bouchepainting <bouchepainting@gmail.com>
Sent: Thursday, March 9, 2023 11:23 AM
To: DIR CalOSHAAppealsBoard <OSHAB@dir.ca.gov>
Subject: lead regulations

To- Sarah Money
The attached letter is in support of changes to California Lead laws.

Thank you, Noel Bouche

To: Occupational Safety and Health Standards Board
Re: Support for proposed changes to the California occupational lead regulations

I am writing to support the proposed changes to the California occupational lead regulations under the Construction and General Industry Safety Orders (section 1532.1 and sections 5155 and 5198).

I am a C-33 Painting and Decorator contractor that will benefit from these proposed changes by ensuring an equal playing field for companies acting responsibly by protecting workers from lead exposures.

I support these changes to the Cal/OSHA lead standards for the following reasons:

- The current Cal/OSHA lead standards date back to the 1970s and are based on outdated lead toxicity information that allow harmful exposures and workplace lead poisoning to occur.
- The proposed revisions will lower the risk that employees exposed to lead will develop harmful health effects including high blood pressure, heart disease, decreased kidney function, reproductive and neurological effects, and premature death.
- These proposed changes would have a significant financial benefit due to avoided cases of lead-related illness and premature death, with an annual savings of $27.9 million per year in California.
- The proposed regulation would result in reduced take-home lead exposure and better protect family members of exposed employees.

I appreciate your consideration of my views as you move forward to adopt this very important change in the regulations protecting workers.
Sincerely,

Noel Thomas Bouche

Bouche Painting

1663 39th ave. SF, Ca. 94122

From:	Marc Connerly
To:	DIR OSHSB
Cc:	Bruce Wick (bwick@housingcontractors.org); Steve Johnson
Subject:	Information for March 16 Standards Board Packets
Date:	Monday, March 13, 2023 5:07:11 PM
Attachments:	Information for CA Standards Board in advance of March 16.pdf

On behalf of the coalition represented on page 4 of the attached information, we respectfully request that this information be added to the Board packets in advance of the March 16 Standards Board meeting.

Warm regards,

Marc Connerly, Executive Director
Roofing Contractors Association of California
2235 Park Towne Cir., 2nd Floor
Sacramento, CA 95825
O: 916.485.6318
C: 916.214.6495
F: 916.485.6374
www.rcacal.com
RCAC is dedicated to the protection and advancement of the California roofing industry in legislative, regulatory and business affairs.

Information for CA Standards Board in advance of March 16, 2023 meeting

The undersigned coalition is committed to the health and safety of its members, members' employees, and members' clients, and takes seriously efforts to eliminate lead poisoning. The coalition is comprised of trade associations from the construction industry representing contractors at the national, regional and state levels, comprising a very large segment of the construction industry in the State of California. As such, the coalition provides the following information for review prior the March 16, 2023 Standards Board meeting.

Declining Prevalence of Elevated Blood Lead Levels

The coalition believes that California's existing regulatory framework, including current ancillary provisions of the lead standard in construction for personal protective equipment, housekeeping, hygiene, and training, has been effective at protecting construction workers from lead. This has been demonstrated by the declines in BLL in recent years as cited in OSHA's Advanced Notice of Proposed Rulemaking (ANPRM) for *Blood Lead Level for Medical Removal* dated August 18, 2022.

The following points are presented to support the declining prevalence of elevated blood lead levels.

- In their October 28, 2022 letter to OSHA Assistant Secretary Doug Parker, the National Association of Home Builders emphasized that "OSHA does not and cannot provide any evidence to show that there is increased occupational exposure to lead." The letter goes on to state, in fact, according to Federal OSHA, there is a decline in the prevalence of elevated Blood Lead Levels (BLLs) in the United States. OSHA has provided data in the Federal Register to show that the national prevalence rate of BLLs greater than 10 mg/dL has declined from 2010 to 2016.
    - David E. Jacobs et al., The Prevalence of Lead-Based Paint Hazards in U.S. Housing (Environmental Health Perspectives, Vol. 110, No. 10, October 2002).

- The USGS noted in their statistics and information on the worldwide supply of, demand for, and flow of the mineral commodity lead that by the 1980's "a significant shift in lead end-use patterns had taken place and . . . [M]uch of this shift was a result of the U.S. lead consumers compliance with environmental regulations that significantly reduced or eliminated the use of lead in non-battery products, including gasoline, paints, solders, and water systems." Furthermore, as of the 2000's, lead-acid storage batteries account for 88% of the lead consumption, while sheet lead used in the roofing industry accounted for 1% of the U.S. lead consumption.
    - See https://www.usgs.gov/centers/national-minerals-information-center/lead-statistics-and-information

- OSHA acknowledges that the removal of lead from consumer paint has resulted in declining prevalence of elevated BLLs. 87 Fed. Reg. 38346.

Cal OSHA does not state and cannot show that there is an increased occurrence of high BLLs in the construction industry in recent years, giving rise to the need for a revised regulation.

In California Department of Public Health's Table on the number of California employers testing BLLs from 2015-2018, classified by NAICS industry category, roofing contractors were shown to have some of the lowest number of workers with BLLs testing compared to other construction NAICS industry categories, including painting contractors (238320), demolition contractors (238910), and sandblasting contractors (238990). Roofing contractors testing breakdown is as follows.

- ≥ 0 ug/dl up to 5 ug/dl = 4 workers
- ≥ 5 ug/dl up to 10 ug/dl = 3 workers
- ≥ 10 ug/dl up to 25 ug/dl = 3 workers
- ≥ 25 ug/dl = ZERO workers

In a memorandum from Abt Associates to OSHA on August 9, 2021 regarding the estimated number of work-related BLL cases and firms, whose purpose was "to provide estimates for the annual number of work-related blood lead level tests and the number of cases and firms with workers with blood lead levels (BLLs) at or above various thresholds, by industry," Abt Associates made several troubling assumptions related to their analysis of the data provided by CDC's Adult Blood Lead Epidemiology and Surveillance (ABLES).

It should be noted the ABLES data is limited to those states that report testing results to ABLES, and it includes data from California, which they consider to be nationally representative.

Abt Associates identified in the memorandum challenges with the ABLES data, including that "detailed breakouts of case and test counts by NAICS were limited."

- Only a subset of all reports received from CDPH included the associated NAICS code.

Furthermore, the memorandum states on page 2:

- "Testing for elevated blood lead levels in adults is generally not done as part of routine medical screening, and therefore it ***seems likely*** that most blood tests in adults are performed for individuals with potential occupational exposures."

As such, the memorandum goes on to state that while reports without NAICS codes may be non-occupational exposures, they chose to include them as occupational even though they could not be attributed to a particular industry. Further complicating their analysis in our view,

they believe that the number of cases reported at the NAICS level is likely underestimated. We would submit that they are likely misclassified as occupational exposures.

Furthermore, Abt Associates indicated that when determining the national number of tests and cases, one of the analytical steps they relied upon was to "use the California Department of Public Health's estimated number of cases per firm by NAICS to estimate the number of affected firms by NAICS from the number of cases." Please consider the following:

- Similar to the CDPH data discussed in the previous section, the NAICS 2381 Foundation, Structure, and Building Exterior Construction which includes roofing contractors and sheet metal contractors, showed there were an annual average of 12 BLL cases $\geq$ 10 ug/dl in CA from 2015 to 2018. The percent of cases for NAICS 2381 was 0.45%, less than ½%. [See Table 2, page 4]
- When examining the data from the national level, the number of cases in NAICS 2381 is even lower. [See Table 4, page 14]
- The memorandum goes on to state that there are areas of "uncertainty and limitations to the approaches described in this memo," including the following *[see page 13]*:
    - "The majority of reports used to estimate the ratios in Table 3 do not have an identified NAICS. We attribute these unknown sources to occupational exposures, but this may *overestimate* [emphasis added] the number of cases and tests to the extent that they are actually due to nonoccupational exposures.
    - Because the number of BLL cases reported by ABLES are not disaggregated by NAICS, Abt Associates stated that they made the assumption that the overall test to case ratios observed in the ABLES states are the same for each industry. To the extent that the distributions of blood lead levels across industries differ from each other, this assumption may over- or under- estimate the number of cases in an industry at a given BLL."

Making the standard more restrictive does not make workers safer just by virtue of lowering limits.

Real-world experience proves that focusing on factors such as worker education, work practice controls, personal protective equipment ("PPE"), and worker hygiene offer far greater potential for improvements to worker health than do changes to the PEL. Simply ratcheting down numerical targets such as the Action Level ("AL") and the Permissible Exposure Limit ("PEL") has not been identified to make workers safer.

While academic stakeholders have asserted that these effects are well known, the most definitive survey published to date on these sorts of effects acknowledges that many of the effects of lead are not scientifically proven at very low levels.

See National Toxicology Program's Monograph on Health Effects of Low-level Lead (June 2012).

Respectfully,

Associated Roofing Contractors of the Bay Area Counties

Building Owners and Managers Association

California Association of Sheet Metal and Air Conditioning Contractors, National Association

California Building Industry Association

California Business Properties Association

Construction Employers' Association

Flasher Barricade Association

Housing Contractors of California

National Electrical Contractors Association

National Roofing Contractors Association

Northern California Allied Trades

Painting and Decorating Contractors of California

Roofing Contractors Association of California

Southern California Contractors Association

Southern California Glass Management Association

Union Roofing Contractors Association

United Contractors

Wall and Ceiling Alliance

Western Wall & Ceiling Association

Western Painting & Coatings Contractors Association

From: Howard B. Spielman
To: DIR OSHSB
Subject: Lead standards comments
Date: Friday, March 24, 2023 1:02:39 PM
Attachments: OSHSB lead comments.pdf

Dear Sarah Money and Board:
The attachment is re-submitted only to correct minor typos. Apologies for any inconvenience.
Howard Spielman

--

Howard B. Spielman
CIH, CSP, CAC, SMS, CDPH I/A-PM
CEO
Phone 714-220-3922
Web www.healthscience.com
Email hspielman@healthscience.com
10771 Noel Street
Los Alamitos, CA 90720

March 17, 2023

Sarah Money
Occupational Safety and Health Standards Board
2520 Venture Oaks Way, Suite 350
Sacramento, CA 95833

Via U.S. Mail and email; oshsb@dir.ca.gov

Re: Comments applicable to Lead Standards for public hearing on April 20, 2023

Dear Standards Board members:

For starters, please see my CV (attached) as my introduction to those of you who may not know me. My involvement with Cal/OSHA started with my participation in governor Reagan's task force to establish Cal/OSHA. Over the ensuing years I have served on numerous advisory committees and for several years my company (Health Science Associates - HSA) was privileged to provide laboratory services to Cal/OSHA.

With respect to the three lead standards on the April 20th agenda, I attended and participated in all six advisory committee meetings and reviewed the multiple discussion drafts. As such, I have no argument with the health-based recommendations made by CDPH as far back as 2010 and 2013. However, as a Certified Industrial Hygienist (CIH) having dealt with lead exposures in the workplace for decades, I wish to address quality assurance and inconsistences that were discussed during advisory committee meetings but not adequately represented in the proposals that finally have been brought to the Board

1. The exposure assessment and medical surveillance requirements in 1532.1 and 5198 are quite volumetric and technical in nature. Competent exposure assessment is critical because it is the basis for all other elements of compliance. If not accomplished competently, exposure could be understated, which would not serve employee interests, or overstated, which would not serve employer interests.

   The proposals for both 1532.1 and 1598 state: "The employer shall ensure that all medical examinations and procedures are performed by or under the supervision of a licensed physician". No such quality assurance is proposed for exposure assessments.

   It is important to note the long existing language in 5155(e)(3): "For the adequate protection of employees, the person supervising, directing or evaluating the monitoring and control methods shall be versed in this standard and shall be competent in industrial hygiene practice". Section 5155 covers the many hundreds of listed harmful chemicals with

permissible exposure limits (PELs), only two of which are the lead compounds noted for updating in the proposal. What is the justification for requiring this industrial hygiene competence applicable to only the lead compounds listed in 5155 but not for the lead covered in 1532.1 and 5198? None!

The benchmark for competence in industrial hygiene is certification by the American Board of Industrial Hygiene (ABIH). The CIH is codified in Sections 2700 - 2705 of our Business and Professions Code.

Recommendation: The following language to be placed in 1532.1, 5198 and 5155.

"The employer shall ensure that all exposure assessments and monitoring are performed by or under the supervision of a Certified Industrial Hygienist as codified in Sections 2700 - 2705 of the Business and Professions Code."

The long existing 5155(e)(3) is, to say the least, difficult for DOSH to enforce, and they likely cannot demonstrate any past enforcement. So, in the best interests of employees and employers, and solving an enforcement problem for DOSH, this recommendation needs to be adopted.

2. It is common knowledge that inhalation is not the only, or always the most important, mode of entry of lead into the body. Exposure via contamination of food, drink, clothing, et.al., which can lead to ingestion, also needs to be addressed. This was discussed during advisory committee meetings and in at least one discussion draft the competence of a CIH to address this risk was included.

   It appears that DOSH has decided to deal with this risk only via the housekeeping and general hygiene requirements. I believe this is insufficient.

   Recommendation: The following language to be placed in 1532.1 and 5198.

   "The employer shall ensure that non-inhalation exposure assessments are performed by or under the supervision of a Certified Industrial Hygienist as codified in Sections 2700 - 2705 of the Business and Professions Code".

3. For blood lead testing, accuracy is addressed by requiring analysis by a CLIA approved laboratory. For exposure assessment, accuracy is composed of difficult to enforce details and is not consistent in character with the blood lead approved laboratory criterion. An exposure assessment will include air and bulk materials sampling and analysis. There already is a well established laboratory accreditation for these.

The American Industrial Hygiene Association (AIHA) has an Environmental Lead Laboratory Accreditation Program (ELLAP) which is approved under EPA's National Lead Laboratory Accreditation Program (NLLAP). An ELLAP accreditation covers air samples and matrices of paint chips, dust, soil, composited wipes and bulk materials.

Recommendation: Replace the existing accuracy verbiage for exposure assessment in 1532.1 and 5198 with: "Laboratories used for lead analysis of samples collected for exposure assessment and monitoring shall be ELLAP accredited."

General Commentary:

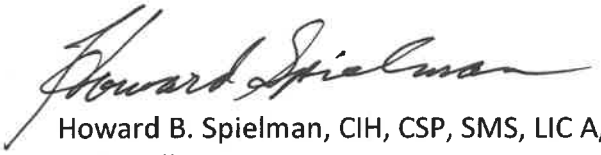
During my many years of practice, whenever I and other CIHs point out and/or recommend the need to specify that CIH expertise be included in laws and regulations, we have received two major undeserved criticisms. I blame our professionalism and modesty for failing to react strongly. So, in anticipation of hearing them again, here goes.

a) Special interest only to promote ourselves. If you would take the time to understand the core of our profession you would come to the conclusion that our special interests are employees, with collateral value to employers and the community. To not require CIH competence in the lead standards is a dis-service to both employees and employers.

b) Can't afford us. What a poor argument is this! I am always amused when, after a serious accident occurs and reaches the attention of the public, the first statement to come from the owner/employer is something like "safety is our number one priority". Really? When did that happen? Protecting employee health is an ongoing employer responsibility and when confronted with the technical/professional needs, such as presented in these lead standards, even small to mid-sized employers should welcome the requirement for CIHs. No different than their need for lawyers, doctors, accountants, insurance brokers and other experts to support their enterprise.

I appreciate your attention to these comments and look forward to your favorable response.

Respectfully,



Howard B. Spielman, CIH, CSP, SMS, LIC A/I & PM, CAC
AIHA Fellow
CEO, Health Science Associates

HBS/jw

HOWARD B. SPIELMAN

EDUCATION

B.S. Public Health - U.C.L.A. - 1956
M.A. Health & Safety Science - California State University at Los Angeles - 1967

PROFESSIONAL CREDENTIALS

Certified Industrial Hygienist, Comprehensive Practice; Certificate No. 653 (1970)
Certified Safety Professional; Certificate No. 1097 (1971)
Safety Management Specialist; Certificate No. SMS - 832 (2017)
Community College Instructor Credential (California); Credential No. 89575
Certified Asbestos Consultant (California); Certificate No. 92-0830
Certified Lead Inspector/Assessor (California); Certificate No. I611
Certified Lead Project Monitor (California); Certificate No. M611
Registered Professional Engineer (California); Certificate No. 2845 (1978-2006)
Registered Environmental Health Specialist (California); Certificate No. 2065 (2014 ret.)

EXPERIENCE

2020 - Present **CEO - Health Science Associates (HSA)**

1974 - 2020 **President - Health Science Associates (HSA)**

HSA is a multi- service occupational and environmental health and safety firm providing a wide range of consulting and technical services. The firm performs its work for industrial, commercial, governmental, association, professional, insurance, legal, community and academia clients.

Mr. Spielman has managed the development, growth, and delivery of HSA's services. The company has grown on the basis of reputation and referral.

The areas of HSA's (and Mr. Spielman's) activities and expertise are enumerated below.

MANAGEMENT CONSULTATION AND PROGRAMS

Safety and health management planning; program audits; safety and health program administration; procedures and practices for prevention of accidents and illnesses, and compliance with legal requirements; safety and health training; up-to-date information on standards, codes and regulations and emerging issues; liaison with government and insurance agencies; asbestos and lead based paint assessments and project management; sustainability consultation.

OCCUPATIONAL HEALTH

Industrial hygiene surveys and evaluations; air sampling for toxic substances; ventilation evaluation, monitoring and design; toxic material evaluation and control programs; safety data sheets; respirator and personal protective equipment programs; noise surveys and hearing conservation programs; laser, microwave, light, et.al. protective programs; ionizing and non-ioninzng radiation surveys; ELF/EMF/RF evaluations, dermatitis control; biological hazard evaluation & control; ergonomic hazard assessment & control; Safety Data Sheet preparation and review; hazardous waste management; record keeping systems.

Health Science Associates
10771 Noel Street, Los Alamitos, CA 90720 Phone: 714-220-3922 Fax: 714-220-2081
www.healthscience.com

OCCUPATIONAL SAFETY

Safety program evaluation, development and administration; facilities and equipment design review; facilities and work practices surveys, hazard identification and control; accident/injury/illness investigation, accident prevention programs; job hazard analysis; injury recording/reporting systems; protective equipment requirements; machine guarding; OSHA/Cal-OSHA surveys; administrative assistance and development programs.

OCCUPATIONAL SAFETY AND HEALTH TRAINING PROGRAMS

Employee "right-to-know"; hazard recognition and identification; hazardous material handling; material handling techniques; confined spaces; respirator use & maintenance; noise and hearing conservation; introduction to industrial hygiene; safety management; supervisor safety; key man training; accident investigation; forklift training; job safety analysis; state accredited asbestos and lead worker/supervisor training; microbiological evaluation and mitigation.

ENVIRONMENTAL

Property environmental assessments; asbestos assessments, management programs, specifications, and monitoring/ surveillance; lead assessments, management programs, specifications, and monitoring/surveillance; microbiological assessments, specifications, monitoring; community noise assessment and control; off-site and property line airborne contaminant and noise surveys; risk assessments; community "right-to-know" programs; Proposition 65 compliance.; support remediation projects.

LITIGATION SUPPORT AND EXPERT TESTIMONY

Attorney-client privilege work; technical investigations and retrospective assessments (including accident and/or exposure re-construction); expert testimony in workers compensation, civil, tort and product liability cases, expert consultation; state-of-the-art expertise.

1967 - 1974 Hughes Aircraft Company, Culver City, CA

Initially hired as head, Industrial Hygiene and Safety; promoted to corporate manager, Environmental Health and Safety. During this period Hughes Aircraft Company employed approximately 30,000 people and was a diversified electronics and aerospace government contractor engaged in research, development and manufacturing at numerous plant-sites.

Was responsible for developing, implementing and maintaining the Corporate Environmental Health and Safety Program. This program included safety engineering, industrial hygiene, environmental pollution, health physics and workers compensation.

Acted as company chief executive on environmental health and safety matters. Recommended new and revised company policies. Developed, coordinated, issued and maintained environmental health and safety practices and standards; these appeared in the Company Environmental Health and Safety Manual which was initiated by Mr. Spielman. Audited safety and health performance of operating groups and divisions. Was responsible for ensuring compliance with applicable regulations and contractual requirements.

Other responsibilities included review and recommendation of policies and practices in medical administration, system safety and industrial defense. Coordinated Environmental Health and Safety programs with corporate and division management. Maintained liaison with governmental agencies, trade, industry and professional associations, and other companies. Chaired corporate Environmental Health and Safety Committee. Was secretary of Corporate Radiation Committee. Was member of Corporate System Safety Committee and Industrial Relations Committee.

Provided technical assistance to division Environment Health and Safety organizations. Served as Company Radiation Protection Officer and arranged for and administered AEC and state radioactive material licenses. Personally provided technical occupational health and safety services for Hughes Research Laboratories. Special projects of interest were (1) a review of the company's posture with regard to environmental pollution with recommendations for a control program, (2) a cost-effectiveness study of the company's policy on pre-employment physical examinations, (3) an analysis of workers' compensation administration and organization and (4) establishment of a program to comply with the Radiation Control for Health and Safety Act of 1968 (PL 90-602).

1963 - 1967 Northrop Corporation, Norair (Aircraft) Division, Hawthorne, CA

Employed as Industrial Hygienist. The Norair Division was involved in government and commercial aircraft manufacturing, testing and related research and development and employed approximately 10,000 people. Via interdivisional work orders, also provided Industrial Hygiene and Safety services for Nortronics (electronics and missile), Ventura Division (fabrication and composites) and Architectural Systems Division. Was the first Industrial Hygienist employed by Northrop.

Developed and administered the industrial hygiene program designed to anticipate, recognize, evaluate and control occupational and environmental health hazards; assisted the Chief Safety Engineer in technical safety and health programming; alleviated environmental health and safety emergencies; prepared and issued technical reports and procedures; consulted with other Norair disciplines and Northrop Divisions; coordinated with the Medical Chief; assisted with proposals and pertinent contracts; investigated illness and injury reports; liaison with governmental agencies and vendors. These primary duties resulted in accomplishments of special note. These were the development of a toxic and hazardous materials control program (forerunner of hazard communication and MSDS/SDS programs); improvement in the management of protective clothing and equipment; establishment of close working relationships with facilities and plant engineering, materials and process engineering, research and development, research and test laboratories, and manufacturing disciplines; major contributions to a newly developed Norair Safety Manual; technical development and surveillance of industrial hygiene activities of four safety engineers; installation of an Industrial Hygiene Laboratory; full time participation in two Chemical Hazards Potential Studies accomplished by Northrop Space Laboratories for NASA; development of laser control procedures; and initiation of a hearing conservation program. Also, was chairman of a four-man multi-disciplinary study team (Process Engineering, Plant Engineering, Maintenance, Health and Safety) that conducted a comprehensive study of all Norair chemical processing facilities. The recommendations of the team resulted in the adoption of corporate standards for chemical processing facilities (including ventilation design, labeling & maintenance).

The enactment of Los Angeles County A.P.C.D. Rule 66 (Control of Organic Solvent Emissions) resulted in the establishment of a Rule 66 Task Force at Norair. Represented the safety organization on this Task Force, thereby coordinating training activities and assuring that, in plans to comply with Rule 66, industrial hygiene and safety controls were not compromised.

1959 - 1963 Los Angeles City Health Department

Employed as Industrial Hygienist in the Division of Occupational and Radiological Health. The Division was responsible for enforcing the Toxic Chemical Ordinance and promoting healthful working conditions in more than 10,000 industrial establishments.

Duties and assignments included surveys and studies in all types of industrial establishments; enforcement of the Los Angeles Toxic Chemical Ordinance; radiological health surveys and studies; recommendation of corrective procedures, practices and installations; review and approval of facility and ventilation plans; use, maintenance and calibration of industrial hygiene instrumentation; hazard evaluation of trade name materials; promulgation of bulletins, laws and regulations; and investigation of occupational diseases.

Special assignments included a public safety study of hazards in commercial trampoline centers, a study of residential gas heaters for carbon monoxide hazards, a study of retail coin operated dry cleaning installations to determine public and operator hazard potential, a study of aircraft maintenance activities at Los Angeles International Airport, and liaison with industry advisory committees.

1957 - 1959 United States Air Force

Second lieutenant in pilot training for five months. Dropped out of flying training due to change in Air Force administrative policies. Assigned to USAF Hospital, Maxwell AFB, Alabama as Medical Service Administrator. Assignments were Assistant Adjutant, Commander of Patients' Squadron, and Security Indoctrination Officer. Supervised two civilian and eight military personnel. Completed active duty as first lieutenant.

1956 - 1957 Los Angeles City Health Department

Employed as Public Health Sanitarian and assigned to the Downtown Rehabilitation Health District. Made health inspections of restaurants, hotels, apartment houses, barber shops, et.al. Enforced the Los Angeles City Health Code. Worked in close cooperation with the Los Angeles Department of Building and Safety and the Los Angeles Fire Department.

PROFESSIONAL MEMBERSHIPS

Industrial Hygiene Foundation (IHF) - Director 2002 - 2005

California Industrial Hygiene Council (CIHC) - Founding President 1990 - 1996 and president again in 2009. Vice President 2006 - 2008.
Board member 1997 - 2005 and 2010 to present.

American Board of Industrial Hygiene (ABIH), Director 1990 - 1996.

American Industrial Hygiene Association (AIHA)
- Fellow member since January, 1994
- Past chair of Audit Committee, Public Affairs Committee.
- Past member of various technical committees.
- Past member of Emerging Issues Committee
- Past Member of Awards Committee

AIHA, Southern California Section
- Past President (1965 & 1978); past Secretary-Treasurer;
- chaired symposium committee; member of ad hoc committees.
- Recipient of Leadership Award, 1999.

AIHA, Orange County Section
- Founding Board Member; Section appointee to CIHC Board.

American Academy of Industrial Hygiene; Diplomate (since 1970)

American Society of Safety Engineers (ASSE) - name changed to American Society of Safety Professionals (ASSP)

AWARDS

2022 Donald E. Cummings Memorial Award for Outstanding OEHS Practice (American Industrial Hygiene Association)

Leadership Award, 1999 (Southern California AIHA)

Leadership and Lifetime Membership Award, since 1990 (California Industrial Hygiene Council)

OTHER PROFESSIONAL ACTIVITIES

Member, Southern California Education and Research Center Advisory Board 2004 - Present.

Member, Cal/OSHA Health Effects Advisory Committee (HEAC) 2016 - Present.

Member, ABET Employer Advisory Committee for the UCLA Industrial Hygiene Program 2005 - Present.

Member, Cal/OSHA Lead Advisory Committee 2014-2019.

Member, ASSE Professional Safety journal editorial/board 2012 - 2016.

Member, Cal/OSHA Health Expert Advisory Committee (HEAC) 2007 - 2012.

Member, Cal/OSHA PEL Process Committee 2006 - 2012.

Member, U.C. Irvine Occupational Safety and Health Advisory Committee 2004 - 2010.

Cal/OSHA - Member of Mold Advisory Committee 2001 - 2002.

California Department of Health Services - Lead Workshops; Member 1996 - 1998.

Lead Safe California - Lead Task Force; Member 1996 - 1998.

Los Angeles County Health Department - Occupational Health Task Force: Member 1997.

Occupational Safety & Health Continuing Education Advisory Board, University of Southern California: Member (1982-2000).

Delegate, 1st Occupational Health Delegation from the United States to the Peoples Republic of China, 1982

Governor's Advisory Council for development of California OSHA plan: Member (1972-73).

Various California advisory committees established by the Cal/OSHA Standards Board for development of occupational health and safety standards: Member (1973-1984). Including the asbestos, airborne contaminants, noise, confined space and coke oven emissions standards.

California Safety Council Board of Directors (1980-1994); President 1983-1985.

California Manufacturers Association Workers Compensation and Occupational Safety & Health Committee: Member of Steering Committee (1968-1974). Chairman (1971-1973).

Organized, developed and/or presented health, safety, environmental seminars, workshops, programs for such organizations as AIHA, American Medical Association, California Safety Council, L. A. Chapter of National Safety Council, California Manufacturers Assn., Merchants & Manufacturers Assn., University of Southern California, Society of Manufacturing Engineers, Public Agency Safety Mgmt. Assn., and Cal/OSHA.

Taught Radiation Health and Safety & Industrial Accident Prevention semester courses for Los Angeles City Schools and Long Beach Community College.

Past member of Occupational Safety Advisory Committee, Los Angeles City College.

Past member of Aerospace Industry Assn. and Electronics Industry Assn. Safety & Health Committees.

Past member Orange County Lung Assn. Indoor Air Pollution Committee.

Served as member of qualifications appraisal and interview panel for professional Industrial Hygiene position examinations for the State of California, City of Los Angeles and Los Angeles Unified School District.

Taught segments of AIHA, Southern California Section's Industrial Hygiene review course; also taught same for MBA Associates course of a similar nature.

Presented "The CIH in Litigation - or The Witness Chair and How I got There", March 12, 2022, CIHC Summit.

Presented "Asbestos Pool Case Study", December 8, 2021, CIHC Professional Development Seminar.

Presented "Let's Get the Lead Out", March 12, 2020 at the Occupational Health and Industrial Hygiene Summit.

Presented "How I Earned My Gray Hair - Or What's Left of It", December 12, 2018 at the 2018 CIHC Professional Development Seminar.

Presented "Lead In Construction Update", March 15, 2017 at the IAQA Los Angeles/Orange County Chapter Meeting.

Presented "History of Instrumentation", December 8, 2016 at the 2016 CIHC Professional Development Seminar.

Presented "Industrial Hygiene: History, Scope and Guidance for Safety Practitioners", March 19, 2014 at the Orange County ASSE PDC

Presented "Lead In Construction - Lessons Learned", December 3, 2013 at the CIHC Annual Conference.

Presented "Industrial Hygiene: A Look Back and a Look Forward", October 23, 2013 at the AIHA San Diego Local Section meeting.

Presented "Industrial Hygiene: A Look Back and a Look Forward", October 16, 2013 at the Joint Technical Conference.

Presented "Investigation of a Cancer Cluster in a Multiple Story Office Building" , December 8, 2010 at the CIHC Annual Conference.

Presented "California's Leadership Role in Establishing PELS", December 6, 2010 at the CIHC Annual Conference.

Presented "PEL - Setting Process in California and HEAC Process for Recommending Specific Standards to DOSH" October 23, 2008 at the Southern California Joint Technical Symposium.

Presented "Industrial Hygiene, Past, Present and Future" on December 2, 2004 at the California Industrial Hygiene Council Annual Conference.

Presented "Professional Ethics Workshop" on April 22, 2004 at the Sacramento Section, American Industrial Hygiene Association.

Presented "Toxic Molds or Toxic Myths" on October 25, 2002 at the California State Bar Environmental Law Conference

Presented "Technical and Political Aspects of Mold Issues in California" at the July 12, 2001 Meeting of AIHA, Southern California Section

Presented "Industrial Hygiene, Past, Present and Future" on December 2, 2004 at the California Industrial Hygiene Council Annual Conference.

Presented "Professional Ethics Workshop" on April 22, 2004 at the Sacramento Section, American Industrial Hygiene Association.

Presented "Industrial Hygiene, Past, Present and Future" on January 8, 2004 at the AIHA Southern California Section meeting.

Presented "Identifying, Resolving and Disclosing Environmental and Structural Hazards" 2003, California Mortgage Bankers Association, 6th Annual Western States Conference, Las Vegas, NV

Presented "Industrial Hygiene Aspects: Mold and Fungi, January 2002, Fireman's Fund

Presented "Technical and Political Aspects of Mold Issues in California" at the July 12, 2001 Meeting of AIHA, Southern California Section

Presented "Current Issues in Academic Institutions Including PPE Requirements", January 7, 2000, College of Natural Sciences and Mathematics, California State University, Long Beach

Presented "Sampling Methods, Risk Assessment and Toxicity of Microbiologicals " at the 1997 Annual Technical Symposium jointly sponsored by the Southern California and Orange County Sections of the AIHA..

Presented "Downsizing: Consultants View", October 4, 1994 at the Professional Conference on Industrial Hygiene.

Presented "Industrial Hygiene Update for the 1990's" at the 1994 Western Safety Congress.

Presented "Overview of Occupational and Environmental Lead Issues", December 8, 1993 at the 25th Annual SCAIHA Symposium.

POST-GRADUATE COURSES:

Radiological Monitoring
Radiation Physics
Industrial Sanitary Engineering
Hearing and Its Measurement
Labor Relations and Collective Bargaining
Safety Education
Administration of Health and Safety
Appraisal and Guidance in Health and Safety
Chronic and Degenerative Diseases
Independent Study (Health and Safety Law)
Radiation Safety
Thesis (Legal Aspects of Radiation Health and Safety)

SPECIAL TRAINING OR COURSES:

Elements of Industrial Hygiene - California State Health Dept.
X-Ray Protection - U. S. Public Health Service
Radiation Health Physics Training Program - The Budd Company
Radiological Monitoring - Los Angeles Civil Defense Agency
Analysis and Control of Noise - U. S. Public Health Service
Industrial Hygiene Engineering - U. S. Public Health Service
Industrial Ventilation - U. S. Public Health Service
Liquid Missile Propellants - Rocketdyne/Northrop
Cryogenics Course - Northrop
Effective Writing - U. S. Air Force
Non-Ionizing Radiation - U. S. Public Health Service
Evaluation of Laser Hazards - U. S. Public Health Service
Introduction to Computers, Information Technology and Management Sciences - Hughes Aircraft Company
Management and Communications - California Manufacturers Assoc.
Management of a Workers Compensation Program - Cal. Tech.
Sampling & Evaluating Airborne Asbestos Dust (NIOSH 582) - NIOSH
Supervisory Safety Management Course - National Safety Council
Techniques of Teaching - California State Department Education
Electromagnetic Spectrum Course - U. S. Public Health Service
Emergency Care of The Sick & Injured - U. C. L. A.
Inspecting Bldgs. For Asbestos-Containing Materials - USC/ISSM
Management Planning for Asbestos - USC/ISSM
Asbestos Abatement Contractors & Supervisors Course - DNA, Inc.
AHERA Project Designer - National Environmental
Ergonomics - USC/ISSM
Laboratory Techniques & Trends - MBA Associates/HSA
Operator Certification for XRF - Scitec Corporation
Operator Certification for XRF - RMD Corporation
Operator Certification for XRF - Niton Corporation
Confined Spaces - Orange County AIHA
Risk Assessment, Inspection, & Abatement of Lead-Based Paint Hazards - AIHA Professional Development Course
Indoor Air Quality - Orange County AIHA
Lead-Based Paint Issues for Certified Industrial Hygienists - University of California, Berkeley
Nanotechnology Update for Industrial Hygienists - AIHA
Asbestos Litigation Conferences - Perrin 2012 - present

From: Ross, David K@DOT
To: DIR OSHSB
Cc: Goddard, Kevin@DOT; Paulmarie, Michael@DOT
Subject: Re: Revised Lead Standards for Section 1532.1 & GISO 5155 & 5198
Date: Monday, March 20, 2023 2:17:33 PM
Attachments: image001.png

Good Afternoon –

During the 45 day comment period opened for the revisions above, the Department of Transportation (Caltrans) Office of Employee Health and Safety submits the following query:

Is the lead byproduct of the combustion of tetraethyl lead (TEL) intended to be covered by the lead standards? Prior discussions and comments by Chemists note the combustion of organic TEL transforms to inorganic lead after combustion, thus adding the TEL by-products to the lead covered by these new standards.

The proposed revisions to Section 1532.1, Appendix A(II)(A) (Page 39 of 165) states that "lead (except for certain organic lead compounds not covered by the standard, such as tetraethyl lead)..."

If TEL byproducts are not included, it is recommended the language of the Proposed Standard be revised/clarified to make that clear. The financial impacts of having to addressing TEL byproducts under these new standards now contained within roadside dirt resulting from earlier use of leaded fuels in California will prove to be a financial burden to many State agencies and the general public.

Appreciate your taking the time to review this query and advise how to interpret the new standards. Thank you.

David Ross
Safety Engineer
Department of Transportation
Safety and Management Services
Cell: 916.639.5732
Office of Employee Health and Safety

DSMS Customer Feedback Survey

From: wendy thanassi
To: DIR OSHSB
Subject: Lead Standards revision proposal
Date: Sunday, March 26, 2023 5:56:36 PM
Attachments: Lead Std Support Letter to STds Board.docx

March 11, 2023

To: Honorable David Thompson, Chair
Occupational Safety & Health Standards Board
2520 Venture Oaks Way, Suite 350
Sacramento, CA 95833
OSHSB@dir.ca.gov

SUBJECT: Support for Proposed Regulations to amend the Cal/OSHA Lead Standards

Dear Mr. Thompson and members of the Board:

I am writing to express my strong support for the proposed amendments to the Cal/OSHA lead standards, as outlined in your rule-making announcement of March 3, 2023, affecting 8 CCR, Sections 1532.1, 5155 and 5198.

I urge the Standards Board to adopt these provisions in order to safeguard the health of tens of thousands of California workers with occupational lead exposure and reinforce that physicians oversee the mandated medical surveillance programs.

In summary, we salute the work of the Division and the Standards Board in proposing these important revisions, and we urge the Standards Board to act swiftly to adopt them.

Sincerely,
Wendy

WENDY THANASSI, MD, MA, MRO
Medical Director - Workforce Health and Wellness
Clinical Professor - Primary Care and Population Health

Stanford Medicine
300 Pasteur Drive, H0124
Stanford, CA 94303
cell: 650-380-1131
thanassi@stanford.edu

March 11, 2023

To: Honorable David Thompson, Chair
Occupational Safety & Health Standards Board
2520 Venture Oaks Way, Suite 350
Sacramento, CA 95833
OSHSB@dir.ca.gov

SUBJECT: Support for Proposed Regulations to amend the Cal/OSHA Lead Standards

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I urge the Standards Board to adopt these provisions in order to safeguard the health of tens of thousands of California workers with occupational lead exposure and reinforce that physicians oversee the mandated medical surveillance programs.

In summary, we salute the work of the Division and the Standards Board in proposing these important revisions, and we urge the Standards Board to act swiftly to adopt them.

Sincerely,

WENDY THANASSI, MD, MA, MRO
Medical Director - Workforce Health and Wellness
Clinical Professor - Primary Care and Population Health

Stanford Medicine
300 Pasteur Drive, H0124
Stanford, CA 94303
cell: 650-380-1131
thanassi@stanford.edu

From: Occupational Knowledge International
To: DIR OSHSB
Subject: Support for proposed changes to the California occupational lead regulations
Date: Wednesday, March 29, 2023 10:29:17 AM

To: Occupational Safety and Health Standards Board
Re: Support for proposed changes to the California occupational lead regulations

I am writing to support the proposed changes to the California occupational lead regulations under the Construction and General Industry Safety Orders (section 1532.1 and sections 5155 and 5198). Occupational Knowledge International is a California based nonprofit organization focused on lead poisoning prevention. We believe that these proposed changes to the regulations will better protect workers from lead exposures than existing standards.

We support these changes to the Cal/OSHA lead standards as these revisions will lower the risk that employees exposed to lead will develop harmful health effects including high blood pressure, heart disease, decreased kidney function, reproductive and neurological effects, and premature death. In addition, these proposed changes would have a significant financial benefit due to avoided cases of lead-related illness and premature death, with an annual savings of $27.9 million per year in California.

I appreciate your consideration of my views as you move forward to adopt this very important change in the regulations protecting workers.

Sincerely,

Perry Gottesfeld
Executive Director
Occupational Knowledge International
4444 Geary Blvd, Suite 208
San Francisco, CA. 94118

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Occupational Knowledge International (OK International)
4444 Geary Blvd. Suite 208
San Francisco, CA 94118 USA

+1 415-221-8900

www.okinternational.org

Money, Sarah@DIR

From: Estimates Doherty <estimates@dohertyrestoration.com>
Sent: Tuesday, April 4, 2023 2:54 PM
To: DIR OSHSB
Subject: Support for proposed changes to the California occupational lead regulations
Attachments: Support for proposed changes to the California occupational lead regulations - Doherty Restoration.pdf

Please see the attached letter.

Sincerely,

Frances Doherty
CDPH Certified Lead Supervisor

Doherty Restoration, Inc
Tel: (415) 695-1494
Fax:(415) 695-1499
estimates@dohertyrestoration.com

http://www.dohertyrestoration.com/
http://www.yelp.com/biz/doherty-restoration-san-francisco-2

Doherty Restoration Inc aspires to be the leader in our field in both Customer Satisfaction and Employee Welfare.

Residential Commercial Exterior Interior

DOHERTY RESTORATION, INC

P. O. Box 885473, San Francisco, CA 94188 Tel: 415.695.1494 Fax: 415.695.1499 www.dohertyrestoration.com License # 674707

To: Occupational Safety and Health Standards Board
Re: Support for proposed changes to the California occupational lead regulations

I am writing to support the proposed changes to the California occupational lead regulations under the Construction and General Industry Safety Orders (section 1532.1 and sections 5155 and 5198).

I am a painting and general contractor that will benefit from these proposed changes by ensuring an equal playing field for companies acting responsibly by protecting workers from lead exposures.

I support these changes to the Cal/OSHA lead standards for the following reasons:

- The current Cal/OSHA lead standards date back to the 1970s and are based on outdated lead toxicity information that allow harmful exposures and workplace lead poisoning to occur.
- The proposed revisions will lower the risk that employees exposed to lead will develop harmful health effects including high blood pressure, heart disease, decreased kidney function, reproductive and neurological effects, and premature death.
- These proposed changes would have a significant financial benefit due to avoided cases of lead-related illness and premature death, with an annual savings of $27.9 million per year in California.
- The proposed regulation would result in reduced take-home lead exposure and better protect family members of exposed employees.

I appreciate your consideration of my views as you move forward to adopt this very important change in the regulations protecting workers.

Sincerely,

Frances Doherty

_____

Frances Doherty
CDPH Certified Lead Supervisor

From: Antonio Sandoval
To: DIR OSHSB
Subject: lead regulations
Date: Tuesday, April 4, 2023 4:09:57 PM

Antonio Sandoval
Antonio Sandoval Painting, Inc.
650-757-4767
sand

1 (Construction) and section 5198 (General Industry):

1. Lowering the **permissible exposure limit** (PEL) for airborne lead, calculated as an 8-hour time-weighted average (TWA) from 50 µg/m3 to 10 µg/m3.

2. Lowering the **action level** (AL) from 30 µg/m3 as an 8-hour TWA to 2 µg/m3.

3. Establishing general hygiene requirements when employees have occupational exposure to lead.

4. Removing the requirement to provide zinc protoporphyrin (ZPP) testing on a routine basis when blood lead testing is provided.

5. Increasing BLL testing for employees when their BLL is at or above 10 µg/dL, and requiring a response plan when a BLL is at or above 10 µg/dL.

6. Lowering the BLL at which employees must be offered medical examinations and consultations at least annually from 40 µg/dL to 20 µg/dL.

7. Lowering the criteria for temporary removal from work with lead due to elevated BLLs, known as medical removal protection (MRP), from a BLL of 50 µg/dL to a BLL at or above 30 µg/dL (or the last two BLLs at or above 20 µg/dL or an average BLL over 20 µg/dL when averaged over the most recent 6 months).

8. Requiring that employees on MRP be prohibited from exposure to lead at or above the proposed AL and from altering or disturbing lead-containing material, as defined in the standard.

9. Lowering the BLL at which an employee may return from MRP to work involving lead from 40 µg/dL to 15 µg/dL.

10. Expanding the contents of required training.

The Construction standard (1532.1) would also include the following additional revisions:

1. Defining level 1,2, and 3 trigger tasks, which trigger certain protective requirements, and revising the listing of specified tasks.

2. Requiring medical surveillance, regulated areas, eating areas, and a lead training program, as interim protection until an exposure assessment has been completed, based on performing trigger tasks, and additional protections when employees perform level 3 trigger tasks.

3. Requiring monthly BLL testing for employees whose airborne exposure is above 500 µg/m3.

4. Requiring that employees on MRP be prohibited from performing trigger tasks.

In addition, the General Industry standard (5198) would also include the following revisions:

1. Establishing a separate engineering control air limit (SECAL) for particular processes in the manufacturing of lead acid batteries.

2. Requiring medical surveillance, a lead training program, personal protective clothing and equipment, along with warning signs for lead, as an interim protection until an exposure assessment has been completed, based on performing presumed hazardous lead work (PHLW), as defined in the standard.

ovalpainting.com

From: Marc Connerly
To: DIR OSHSB
Cc: Bruce Wick (bwick@housingcontractors.org); Steve Johnson
Subject: Lead Standards Extension of Time Request
Date: Wednesday, April 5, 2023 3:37:50 PM
Attachments: 2023 04 05 CalOSHA Lead Coalition Logos.pdf

On behalf of the 21 organizations represented on the attachment, we respectfully request an extension of 45 days to the public comment period currently scheduled to close on April 20, 2023.

The revised regulatory proposal, published on March 3, 2023, added more than 50 pages to the originally published Construction Safety Orders. The current comment period of 45 days simply is not adequate time to review the changes to the proposed standard, determine the impacts on construction businesses, and draft a thorough and accurate response.

Additionally, we understand that many of the draft changes were made in order to bring California into compliance with Federal regulations, however industry has not been provided with a side by side comparison with the Federal regulations. The additional time is necessary to conduct a side by side comparison between the proposed California lead standards and the Federal standards.

Respectfully submitted,

Marc Connerly, Executive Director
Roofing Contractors Association of California
2235 Park Towne Cir., 2nd Floor
Sacramento, CA 95825
O: 916.485.6318
C: 916.214.6495
F: 916.485.6374
www.rcacal.com
RCAC is dedicated to the protection and advancement of the California roofing industry in legislative, regulatory and business affairs.

Respectfully,

American Subcontractors Association of California

Associated Roofing Contractors of the Bay Area Counties

Building Owners and Managers Association of California

California Association of Sheet Metal and Air Conditioning Contractors, National Association

California Building Industry Association

California Business Properties Association

Construction Employers' Association

Flasher Barricade Association

Housing Contractors of California

National Electrical Contractors Association

National Roofing Contractors Association

Northern California Allied Trades

Painting and Decorating Contractors

Roofing Contractors Association of California

Southern California Contractors Association

Southern California Glass Management

Union Roofing Contractors Association

United Contractors

Wall and Ceiling Alliance

Western Painting & Coatings Contractors Association

Western Wall & Ceiling Association

From: Samantha Hardy
To: DIR OSHSB
Subject: Lead Standard Amendments - Comment Letter
Date: Monday, April 10, 2023 2:01:44 PM
Attachments: Hardy_Comment Letter_For Submission.pdf

Dear Sir or Madam,

Attached please find my comments regarding the Occupational Safety and Health Standards Board's proposal to adopt amendments to title 8, California Code of Regulations, section 1532.1 of the Construction Safety Orders (CSO), and sections 5155 and 5198 of the General Industry Safety Orders (GISO).

Thank you for your consideration of my comments.

Best regards,
Samantha Hardy
MPH Candidate, The George Washington University

--
Best,
Samantha B Hardy
B.A. in International Affairs, The George Washington University
MPH Candidate, The George Washington University

TRANSMITTED VIA ELECTRONIC MAIL

April 10, 2023

Jeff Killip, JD MPH
Chief, Department of Industrial Relations
California Division of Occupational Safety and Health
State of California
1515 Clay Street, Suite 1901
Oakland, CA 94612

RE: **CONSTRUCTION SAFETY ORDERS, 1532.1 & GENERAL INDUSTRY SAFETY ORDERS, Sections 5155 and 5198** (link)

Dear Mr. Killip,

I am writing on my own behalf as a resident of the State of California regarding the Occupational Safety and Health Standards Board's proposal to adopt amendments to title 8, California Code of Regulations, section 1532.1 of the Construction Safety Orders (CSO), and sections 5155 and 5198 of the General Industry Safety Orders (GISO).

I appreciate the opportunity to comment on this proposal. I commend the California Division of Occupational Safety and Health (Cal/OSHA) for initiating a revision of the state lead standard to align with contemporary medical research given the current standards are reflective of science nearly a half century old. Elevated blood lead levels (BLL) are associated with a myriad of adverse health effects. For example, at a rate of 5-10 μg/dl, which is below the action trigger level in the proposed amendment, health effects include a decrease in renal function, elevated blood pressure, impaired neurocognitive and neuropsychological assessment, and developmental effects when fetuses are exposed to lead in utero, inclusive of decreased cognitive abilities and reduced birthweights.[1] Further, according to the American College of Occupational and Environmental Medicine and the Agency for Toxic Substances and Disease Registry, "epidemiological, clinical, and experimental studies are coherent in establishing lead exposure as a cause of death from cardiovascular disease…[and] at low to moderate dose, lead has been demonstrated to increase blood pressure, alter cardiac conduction, increase vascular reactivity, induce oxidative stress, increase expression of pro-inflammatory cytokines, and alter endothelial cell function."[2]

Thank you for your consideration of my comment letter.

Summary of Proposed Amendments
The proposed amendments include significant revisions to the CSO and GISO such as lowering the trigger action limit for certain requirements to 2 μg/m3 as an 8-hour time weighted average (TWA); lowering the permissible exposure limit, calculated as an 8-hour TWA, to 10 μg/m3; increasing the frequency of BLL testing for employees when BLL is at or above 10

μg/dl; and lowering the criteria for temporary removal from work with lead due to elevated BLLs to one BLL at or above 30 μg/dl, or (a) two BLLs, or (b) the average of all BLLs over 6 months, at or above 20 μg/dl.[3]

Impact on Health Equity
The revision of these standards is not only a matter of significant medical and public health importance, but also a matter of health equity. According to a January 2017 study commissioned by the California Department of Public Health, the majority of California workers with elevated BLLs are Hispanic.[4] Specifically, while 42% of the California workforce is Hispanic, the proportion of Hispanic individuals with elevated BLLs is 63 to 64%, suggesting an inequitable distribution of risk and exposure to the Hispanic workforce.[5] Accordingly, the lower exposure limits and associated medical surveillance and testing proposed in the revision will help ensure the wellbeing of the Hispanic population, which is differentially affected by elevated BLLs. As such, the amended provisions represent a significant step toward an improved and equitable health status for all Californians, and particularly for its most vulnerable populations.

Length of the Comment Period
The proposed text spans 165 pages and includes provisions that "significantly [expand] other requirements from the 2016 draft."[6] Accordingly, industry officials impacted by these proposed revisions have voiced concerns, arguing the 45-day comment period is insufficient to fully understand the scope and impact of the regulation changes in order to provide meaningful comments on the proposed revisions.[7] Moreover, it is likely that industries, businesses and individuals that were not previously subject to lead regulations will now be required to be compliant with new, lower exposure standards. For these entities and individuals, expanding the comment period to 90 days would be highly beneficial.

Effective Date of the Proposed Amendments
While the proposed amendments do include a phased in approach to comply with the requirements of the proposal following an "Effective Date", it does not appear that such an "Effective Date" has been determined by Cal/OSHA. This is particularly important for small businesses and their employees as they prepare to comply with new and drastically lower exposure requirements. The Notice/Information Digest prepared by Cal/OSHA notes that 58% of California residents work for small businesses and 58% of all private sector compliance costs will be incurred by small businesses.[8] It is therefore essential that Cal/OSHA implement both an effective date and a phased in period of at least 3 to 5 years, in consultation with industry stakeholders, large and small, that would enable businesses to have enough time to build an infrastructure, hire new staff, or purchase new, needed technologies, if required, to meet the proposed requirements.

Effect of Temporary Removal
Any medical removal could have serious financial consequences for both the individual and larger business. In the Notice/Information Digest, Cal/OSHA "assume(s) that [medically removed] workers can be reassigned to clerical tasks while on work removal."[9] However, the reality of a medical removal is likely more nuanced than a quick and seamless clerical reassignment, particularly in the context of a small business. A small business may not have ready positions available for reassignment and medically removed employees will likely need to

be replaced with new hires. Such a situation could put a significant financial strain on all involved parties. Cal/OSHA may wish to consider alternate remedies in the context of small businesses. In any event, the agency should allow employers ample time to prepare for and avoid medical removals to the greatest extent possible.

Educating Members of Impacted Industries

Generally, the language of the proposed amendments is complex, particularly with respect to triggering events, frequency of testing and related expectations. For example, with respect to BLL testing, the proposed revisions contain, in part, the following:

> (A) The employer shall make available blood lead testing to each employee covered under subsections (j)(1)(A) or (B) on the following schedule:
> 3. At least every two months for each employee whose last BLL was at or above 10 µg/dl but below 20 µg/dl. This frequency shall continue until two consecutive BLLs, taken at least 30 days apart, fall below 10µg/dl;
> 4. At least monthly for each employee whose last BLL was at or above 20 µg/dl, and during the removal period of each employee who is removed from exposure to lead due to an elevated BLL;
> 5. At least monthly, as interim protection in accordance with subsection (d)(2)(E), for each employee performing a level 3 trigger task as listed in subsection (d)(2)(D), including a blood test taken within 3 days after discontinuing all level 3 trigger task work; and
> 6. At least monthly for each employee whose airborne exposure is above 500 μg/m3 as an 8-hour TWA, without regard to the use of respirators, including a blood test taken within 3 days after discontinuing all work associated with airborne exposure above 500 μg/m3 as an 8-hour TWA.

As evidenced above, the language is neither intuitive nor easy to follow, particularly as presented in the proposed revision. Industries and employers not previously subject to lead exposure guidelines will need to carefully parse the guidelines before implementing a program. Moreover, they will need to further communicate the new guidance to their employees. As such, guidance and expectations must be clear. Cal/OSHA may wish to consider conducting education events in the form of webinars to clearly communicate the expectations of the proposed amendments to all stakeholders.

At the federal level, the Centers for Medicare and Medicaid Services Center for Medicare and Medicaid Innovation (CMMI) hosts monthly webinars to communicate the goals and details of new projects. During these webinars, CMMI officials break down the complexities of proposed and upcoming models and offer substantial Q&A sessions at the tail end of each presentation. Each presentation is recorded, transcribed, and posted to the CMMI website. Additionally, CMMI holds office hours so that stakeholders can ask or submit additional questions for clarification. To successfully roll out the new lead exposure standards, Cal/OSHA should mirror the education and engagement efforts of CMMI.

HIPAA Compliance

As part of the proposed lead standard amendments, employers are to be notified within five working days of an employee's BLL test results. [10] Accordingly, it is of the utmost importance that Cal/OSHA ensure any provision related to sharing personal health data of employees is compliant with contemporary HIPAA standards.

Thank you for your attention to this important issue.

Respectfully submitted,

Samantha Hardy

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[1] 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. Published June 28, 2022. Accessed April 5, 2023.

[2] American College of Occupational and Environmental Medicine. Comment on Docket No. OSHA–2018–0004. https://www.regulations.gov/comment/OSHA-2018-0004-0111. Published Octoboer 28, 2022. Accessed April 5, 2023.

[3] California Division of Occupational Safety and Health. PROPOSED STATE STANDARD, TITLE 8, DIVISION 1, CHAPTER 4. *Government of California*. https://www.dir.ca.gov/oshsb/documents/Lead-proptxt.pdf. Published March 3, 2023. Accessed April 5, 2023.

[4] Payne, S, Jackson, R, Materna, B. Blood Lead Levels in California Workers. Government of California. https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/OHB/OLPPP/CDPH%20Document%20Library/CABLLReport2012-14.pdf. Published January 2017. Accessed April 5, 2023.

[5] Payne, S, Jackson, R, Materna, B. Blood Lead Levels in California Workers. Government of California. https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/OHB/OLPPP/CDPH%20Document%20Library/CABLLReport2012-14.pdf. Published January 2017. Accessed April 5, 2023.

[6] Thompson K. Controversy erupts over lead proposal. Cal-OSHA Reporter. https://www.cal-osha.com/article/controversy-erupts-over-lead-proposal/. Published March 23, 2023. Accessed April 5, 2023.

[7] Thompson K. Controversy erupts over lead proposal. Cal-OSHA Reporter. https://www.cal-osha.com/article/controversy-erupts-over-lead-proposal/. Published March 23, 2023. Accessed April 5, 2023.

[8] California Division of Occupational Safety and Health. Notice/Information Digest. *Government of California*. https://www.dir.ca.gov/oshsb/documents/Lead-proptxt.pdf. Published March 3, 2023. Accessed April 5, 2023.

[9] California Division of Occupational Safety and Health. Notice/Information Digest. *Government of California*. https://www.dir.ca.gov/oshsb/documents/Lead-proptxt.pdf. Published March 3, 2023. Accessed April 5, 2023.

[10] California Division of Occupational Safety and Health. PROPOSED STATE STANDARD, TITLE 8, DIVISION 1, CHAPTER 4. *Government of California*. https://www.dir.ca.gov/oshsb/documents/Lead-proptxt.pdf. Published March 3, 2023. Accessed April 5, 2023.

SECTION 1532.1

SIDE BY SIDE COMPARISON

LEAD

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
(b) Definitions.	**(b) Definitions.**	
Action level means employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air (30 ug/m^3) calculated as an 8-hour time-weighted average (TWA).	Action level means employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 2~~30~~ micrograms per cubic meter of air (2 ~~30~~µg/m^3) calculated as an 8-hour time-weighted average (TWA).	The State proposes to lower the "action level" from 30 µg/m^3 to 2 µg/m^3. As the action level is used in the regulation to trigger certain employee protections, this reduction in the action level is necessary to provide greater protection to employees who work in areas with airborne lead concentrations of 2 µg/m^3 or greater. This is in service of the overall goal of maintaining employee blood lead levels (BLLs) below 10 µg/dl.
(There is no corresponding federal definition.)	Altering or disturbing means subjecting to a process that may result in the release of lead dust, lead mist, lead fume, or other lead particles. Such processes include, but are not limited to, welding, torch cutting, brazing, torch soldering, melting, pouring, spraying, cutting, shredding, crushing, baling, grinding, polishing, machining, drilling, scraping, sanding, abrading, sweeping, raking, and shoveling.	The State proposes to add a definition for the new term "altering or disturbing," as the term is proposed to be used in subsection (k) medical removal. Altering or disturbing is defined to identify activities that may result in the release of lead dust, lead mist, lead fume, or other lead particles. The definition provides employers with specific examples of activities that are "altering or disturbing." This definition is necessary to establish the type of activities that are referred to in subsection (k) Medical removal protection.
(There is no corresponding federal definition.)	Blood lead level means the concentration of lead measured in whole blood, expressed as micrograms per deciliter (µg/dl) of whole blood.	The State proposes to add a definition for the term "blood lead level" to clarify its meaning when used in the standard.

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
		Blood lead level is defined to mean and identify the concentration of lead measured in whole blood, expressed as micrograms per deciliter (µg/dl) of whole blood. This definition is necessary to ensure that employers provide appropriate testing of the blood of employees when required by the regulation.
(There is no corresponding federal definition.)	High-efficiency particulate air (HEPA) filter means a filter that is at least 99.97 percent efficient in removing particles 0.3 micrometers in diameter.	The State proposes to add a definition for the term “high-efficiency particulate air (HEPA) filter” to clarify its meaning when used in the standard. High-efficiency particulate air (HEPA) filter is defined to clarify the meaning of the acronym HEPA, and to state the physical properties of a HEPA filter. This definition is necessary as the acronym HEPA is used in the existing language of the regulation in several subsections but is not defined.
(The term “level 1 trigger task” is not used in the federal standard, but an equivalent concept appears in subsection (d)(2)(i)). (d)(2)(i) With respect to the lead related tasks listed in this paragraph (d)(2)(i) of this section, where lead is present, until the employer performs an employee	Level 1 trigger task means a task listed in subsection (d)(2)(A), which, until an exposure assessment as required in subsection (d) is completed, is presumed to result in employee exposure above the permissible exposure limit (PEL), but not greater than 10 times the PEL.	The State proposes to add a definition for the new proposed term “level 1 trigger task” to clarify its meaning when used in the standard. This definition is consistent with the concept described in the federal standard. **Level 1 trigger task** is defined to mean a task listed in subsection (d)(2)(A), which,

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
exposure assessment as required in paragraph (d) of this section and documents that the employee performing any of the listed tasks is not exposed above the PEL, the employer shall treat the employee as if the employee were exposed above the PEL, and not in excess of ten (10) times the PEL, and shall implement employee protective measures prescribed in paragraph (d)(2)(v) of this section.		until an exposure assessment as required in subsection (d) is completed, is presumed to result in employee exposure above the PEL, but not greater than 10 times the PEL. Employers and employees frequently use the term “trigger tasks” to refer informally to the tasks listed in subsection (d)(2). The addition of definitions for level 1, 2 and 3 trigger tasks, and trigger task - not listed, is necessary to simplify the language used throughout the regulation, in the vernacular spoken on jobsites by employers and employees, where references are made to these tasks.
(The term “level 2 trigger task” is not used in the federal standard, but an equivalent concept appears in subsection (d)(2)(iii)). (d)(2)(iii) With respect to the tasks listed in this paragraph (d)(2)(iii) of this section, where lead is present, until the employer performs an employee exposure assessment as required in paragraph (d) of this section, and documents that the employee performing any of the listed tasks is not exposed in excess of 500 ug/m(3), the employer shall treat the employee as if the employee were exposed to lead in excess of 500 ug/m(3) and shall implement employee protective	Level 2 trigger task means a task listed in subsection (d)(2)(C), which, until an exposure assessment as required in subsection (d) is completed, is presumed to result in employee exposure above 10 times the PEL, but not greater than 50 times the PEL.	The State proposes to add a definition for the new proposed term “level 2 trigger task” to clarify its meaning when used in the standard. This definition is consistent with the concept described in the federal standard. Level 2 trigger task is defined to mean a task listed in subsection (d)(2)(C), which, until an exposure assessment as required in subsection (d) is completed, is presumed to result in employee exposure above 10 times the PEL, but not greater than 50 times the PEL. Employers and employees frequently use the term “trigger tasks” to refer informally to the tasks listed in subsection (d)(2). The addition of definitions for level 1, 2 and 3 trigger

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
measures as prescribed in paragraph (d)(2)(v) of this section.		tasks, and trigger task - not listed, is necessary to simplify the language used throughout the regulation, in the vernacular spoken on jobsites by employers and employees, where references are made to these tasks.
(The term “level 3 trigger task” is not used in the federal standard, but an equivalent concept appears in subsection (d)(2)(iv)). (d)(2)(iv) With respect to the tasks listed in this paragraph (d)(2)(iv) of this section, where lead is present, until the employer performs an employee exposure assessment as required in paragraph (d) of this section and documents that the employee performing any of the listed tasks is not exposed to lead in excess of 2,500 ug/m(3) (50 x PEL), the employer shall treat the employee as if the employee were exposed to lead in excess of 2,500 ug/m(3) and shall implement employee protective measures as prescribed in paragraph (d)(2)(v) of this section.	Level 3 trigger task means a task listed in subsection (d)(2)(D), which, until an exposure assessment as required in subsection (d) is completed, is presumed to result in employee exposure above 50 times the PEL.	The State proposes to add a definition for the new proposed term “level 3 trigger task” to clarify its meaning when used in the standard. This definition is consistent with the concept described in the federal standard. Level 3 trigger task is defined to mean a task listed in subsection (d)(2)(D), which, until an exposure assessment as required in subsection (d) is completed, is presumed to result in employee exposure above 50 times the PEL. Employers and employees frequently use the term “trigger tasks” to refer informally to the tasks listed in subsection (d)(2). The addition of definitions for level 1, 2 and 3 trigger tasks, and trigger task - not listed, is necessary to simplify the language used throughout the regulation, in the vernacular spoken on jobsites by employers and employees, where references are made to these tasks.
(There is no corresponding federal definition.)	Supervisor means one who is capable of identifying existing and predictable lead hazards in the surroundings or working	The State proposes to make a minor editorial change to the definition of Supervisor.

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	conditions and who has authorization to take prompt corrective measures to eliminate them. Supervisors shall be trained, as required by this section, and, when required, be certified consistent with subsection (*l*)(3).	
(The term "trigger task – not listed" is not used in the federal standard, but an equivalent concept appears in subsection (d)(2)(ii)). (d)(2)(ii) In addition, with regard to tasks not listed in paragraph (d)(2)(i), where the employer has any reason to believe that an employee performing the task may be exposed to lead in excess of the PEL, until the employer performs an employee exposure assessment as required by paragraph (d) of this section and documents that the employee's lead exposure is not above the PEL the employer shall treat the employee as if the employee were exposed above the PEL and shall implement employee protective measures as prescribed in paragraph (d)(2)(v) of this section.	Trigger task – not listed means a task described in subsection (d)(2)(B), which, until an exposure assessment as required in subsection (d) is completed, is presumed to result in employee exposure above the PEL.	The State proposes to add a definition for the new proposed term "trigger task – not listed" to clarify its meaning when used in the standard. This definition is consistent with the concept described in the federal standard. Trigger task - not listed is defined to mean a task described in subsection (d)(2)(B), which, until an exposure assessment as required in subsection (d) is completed, is presumed to result in employee exposure above the PEL. Employers and employees frequently use the term "trigger tasks" to refer informally to the tasks listed in subsection (d)(2). The addition of definitions for level 1, 2 and 3 trigger tasks, and trigger task - not listed, is necessary to simplify the language used throughout the regulation, in the vernacular spoken on jobsites by employers and employees, where references are made to these tasks.
(c) Permissible exposure limit	**(c) Permissible exposure limit (PEL).**	The State proposes to add the acronym PEL to the title of subsection (c).

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
		This addition is necessary, as the acronym PEL is used in existing language in the regulation, but is not defined.
(c)(1)	(c)(1)	
(c)(1) The employer shall assure that no employee is exposed to lead at concentrations greater than fifty micrograms per cubic meter of air (50 ug/m^3) averaged over an 8-hour period.	The employer shall ~~assure~~ensure that no employee is exposed to an airborne concentration of lead ~~at concentrations~~ greater than 10~~fifty~~ micrograms per cubic meter of air (10 ~~50~~ µg/m^3) calculated as ~~averaged over~~ an 8-hour time-weighted average (TWA) ~~period~~. The 8-hour TWA shall be calculated in accordance with the appendix to section 5155.	The State proposes to lower the PEL for lead from 50 µg/m^3 to 10 µg/m^3. This change is necessary to ensure that employees are protected from airborne exposures to lead that could cause disease or other adverse health effects. The lower PEL is in service of the goal of maintaining employee BLLs below 10 µg/dl. The State proposes here, and throughout the regulation, to replace the word “assure” with the word “ensure.” This change is proposed as the word “ensure” means to make certain or to confirm, while the word “assure” means to promise. The standard requires the employer to make certain that requirements are met. OSHA standards issued recently, including 1926.1153 (Silica), use the words “shall ensure” when referring to the employers’ duties. The State proposes to replace the phrase “averaged over an 8-hour period” with “calculated as an 8-hour time-weighted average (TWA).” In addition, the following sentence would be added in subsection

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
		(c)(1): "The 8-hour TWA shall be calculated in accordance with the appendix to section 5155." These changes are necessary to provide consistency with the language used in Section 5155 (Airborne Contaminants) as well as all other Cal/OSHA substance-specific standards.
(There is no corresponding federal exception to the PEL.)	EXCEPTION: Until [OAL insert five years from effective date here], no employee conducting abrasive blasting shall be exposed to an airborne concentration of lead greater than 25 micrograms per cubic meter of air (25 µg/m^3), calculated as an eight-hour time-weighted average (TWA).	The State proposes to add an exception to subsection (c)(1). The exception would allow, until 5 years from the effective date, employers to expose employees conducting abrasive blasting to an airborne concentration of lead no greater than 25 µg/m^3 as an 8-hour TWA. This exception is necessary as a PEL of 10 µg/m^3 would necessitate a change in work practices currently used on State infrastructure projects, which may affect project bids. There is a need to avoid disruption of the bidding 'pipeline,' as the industry transitions to the new PEL and the initial cost uncertainties involved. There is sometimes a 3 to 5 year lag on infrastructure project contracts between bid deadlines to Caltrans and the commencement of work. These bids have already been submitted based on the current PEL and the known costs associated with current work practices. Therefore, an interim 5-year period, with a proposed PEL of 25 µg/m^3, is needed for abrasive blasting work. Industry compliance with this interim PEL of 25 µg/m^3 can be can

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
		be attained without significant changes in work practices.
(c)(2)	(c)(2)	
If an employee is exposed to lead for more than 8 hours in any work day the employees' allowable exposure, as a time weighted average (TWA) for that day, shall be reduced according to the following formula: Allowable employee exposure (in ug/m^3) = 400 divided by hours worked in the day.	~~If an employee is exposed to lead for more than 8 hours in any work day the employees' allowable exposure, as a time-weighted average (TWA) for that day, shall be reduced according to the following formula:~~ ~~Allowable employee exposure (in µg/m^3) = 400 divided by hours worked in the day.~~	The State proposes to eliminate the wording in subsection (c)(2). The changes proposed by the State in subsection (c)(1) necessitate, for logical consistency, that this wording be eliminated.
(d) Exposure assessment.	**(d) Exposure assessment.**	
(d)(2)	(d)(2)	
Protection of employees during assessment of exposure	Protection of employees ~~during~~prior to assessment of exposure.	The State proposes to change the heading of this subsection from “Protection of employees during assessment of exposure” to “Protection of employees prior to assessment of exposure.” This change is necessary to clarify that the specified protections are required until the time that an employer has assessed the exposure of an employee, rather than having merely initiated an exposure assessment.
(d)(2)(i)	(d)(2)(A)	
With respect to the lead related tasks listed in this paragraph (d)(2)(i) of this	Level 1 trigger tasks. With respect to the level 1 trigger tasks~~lead-related tasks~~ listed	The State proposes to add to subsection (d)(2)(A) the heading “Level 1 trigger tasks.”

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
section, where lead is present, until the employer performs an employee exposure assessment as required in paragraph (d) of this section and documents that the employee performing any of the listed tasks is not exposed above the PEL, the employer shall treat the employee as if the employee were exposed above the PEL, and not in excess of ten (10) times the PEL, and shall implement employee protective measures prescribed in paragraph (d)(2)(v) of this section. The tasks covered by this requirement are:	in subsection (d)(2)(A), where lead is present, until the employer performs an employee exposure assessment as required in subsection (d) and documents that the employee performing any of the listed tasks is not exposed above the PEL, the employer shall treat the employee as if the employee were exposed above the PEL, and not in excess of ten (10) times the PEL, and shall implement ~~employee protective measures~~interim protection as prescribed in subsection (d)(2)(E). The tasks covered by this requirement are~~:~~,	Also in subsection (d)(2)(A), the state proposes to remove the words “lead-related tasks” and replace them with “level 1 trigger tasks.” These changes are necessary to more clearly identify, in the vernacular used on jobsites, which tasks are covered by subsection (d)(2)(A). The State also proposes to replace, in subsections (d)(2)(A), (B), (C) and (D), the phrase “employee protective measures” with the phrase “interim protection.” This change is necessary so that consistent language is used throughout the standard. Each of these subsections refers to “employee protective measures as prescribed in subsection (d)(2)(E).” Subsection (d)(2)(E) refers to these measures as “interim protection.”
(d)(2)(i)(A)	(d)(2)(A)~~1.~~	
Where lead containing coatings or paint are present: Manual demolition of structures (e.g, dry wall), manual scraping, manual sanding, heat gun applications, and power tool cleaning with dust collection systems; (d)(2)(i)(B) Spray painting with lead paint	~~W~~where lead-containing coatings or paint are present: manual demolition of structures (e.g., dry wall), manual scraping~~, manual sanding,~~ and heat gun applications~~, and power tool cleaning with dust collection systems;~~. ~~2. Spray painting with lead paint~~	Some tasks, which are listed in existing subsection (d)(2)(A)1., would be removed from the list of tasks covered by subsection (d)(2)(A), specifically manual sanding, and power tool cleaning with dust collection systems. The remaining tasks would be absorbed into the body of paragraph (d)(2)(A). Subsection (d)(2)(A)1. would be removed. In addition, subsection (d)(2)(A)2., which lists spray painting with lead paint as a

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
		task covered by subsection (d)(2)(A), would be removed. The removal of these tasks is necessary because the proposed PEL is lower than the existing PEL, and these tasks would no longer meet the condition that an employee performing them has a presumed exposure not in excess of 10 times the PEL.
(d)(2)(ii)	(d)(2)(B)	
In addition, with regard to tasks not listed in paragraph (d)(2)(i), where the employer has any reason to believe that an employee performing the task may be exposed to lead in excess of the PEL, until the employer performs an employee exposure assessment as required by paragraph (d) of this section and documents that the employee's lead exposure is not above the PEL the employer shall treat the employee as if the employee were exposed above the PEL and shall implement employee protective measures as prescribed in paragraph (d)(2)(v) of this section.	Trigger tasks – not listed. In addition, with regard to tasks not listed in subsection (d)(2)(A), where the employer has any reasons to believe that an employee performing the task may be exposed to lead in excess of the PEL, until the employer performs an employee exposure assessment as required by subsection (d) and documents that the employee's lead exposure is not above the PEL the employer shall treat the employee as if the employee were exposed above the PEL and shall implement ~~employee protective measures~~interim protection as prescribed in subsection (d)(2)(E).	The State proposes to add to subsection (d)(2)(B) the heading “Trigger tasks - not listed.” This addition is necessary to provide consistency in the naming of tasks included in subsection (d)(2).
(d)(2)(iii)	(d)(2)(C)	
With respect to the tasks listed in this paragraph (d)(2)(iii) of this section, where lead is present, until the employer performs an employee exposure assessment as required in	Level 2 trigger tasks. With respect to the level 2 trigger tasks listed in this subsection (d)(2)(C), where lead is present, until the employer performs an employee exposure assessment as required in subsection (d),	The State proposes to add to subsection (d)(2)(C) the heading “Level 2 trigger tasks,” as well as add a reference to level 2 trigger tasks.

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
paragraph (d) of this section, and documents that the employee performing any of the listed tasks is not exposed in excess of 500 ug/m(3), the employer shall treat the employee as if the employee were exposed to lead in excess of 500 ug/m(3) and shall implement employee protective measures as prescribed in paragraph (d)(2)(v) of this section. Where the employer does establish that the employee is exposed to levels of lead below 500 ug/m(3), the employer may provide the exposed employee with the appropriate respirator prescribed for such use at such lower exposures, in accordance with Table 1 of this section. The tasks covered by this requirement are:	and documents that the employee performing any of the listed tasks is not exposed in excess of 100~~500~~ µg/m^3 (10 x PEL), the employer shall treat the employee as if the employee were exposed to lead in excess of 100~~500~~ µg/m^3 and shall implement ~~employee protective measures~~interim protection as prescribed in subsection (d)(2)(E). Where the employer does establish that the employee is exposed to levels of lead below 100~~500~~ µg/m^3, the employer may provide the exposed employee with the appropriate respirator prescribed for such use at such lower exposures, in accordance with section 5144(d)(3)(A)1.~~Table 1 of this section.~~ The tasks covered by this requirement are:	These additions are necessary to more clearly identify, in the vernacular used on jobsites, which tasks are covered by subsection (d)(2)(C). In addition, the State proposes to change references to 500 µg/m^3 to 100 µg/m^3. This change is necessary to reflect the proposed PEL. In addition, the State proposes that following the first appearance of the proposed exposure level of 100 µg/m^3, the term “10 x PEL” would be added. This addition is necessary for consistency with the format used in subsection (d)(2)(D). Also, the State proposes to change a reference in subsection (d)(2)(C) to “Table 1 of this section” to “Section 5144(d)(3)(A)1.” This change is necessary as there is no Table 1 in the current standard, while Section 5144(d)(3)(A)1. does include a relevant table that lists assigned protection factors for various types of respirators.
(d)(2)(iii)(A) and (B)	(d)(2)(C)1. and 2.	
Using lead containing mortar; lead burning	1.Where lead-containing coatings or paint are present: manual sanding, ~~Using lead containing mortar; lead burning~~and	The State proposes that some tasks listed in subsections (d)(2)(C)1. and (d)(2)(C)2. would be removed (using lead containing mortar; lead burning; and where lead containing

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(B) Where lead containing coatings or paint are present: rivet busting; power tool cleaning without dust collection systems; cleanup activities where dry expendable abrasives are used; and abrasive blasting enclosure movement and removal.	~~2.~~ power tool cleaning, grinding, or sanding with dust collection systems. ~~Where lead containing coatings or paint are present: rivet busting; power tool cleaning without dust collection systems; cleanup activities where dry expendable abrasives are used; and abrasive blasting enclosure movement and removal.~~ 2. Spray painting with lead paint.	coatings or paint are present: rivet busting; power tool cleaning without dust collection systems; cleanup activities where dry expendable abrasives are used; and abrasive blasting enclosure movement and removal). These changes are necessary to reflect the proposed PEL, as these tasks would no longer meet the condition that performing them is presumed to result in employee exposure above 10 times the PEL. The State also proposes that some additional tasks would be added to these subsections (manual sanding; power tool cleaning, grinding, or sanding with dust collection systems; and spray painting with lead paint). This change is necessary, since under the proposed PEL, these tasks would meet the condition that performing them is presumed to result in employee exposure above 10 times the PEL.
(d)(2)(iv)	(d)(2)(D)	
With respect to the tasks listed in this paragraph (d)(2)(iv) of this section, where lead is present, until the employer performs an employee exposure assessment as required in paragraph (d) of this section and documents that the employee performing any of the listed tasks is not	Level 3 trigger tasks. With respect to the level 3 trigger tasks listed in this subsection (d)(2)(D) ~~of this section~~, where lead is present, until the employer performs an employee exposure assessment as required in subsection (d) and documents that the employee performing any of the listed tasks is not exposed to lead in excess of	The State proposes to add to subsection (d)(2)(D) the heading “Level 3 trigger tasks,” as well as add a reference to level 3 trigger tasks. These additions are necessary to more clearly identify, in the vernacular used on

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exposed to lead in excess of 2,500 ug/m(3) (50 x PEL), the employer shall treat the employee as if the employee were exposed to lead in excess of 2,500 ug/m(3) and shall implement employee protective measures as prescribed in paragraph (d)(2)(v) of this section. Where the employer does establish that the employee is exposed to levels of lead below 2,500 ug/m(3), the employer may provide the exposed employee with the appropriate respirator prescribed for use at such lower exposures, in accordance with Table I of this section. Interim protection as described in this paragraph is required where lead containing coatings or paint are present on structures when performing:	500~~2,500~~ µg/m^3 (50 x PEL), the employer shall treat the employee as if the employee were exposed to lead in excess of 500~~2,500~~ µg/m^3 and shall implement ~~employee protective measures~~interim protection as prescribed in subsection (d)(2)(E). Where the employer does establish that the employee is exposed to levels of lead below 500~~2,500~~ µg/m^3, the employer may provide the exposed employee with the appropriate respirator prescribed for use at such lower exposures, in accordance with section 5144(d)(3)(A)1.~~Table 1 of this section.~~ Interim protection as ~~described~~prescribed in ~~this~~subsection (d)(2)(E) is required ~~where lead containing coatings or paint are present on structures~~ when performing any of the following tasks:	jobsites, which tasks are covered by subsection (d)(2)(D). In addition, the State proposes to change references to 2,500 µg/m^3 to 500 µg/m^3. This change is necessary to reflect the proposed PEL. The State also proposes changing a reference in subsection (d)(2)(D) to “Table 1 of this section” to “section 5144(d)(3)(A)1.” This change is necessary as there is no Table 1 in the current standard, while section 5144(d)(3)(A)1. does include a table that lists assigned protection factors for various types of respirators. Also in subsection (d)(2)(D), a minor word change would be made. The phrase “as described in this subsection...” would be changed to “as prescribed in subsection (d)(2)(E)...” This change is necessary for consistency with the language used in subsections (d)(2)(A), (d)(2)(B) and (d)(2)(C). In addition, the State proposes that the words “on structures” would be removed from this paragraph. This change is necessary for consistency with subsection (d)(2)(C), which does not

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		restrict the subject coatings or paints to those on structures.
(d)(2)(iv)(A) – (d)(2)(iv)(D)	(d)(2)(D)1. - (d)(2)(D)2.	
(d)(2)(iv)(A) Abrasive blasting, (d)(2)(iv)(B) Welding, (d)(2)(iv)(C) Cutting, and (d)(2)(iv)(D) Torch burning.	1. Using lead-containing mortar or~~Abrasive blasting,~~2. lead burning~~welding,~~. ~~3~~2. Where lead-containing coatings or paint are present: a. Rivet bustingCutting and. 4b. Power tool cleaning, grinding or sanding without dust collection systems~~Torch burning~~. c. Cleanup activities where dry expendable abrasives are used. d. Abrasive blasting enclosure movement and removal. e. Abrasive blasting. f. Welding. g. Torch cutting. h. Torch burning.	The State proposes to change the order in which tasks are listed in subsection (d)(2)(D), and to add subsections for the inclusion of additional level 3 trigger tasks (using lead containing mortar; lead burning; rivet busting; power tool cleaning, grinding or sanding without dust collection systems; cleanup activities where dry expendable abrasives are used; and abrasive blasting enclosure movement and removal). This change is necessary, since under the proposed PEL, these tasks would meet the condition that performing them is presumed to result in employee exposure above 50 times the PEL. The State also proposes to insert the word “torch” before the word “cutting”. This amendment is necessary to clarify that the task being referred to is torch cutting.
1926.62(d)(2)(v)	(d)(2)(E)	
Until the employer performs an employee exposure assessment as	Until the employer performs an employee exposure assessment as required under	The State proposes editorial changes to subsection (d)(2)(E), adding the word

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required under paragraph (d) of this section and determines actual employee exposure, the employer shall provide to employees performing the tasks described in paragraphs (d)(2)(i), (d)(2)(ii), (d)(2)(iii) and (d)(2)(iv) of this section with interim protection as follows:	subsection (d) and determines actual employee exposure, the employer shall provide to employees performing the trigger tasks as described in subsections (d)(2)(A), (d)(2)(B), (d)(2)(C) and (d)(2)(D) with interim protection as follows:	"trigger" before the word "tasks" and the word "as" before the word described. These changes are necessary to provide clarity to the requirements of this subsection.
(d)(2)(v)(D)	(d)(2)(E)4.	
Hand washing facilities in accordance with paragraph (i)(5) of this section.	~~Hand washing facilities in accordance with subsection (i)(5).~~Shower facilities in accordance with subsection (i)(3), for employees performing level 3 trigger tasks listed in subsection (d)(2)(D);	The State proposes to remove the requirement for the provision of handwashing facilities in subsection (d)(2)(E)4. This change is necessary as handwashing would be a basic protection for all exposed employees under the proposed changes in subsection (i)(1), so it no longer would be listed in subsection (d)(2)(E)4. The State proposes to add a requirement to provide shower facilities, as required by proposed subsection (i)(3), as an interim protection for employees performing level 3 trigger tasks. This change is necessary to provide greater protection to employees who perform level 3 trigger tasks by enabling them to remove lead contamination from their skin.
	(d)(2)(E)5.	
(There is no corresponding federal requirement.)	Eating facilities or eating areas in accordance with subsection (i)(4);	The State proposes to add subsection (d)(2)(E)5., which would require the provision

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		of eating facilities or areas, as required by proposed subsection (i)(4), as an interim protection for employees performing trigger tasks. This change is necessary to provide greater protection to employees by enabling them to have a place to eat that is free of lead contamination, thus reducing the potential for exposure due to ingestion.
	(d)(2)(E)6.	
(There is no corresponding federal requirement.)	Regulated areas in accordance with subsection (i)(6);	The State proposes to add subsection (d)(2)(E)6., which would require the provision of regulated areas, as required by subsection (i)(6), as an interim protection for employees performing trigger tasks. This addition is necessary as it applies to an existing requirement in subsection (i)(6), and may have inadvertently been left out when the standard was promulgated.
	(d)(2)(E)7.	
(There is no corresponding federal requirement.)	Limiting the maximum amount of time an employee can conduct dry abrasive blasting to 5 hours per day, except that after [OAL insert five years from the effective date here] the amount of time shall be similarly limited to 2 hours per day;	The State proposes to add a new requirement in new subsection (d)(2)(E)7. As an interim administrative control for employees conducting dry abrasive blasting, the amount of time an employee could conduct dry abrasive blasting would be limited to 5 hours per day, except that after 5 years from the effective date of the standard, the amount of time would be limited to 2

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		hours per day. As an interim protection, this administrative control would apply only until exposure assessment has been conducted, after which exposure controls would be determined by the results of the exposure assessment. This addition is necessary to provide adequate interim protection for employees conducting dry abrasive blasting, from exposure to potentially high airborne levels of lead. When Federal OSHA promulgated their Lead in Construction standard, they used a presumed exposure level of 37,000 µg/m^3 for abrasive blasting. Since the most protective respirator, other than a self-contained breathing apparatus (SCBA), is a supplied air respirator with an assigned protection factor of 1,000, employees wearing a supplied air respirator could be protected up to an airborne concentration of 10,000 µg/m^3 without exceeding the proposed PEL of 10 µg/m^3. In order to keep presumed levels of exposure from dry abrasive blasting below the proposed PEL, blasting by a given employee would have to be limited to 2 hours per shift, which would result in a presumed exposure of 37,000 µg/m^3 multiplied by 1/4 = 9,250 µg/m^3, which is less than 10,000 µg/m^3. As there is an exception for abrasive blasting to the proposed PEL for the first 5 years from the effective date of the standard, which would limit exposure to employees conducting abrasive blasting to 25 µg/m^3, blasting during this 5 year period would have

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		to be limited to 5 hours per shift, which would result in a presumed exposure of 37,000 $\mu g/m^3$ × 5/8 = 23,125 $\mu g/m^3$, which is less than 25,000 $\mu g/m^3$.
(d)(2)(v)(E)	(d)(2)(E)8~~5~~.	
Biological monitoring in accordance with paragraph (j)(1)(i) of this section, to consist of blood sampling and analysis for lead and zinc protoporphyrin levels, and	Medical surveillance~~Biological monitoring~~ in accordance with subsections (j)(1)(A)~~,~~ and (j)(1)(B) ~~to consist of blood sampling and analysis for lead and zinc protoporphyrin levels,~~; and	The State proposes to redesignate subsection (d)(2)(E)5. to subsection (d)(2)(E)8., and to modify the language in this subsection. The term "biological monitoring" would be replaced by "medical surveillance." Biological monitoring refers to blood tests, while medical surveillance is a more inclusive term, and includes medical examinations and consultations. In addition, a reference to subsection (j)(1)(B) would be added. These changes are necessary to provide greater protection to employees who perform trigger tasks by requiring, as interim protection, that they be provided with medical examinations and consultations, in addition to blood lead tests. The State also proposes to remove, in subsection (d)(2)(E)8., a reference to blood sampling and analysis for lead and zinc protoporphyrin (ZPP). This change is necessary as ZPP would no longer be a required test for employees whose BLL is below 20 µg/dl. The requirements for blood lead testing are given

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		in subsection (j)(1)(A), which is referenced in this subsection.
(d)(2)(v)(F)	(d)(2)(E)9~~6~~.	
Training as required under paragraph (l)(1)(i) of this section regarding 29 CFR 1926.59, Hazard Communication; training as required under paragraph (1)(2)(iii) of this section, regarding use of respirators; and training in accordance with 29 CFR 1926.21, Safety training and education.	Training as required under subsections (*l*)(1)(A) and (*l*)(1)(B) ~~regarding section 5194, Hazard Communication; training as required under subsection (*l*)(2)(C), regarding use of respirators~~; and training in accordance with section 1510, Safety Instructions for Employees.	The State proposes to redesignate subsection (d)(2)(E)6. as subsection (d)(2)(E)9., and to modify the language in this subsection. As an interim protection for employees who perform trigger tasks, training requirements would be expanded to equal those required of employees who are exposed at or above the action level, as specified in subsection (*l*)(1)(B). This change is necessary to provide greater protection to employees who perform trigger tasks by ensuring that they are provided with comprehensive information about lead. References to Section 5194 and subsection (*l*)(2)(C) would be removed as they are duplicative of the training required by subsections (*l*)(1)(A) and (*l*)(1)(B).
1926.62(d)(3)(iv)(A)	(d)(3)(D)1.	
The employer shall establish and maintain an accurate record documenting the nature and relevancy of objective data as specified in paragraph (n)(4) of this section, where used in assessing employee exposure in lieu of exposure monitoring.	The employer shall establish and maintain an accurate record documenting the nature and relevance of objective data as specified in subsection (n)(47), where used in assessing employee exposure in lieu of exposure monitoring.	The State proposes to redesignate the reference in subsection (d)(3)(D)1. because of the changed enumeration in subsection (n); the referenced language itself is unchanged. This change is necessary to accurately refer to the subsection being referenced.

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(d)(3)(iv)(B)	(d)(3)(D)2.	
Objective data, as described in this paragraph (d)(3)(iv) of this section, is not permitted to be used for exposure assessment in connection with paragraph (d)(2) of this section.	Objective data, as described in subsection (d)(3)(D), is not permitted to be used for exposure assessment in connection with trigger tasks listed in subsection (d)(2).	The State proposes to modify the language in this subsection. This modification is added for clarification purposes, and is made in a number of places in this section to clarify the content of subsection (d)(2).
	(d)(3)(D)3.b.	
(There is no corresponding federal requirement.)	Analysis of surface coatings and materials shall be performed in a manner that meets the requirements of subsection (d)(9) and shall be recorded, as described in subsection (n)(47).~~,~~	The State proposes to redesignate the reference in subsection (d)(3)(D)3.b. because of the changed enumeration in subsection (n); the referenced language itself is unchanged. This change is necessary to accurately refer to the subsection being referenced.
	(d)(4)(C)	
(There is no corresponding federal requirement.)	Objective data for an initial assessment that demonstrate surface coating or material that contain lead at concentrations equal to or exceeding 0.06% lead dry weight (600 ppm) demonstrate the presence of lead surface coatings or material that may constitute a health hazard to employees engaged in lead-related construction work. The lead concentration of paint or materials is based on the lead content in the nonvolatile components of the surface coating or material such as paint. Objective data as described in this subsection are not	The State proposes to add the word “may” to qualify that the stated conditions may constitute a health hazard, but do not definitely constitute a health hazard. This change is necessary for consistency with Labor Code Section 6717, which mandates the requirements of this subsection, and puts the word "may" in front of the word “constitute.”

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	permitted to be used in lieu of exposure assessment in connection with ~~lead-related~~ trigger tasks listed in subsection (d)(2).	
(d)(5)	(d)(5)(A)	
Where a determination, conducted under paragraphs (d) (1), (2), and (3) of this section is made that no employee is exposed to airborne concentrations of lead at or above the action level the employer shall make a written record of such determination. The record shall include at least the information specified in paragraph (d)(3)(i) of this section and shall also include the date of determination, location within the worksite, and the name of each employee monitored.	Where a determination, conducted under subsections (d)(1), (2), and (3) is made that no employee is exposed to airborne concentrations of lead at or above the action level the employer shall make a written record of such determination. The record shall include at least the information specified in subsection (d)(3)(A) and shall also include the date of determination, location within the worksite, and the name and other unique identifier (such as date of birth or employee identification number ~~social security number~~) of each employee monitored.	The State proposes to require that a unique identifier (such as date of birth or employee identification number) to be used in place of a social security number (SSN) in written records for each employee monitored. This change is necessary to comply with a Cal/OSHA directive to remove all requirements in its standards to include employee SSNs on exposure monitoring, medical surveillance, or other records, in order to facilitate employers' efforts to safeguard employee privacy. This directive is in response to federal OSHA's Standards Improvement Project proposal to remove requirements for including employee SSNs in its regulations.
	(d)(5)(B)	
(There is no corresponding federal requirement.)	Objective data that meet the requirements of subsection (n)(~~4~~7) for an initial assessment that demonstrate surface coating or material that contain lead at concentrations less than 0.06% lead dry weight (600 ppm) are sufficient to establish a negative determination. The lead concentration of surface coatings or materials is based on the lead content in the	The State proposes to redesignate the reference in subsection (d)(5)(B) because of the changed enumeration in subsection (n); the referenced language itself is unchanged. This change is necessary to accurately refer to the subsection being referenced.

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	nonvolatile components of the surface coating or material such as paint. Objective data as described in this subsection are not permitted to be used in lieu of exposure assessment in connection with ~~lead-related~~trigger tasks listed in subsection (d)(2).	In addition, in subsection (d)(5)(B), the words "lead-related" would be replaced with the word "trigger." This change is necessary to more clearly identify, in the vernacular used on jobsites, which tasks are covered by subsection (d)(5)(B).
	(d)(6)(B)	
(There is no corresponding federal requirement.)	If the initial determination or subsequent determination reveals employee exposure to be at or above the action level but below 30 µg/m^3 as an 8-hour TWA, the employer shall perform monitoring at least every 12 months. The employer shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are below the action level, at which time the employer may discontinue monitoring except as otherwise provided in subsection (d)(7).	The State proposes to add a new subsection (d)(6)(B), which would establish requirements when initial or subsequent monitoring shows employee exposure to be at or above 2 µg/m^3 but below 30 µg/m^3. At this level of exposure, monitoring would be required every 12 months. This addition is necessary to ensure that at least a minimal amount of repeated air monitoring is conducted when an employee's exposure is at or above the proposed action level of 2 µg/m^3. In addition, this change would encourage employers to strive to reduce employee exposures to below 2 µg/m^3.
(d)(6)(ii)	(d)(6)(C~~B~~)	
If the initial determination or subsequent determination reveals employee exposure to be at or above the action level but at or below the PEL the employer shall perform monitoring in accordance with this paragraph at least	If the initial determination or subsequent determination reveals employee exposure to be at or above 30 µg/m^3 as an 8-hour TWA~~the action level~~ but at or below 50 µg/m^3 as an 8-hour TWA~~the PEL,~~ the employer shall perform monitoring ~~in~~	The State proposes to replace the term "action level" with "30 µg/m^3," and to replace "the PEL" with "50 µg/m^3." These changes would retain the monitoring requirements in the existing standard, but are

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every 6 months. The employer shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are below the action level at which time the employer may discontinue monitoring for that employee except as otherwise provided in paragraph (d)(7) of this section.	~~accordance with this subsection~~ at least every 6 months. The employer shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are below 30 µg/m^3 as an 8-hour TWA~~the action level~~. ~~at which time~~ Subsequent monitoring shall conform with the applicable provisions of subsection (d)(6)(B), ~~the employer may discontinue monitoring for that employee~~ except as otherwise provided in subsection (d)(7).	necessary as the action level and PEL would be lowered. Also, the State proposes to delete the phrase "in accordance with this subsection" from the requirement to perform monitoring at least every 6 months. This deletion is necessary as the phrase adds nothing and is redundant. It is already amply clear that the language in (d)(1), (d)(7), (d)(8), and (d)(9) applies generally without it being explicitly referenced here. Further, the fact that "in accordance with this subsection" is not explicitly referenced in (d)(6)(D) or (d)(4)(A) is inconsistent with its inclusion here. This invites possible confusion, or malicious misinterpretation. In addition, the State proposes to modify the language to require subsequent monitoring when air monitoring shows an exposure below 30 µg/m^3. This change is necessary because under the proposed changes, an employer would be required to continue monitoring until the exposure level is below 2 µg/m^3.
(d)(6)(iii)	(d)(6)(D~~C~~)	
If the initial determination reveals that employee exposure is above the PEL the employer shall perform monitoring quarterly. The employer shall continue	If the initial determination or subsequent determination reveals that employee exposure is above 50 µg/m^3 as an 8-hour TWA~~the PEL,~~ the employer shall perform	The State proposes to replace "the PEL" with "50 µg/m^3." In addition, language would be added to require quarterly monitoring, based not only on an initial determination, as stated

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monitoring at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are at or below the PEL but at or above the action level at which time the employer shall repeat monitoring for that employee at the frequency specified in paragraph (d)(6)(ii) of this section, except as otherwise provided in paragraph (d)(7) of this section. The employer shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are below the action level at which time the employer may discontinue monitoring for that employee except as otherwise provided in paragraph (d)(7) of this section.	monitoring quarterly. The employer shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are at or below 50 µg/m^3 as an 8-hour TWA~~the PEL but at or above the action level~~, at which time the employer shall repeat monitoring ~~for that employee~~ at the frequency specified in subsection (d)(6)(B) or (C), as appropriate, based on the monitoring results, except as otherwise provided in subsection (d)(7). ~~The employer shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are below the action level at which time the employer may discontinue monitoring for that employee except as otherwise provided in subsection (d)(7).~~	in the existing regulation, but also based on an employee's exposure as determined by a subsequent determination when employee exposure is above 50 µg/m^3. These changes are necessary to notify employers that quarterly monitoring is required when an employee's exposure is above 50 µg/m^3, regardless of whether this was determined through an initial or subsequent determination. The State also proposes removing language in subsection (d)(6)(D) referring to the action level, as monitoring requirements for exposures at or above 30 µg/m^3 would be given in subsection (d)(6)(C). In addition, the State proposes to modify the requirements for repeat monitoring, in that it would be required at the frequency specified in subsection (d)(6)(B) or (C), as appropriate, based on the monitoring results. This change is necessary to reflect the new monitoring requirements given in subsection (d)(6)(B).
(d)(9)	(d)(9)	
Accuracy of measurement. The employer shall use a method of monitoring and analysis which has an accuracy (to a confidence level of 95 percent) of not less than plus or minus	~~"~~Accuracy of measurement~~"~~. The employer shall use a method of monitoring and analysis which has an accuracy (to a confidence level of 95%) of not less than plus or minus 20~~25~~ percent for airborne	The State proposes to change the concentration at which the designated level of accuracy must be met. It would be changed from 30 µg/m^3 to equal to or greater than 2 µg/m^3.

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25 percent for airborne concentrations of lead equal to or greater than 30 ug/m(3).	concentrations of lead equal to or greater than 2~~30~~ µg/m^3. Methods for the determination of lead concentrations of surface coatings and material shall be determined by methods which have an accuracy (to a confidence level of 95 percent) of not less than plus or minus 20~~25~~ percent at 0.06% lead dry weight (600 ppm).	This change is necessary to ensure that accuracy requirements for sampling and analytical methods are met when monitoring for airborne lead at the proposed, lowered action level of 2 µg/m^3. In addition, the State proposes to change the required accuracy from “not less than plus or minus 25 percent,” to “not less than plus or minus 20 percent.” This change is necessary to provide consistency with the requirements specified in Section 5198.
(e) Methods of compliance.	**(e) Methods of compliance.**	
(e)(2)(ii)(C)	(e)(2)(B)3.	
A report of the technology considered in meeting the PEL;	A report of ~~the~~any engineering and work practice controls considered in meeting the PEL but not implemented due to infeasibility, that includes an explanation of how each was determined to be infeasible~~technology considered in meeting the PEL~~;	The State proposes to modify the language in subsection (e)(2)(B)3. to amend its requirements by adding that the written compliance program shall include a report of the engineering and work practice controls that were considered by the employer but not implemented, and how these controls were determined not to be feasible. This amendment is necessary to ensure that employers document the rationale behind their determination that certain control measures would not be feasible.

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		The State also proposes in subsection (e)(2)(B)3, that a reference to the PEL would be removed, as by definition, a compliance program is meant to achieve compliance with the PEL.
(e)(2)(v)	(e)(2)(E)	
Written programs must be revised and updated at least annually to reflect the current status of the program.	Written programs shall be revised and updated at least every 6 months to reflect the current status of the program. The revisions and updates shall be documented in writing, in accordance with subsection (n)(2).	The State proposes to add language in subsection (e)(2)(E) to require written documentation of revisions and updates to the compliance program. This addition is necessary to ensure that these revisions and updates are made in a formalized manner that can be reviewed at a future time.
(e)(4)	(e)(4)	
Administrative controls. If administrative controls are used as a means of reducing employees TWA exposure to lead, the employer shall establish and implement a job rotation schedule which includes:	Administrative controls. If administrative controls are used as a means of reducing employees' TWA exposure to lead, the employer shall establish and implement a written job rotation schedule ~~which~~that includes:	The State proposes that in subsection (e)(4), written documentation of any job rotation schedule would be required. This change is necessary to ensure that these schedules are made in a formalized manner that can be reviewed at a future time.
(e)(4)(i)	(e)(4)(A)	
Name or identification number of each affected employee;	Name and another unique identifier (such as date of birth or employee ~~or~~ identification number) of each affected employee;	The State proposes to add language to subsection (e)(4)(A) to require that an employee's name and another unique

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
		identifier be used when job rotation schedules are established and implemented. This change is necessary for consistency with language proposed for recording requirements in subsection (d)(5) and elsewhere in the regulation.
(f) Respiratory protection.	**(f) Respiratory protection.**	
(f)(1)(iv)	(f)(1)(D)	
Periods when respirators are required to provide interim protection of employees while they perform the operations specified in paragraph (d)(2) of this section.	Periods when respirators are required to provide interim protection for employees while they perform ~~the operations~~trigger tasks ~~specified~~described in subsection (d)(2).	The State proposes to replace the phrase "the operations" with "trigger tasks." This change is necessary for consistency in identifying the activities covered under this subsection. In addition, the State proposes to replace the word "specified" with "described." This change is necessary to include those tasks described in subsection (d)(2)(B).
(f)(2)(i)	(f)(2)(A)	
The employer must implement a respiratory protection program in accordance with § 1910.134(b) through (d) (except (d)(1)(iii)), and (f) through (m), which covers each employee required by this section to use a respirator.	An employer must implement a respiratory protection program in accordance with section 5144(b) ~~(except (d)(1)(C))~~ through (m), except section 5144(d)(1)(C).	The State proposes to change the order of some words in (f)(2)(A), to provide greater clarity of the requirements.

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
(f)(3)(i)(A)	(f)(3)(A)	
Select, and provide to employees, the appropriate respirators specified in paragraph (d)(3)(i)(A) of 29 CFR 1910.134.	The employer shall select, and provide to employees, the appropriate respirator or combination of respirators specified in s~~S~~ection 5144(d)(3)(A)1. Employers shall not select or use filtering facepiece respirators for protection against lead.	The state proposes to add, in subsection (f)(3)(A), a requirement that would prohibit employers from selecting or using filtering facepiece respirators to protect their employees when respirator use is required for protection against lead. This amendment is necessary, because filtering facepiece respirators are unlikely to provide adequate protection to employees, due to the difficulty in achieving and maintaining a satisfactory seal on the employee's face. This requirement is also consistent with the requirements in the Asbestos standards, 29 CFR 1926.1101(h)(3)(i)(A) and section 1529(h)(3)(A), that prohibit the selection or use of filtering facepiece respirators.
(f)(3)(i)(C)	(f)(3)(D)	
Provide HEPA filters for powered and non-powered air-purifying respirators.	The employer shall provide HEPA filters for powered air-purifying respirators and N-100, R-100, or P-100 filters for non-powered air-purifying respirators.	The State proposes to add, in subsection (f)(3)(D), specifications for the type of filters that an employer would be required to provide for non-powered air-purifying respirators, and modify text to clarify that HEPA filters are to be provided for powered air-purifying respirators. These changes are necessary to reflect NIOSH rules for respirators, which were updated in 1995.

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
(g) Protective work clothing and equipment.	**(g) Protective work clothing and equipment.**	
(g)(1)	(g)(1)	
Provision and use. Where an employee is exposed to lead above the PEL without regard to the use of respirators, where employees are exposed to lead compounds which may cause skin or eye irritation (e.g. lead arsenate, lead azide), and as interim protection for employees performing tasks as specified in paragraph (d)(2) of this section, the employer shall provide at no cost to the employee and assure that the employee uses appropriate protective work clothing and equipment that prevents contamination of the employee and the employee's garments such as, but not limited to:	Provision and use. Where an employee is exposed to lead above the PEL without regard to the use of respirators, where employees are exposed to lead compounds which may cause skin or eye irritation (e.g. lead arsenate, lead azide), and as interim protection for employees performing trigger tasks ~~as specified~~described in subsection (d)(2), the employer shall, in accordance with GISO Article 10, provide at no cost to the employee and ~~assure~~ensure that the employee uses appropriate protective work clothing and equipment that prevents contamination of the employee and the employee's garments such as, but not limited to:	The State proposes to add the word “trigger” before the word “tasks,” and also replace the word “specified” with “described.” These changes are necessary to more clearly indicate the tasks to which these requirements apply, and to include those tasks described in subsection (d)(2)(B). In addition, the State proposes to add in subsection (g)(1) a reference to GISO Article 10. This amendment is necessary to ensure that all protective clothing and equipment is selected and used in accordance with Article 10 requirements for personal safety devices and safeguards.
(g)(1)(iii)	(g)(1)(C)	
Face shields, vented goggles, or other appropriate protective equipment which complies with 1910.133 of this chapter.	Face shields, vented goggles, or other appropriate protective equipment ~~which complies with section 1516~~.	The State proposes to remove a reference to Section 1516 from subsection (g)(1)(C), as Section 1516 no longer exists; it was repealed in the past.
(g)(2)(i)	(g)(2)(A)	

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
The employer shall provide the protective clothing required in paragraph (g)(1) of this section in a clean and dry condition at least weekly, and daily to employees whose exposure levels without regard to a respirator are over 200 ug/m(3) of lead as an 8-hour TWA.	(A) The employer shall provide the protective clothing required in subsection (g)(1) in a clean and dry condition at least weekly, and daily to employees whose exposure levels without regard to a respirator are over 30 ~~200~~µg/m^3 of lead as an 8-hour TWA.	The State proposes to modify the exposure level at which an employer would be required to provide, at least daily, clean and dry protective clothing to employees, from 200 µg/m^3 to 30 µg/m^3. This change is necessary to reflect the lower proposed PEL of 10 µg/m^3, and to support the overall goal of reducing and maintaining employees' BLLs below 10 µg/dl. The change also provides consistency with the requirement given in proposed Section 5198(g)(2)(A).
1926.62(g)(2)(iv)	(g)(2)(D)	
The employer shall assure that all protective clothing is removed at the completion of a work shift only in change areas provided for that purpose as prescribed in paragraph (i)(2) of this section.	The employer shall ~~assure~~ensure that all protective clothing is removed at the completion of a work shift, only in change areas provided for that purpose, as prescribed in subsection (i)(2).	The State proposes here, and throughout the regulation, to replace the word "assure" with the word "ensure." This change is proposed as the word "ensure" means to make certain or to confirm, while the word "assure" means to promise. The standard requires the employer to make certain that requirements are met. OSHA standards issued recently, including 1926.1153 (Silica), use the words "shall ensure" when referring to the employers' duties.
1926.62(g)(2)(v)	(g)(2)(E)	
The employer shall assure that contaminated protective clothing which is to be cleaned, laundered, or disposed of, is placed in a closed container in the	The employer shall ~~assure~~ensure that contaminated protective clothing which is to be cleaned, laundered, or disposed of, is placed in a closed container in the change	The State proposes here, and throughout the regulation, to replace the word "assure" with the word "ensure."

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
change area which prevents dispersion of lead outside the container.	area which prevents dispersion of lead outside the container.	This change is proposed as the word "ensure" means to make certain or to confirm, while the word "assure" means to promise. The standard requires the employer to make certain that requirements are met. OSHA standards issued recently, including 1926.1153 (Silica), use the words "shall ensure" when referring to the employers' duties.
1926.62(g)(2)(vii)(A)	(g)(2)(G)~~1.~~	
The employer shall ensure that the containers of contaminated protective clothing and equipment required by paragraph (g)(2)(v) of this section are labeled as follows:	The employer shall ~~assure~~ensure that the containers of contaminated protective clothing and equipment required by subsection (g)(2)(E) of this section are labeled as follows:	The State proposes to redesignate this subsection to (g)(2)(G). This change is necessary as the State proposes to remove subsection (g)(2)(G)2. The State proposes here, and throughout the regulation, to replace the word "assure" with the word "ensure." The word "ensure" is used in 1926.62(g)(2)(vii)(A). This change is proposed as the word "ensure" means to make certain or to confirm, while the word "assure" means to promise. The standard requires the employer to make certain that requirements are met.
(g)(2)(vii)(B)	(g)(2)(G)~~2.~~	
Prior to June 1, 2015, employers may include the following information on bags or containers of contaminated protective clothing and equipment required by paragraph (g)(2)(v) in lieu of the labeling requirements in paragraph	~~Prior to June 1, 2015, employers may include the following information on bags or containers of contaminated protective clothing and equipment required by subsection (g)(2)(E) in lieu of the labeling~~	The State proposes to remove subsection (g)(2)(G)2. This change is necessary as the requirements of (g)(2)(G)2. only applied prior to June 1, 2015.

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
(g)(2)(vii)(A) of this section: Caution: Clothing contaminated with lead. Do not remove dust by blowing or shaking. Dispose of lead contaminated wash water in accordance with applicable local, state, or federal regulations.	~~requirements in subsection (g)(2)(G)1. of this section:~~ ~~Caution: Clothing contaminated with lead. Do not remove dust by blowing or shaking. Dispose of lead contaminated wash water in accordance with applicable local, state, or federal regulations.~~	
(h) Housekeeping--	**(h) Housekeeping.**	
(h)(2)	(h)(2)	
Clean-up of floors and other surfaces where lead accumulates shall wherever possible, be cleaned by vacuuming or other methods that minimize the likelihood of lead becoming airborne.	Floors ~~Clean-up of floors~~ and other surfaces where lead accumulates shall be cleaned, wherever possible, ~~be cleaned~~ by vacuuming or by other methods that minimize the likelihood of lead becoming airborne.	The State proposes to modify the language of subsection (h)(2) to more clearly state the requirement of this subsection.
(h)(3)	(h)(3)	
Shoveling, dry or wet sweeping, and brushing may be used only where vacuuming or other equally effective methods have been tried and found not to be effective.	Shoveling, dry or wet sweeping, and brushing shall~~may~~ not be used ~~only where~~unless the employer can demonstrate that vacuuming or other equally effective methods have been tried and found not to be effective.	The State proposes that in subsection (h)(3), the word “may” would be replaced with “shall.” This is necessary as “may” is not enforceable. In addition, the State proposes that language in subsection (h)(3) would be changed to require an employer to demonstrate that vacuuming or other equally effective methods have been tried and found not to be effective, before they would be permitted to

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
		clean using shoveling, dry or wet sweeping or brushing. This change is necessary to place the burden of proof on an employer to demonstrate their attempts to clean using methods that are not likely to cause lead to become airborne prior to resorting to other cleaning methods that are likely to cause lead to become airborne.
(i) Hygiene facilities and practices.	**(i) Hygiene facilities, practices and regulated areas.**	
(There is no corresponding heading in the federal regulation.)	(i)(1)	
	General hygiene.	The State proposes to expand subsection (i)(1). A heading, "General hygiene" would be added. This change is necessary to indicate that the requirements of subsection (i)(1) are general in nature.
(i)(1)	(i)(1)(A)	
The employer shall assure that in areas where employees are exposed to lead above the PEL without regard to the use of respirators, food or beverage is not present or consumed, tobacco products are not present or used, and cosmetics are not applied.	The employer shall ~~assure~~ensure that in areas where employees are exposed to lead ~~above the PEL without regard to the use of respirators~~, food or beverage is not present or consumed, tobacco products are not present or used, and cosmetics are not applied.	The State proposes to add subsections (i)(1)(A), (B) and (C). The State proposes that in subsection (i)(1)(A), the existing requirements for employers to prohibit food, beverages, tobacco products and cosmetics would be expanded to include all areas where

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
		employees are exposed to lead, rather than only to areas where the PEL is exceeded. This change is necessary to provide greater protection to employees from the hazard of lead ingestion, which may occur in areas where the hands of employees can become contaminated with lead, even when airborne levels of lead are below the PEL.
(i)(5)(i)	(i)(1)(B)	
The employer shall provide adequate handwashing facilities for use by employees exposed to lead in accordance with 29 CFR 1926.51(f).	For all employees exposed to lead, the employer shall provide an adequate number of washing facilities, or lavatories, and special cleansing compounds, in accordance with the provisions of section 1527(a).	The State proposes that new subsection (i)(1)(B) would include language currently found in subsection (i)(5)(A). In addition, language would be added, requiring employers to provide special cleansing compounds. This subsection would also include a reference to Section 1527(a), which establishes requirements for the provision of washing facilities and special cleansing compounds to remove lead from the skin. This addition is necessary, as simple soap and water may not be adequate to remove lead from employees' skin. Lead contamination on the skin of employees increases the possibility of lead ingestion.
(i)(4)(iii)	(i)(1)(C)	
The employer shall assure that employees whose airborne exposure to lead is above the PEL, without regard to the use of a respirator, wash their hands	The employer shall ensure that employees exposed to lead wash their hands, exposed arms, and face prior to entering eating	The State proposes that new subsection (i)(1)(C) would include a requirement, currently found in subsection (i)(4), that employers ensure that employees wash

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
and face prior to eating, drinking, smoking or applying cosmetics.	areas, eating, drinking, smoking or applying cosmetics, and at the end of their shift.	before eating, drinking, smoking or applying cosmetics. In subsection (i)(1)(C), this requirement would be expanded such that employees exposed to lead, even if below the PEL, would be included. Also, the washing requirements would be expanded, to include washing exposed arms. In addition to requirements for washing before eating, drinking, smoking or applying cosmetics, employers would be required to ensure that employees exposed to lead wash prior to entering eating areas, and at the end of their shift. These amendments are necessary to provide greater protection to employees from the hazard of lead ingestion due to lead that may be on their exposed arms, in addition to their hands and face.
(i)(2)(i)	(i)(2)(A)	
The employer shall provide clean change areas for employees whose airborne exposure to lead is above the PEL, and as interim protection for employees performing tasks as specified in paragraph (d)(2) of this section, without regard to the use of respirators.	The employer shall provide clean change areas for employees whose airborne exposure to lead is above the PEL without regard to the use of respirators, and as interim protection for employees performing trigger tasks ~~as specified~~described in subsection (d)(2)~~, without regard to the use of respirators~~.	The State proposes to add the phrase “without regard to the use of respirators.” This addition is necessary for added clarity about which employees the requirement applies to. The State proposes to add the word “trigger” before the word “tasks,” and also replace the word “specified” with “described.” These changes are necessary to more clearly indicate the tasks to which these

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
		requirements apply, and to include those tasks described in subsection (d)(2)(B).
1926.62(i)(2)(ii)	(i)(2)(B)	
The employer shall assure that change areas are equipped with separate storage facilities for protective work clothing and equipment and for street clothes which prevent cross-contamination.	The employers shall ~~assure~~ensure that change areas are equipped with separate storage facilities for protective work clothing and equipment, and for street clothes, which prevent cross-contamination.	The State proposes here, and throughout the regulation, to replace the word “assure” with the word “ensure.” This change is proposed as the word “ensure” means to make certain or to confirm, while the word “assure” means to promise. The standard requires the employer to make certain that requirements are met. OSHA standards issued recently, including 1926.1153 (Silica), use the words “shall ensure” when referring to the employers’ duties.
1926.62(i)(2)(iii)	(i)(2)(C)	
The employer shall assure that employees do not leave the workplace wearing any protective clothing or equipment that is required to be worn during the work shift.	The employer shall ~~assure~~ensure that employees do not leave the workplace wearing any protective clothing or equipment that is required to be worn during the work shift.	The State proposes here, and throughout the regulation, to replace the word “assure” with the word “ensure.” This change is proposed as the word “ensure” means to make certain or to confirm, while the word “assure” means to promise. The standard requires the employer to make certain that requirements are met. OSHA standards issued recently, including 1926.1153 (Silica), use the words “shall ensure” when referring to the employers’ duties.
(i)(3)(i)	(i)(3)(A)	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
The employer shall provide shower facilities, where feasible, for use by employees whose airborne exposure to lead is above the PEL.	The employer shall provide shower facilities~~,~~ ~~where feasible,~~ for use by employees whose airborne exposure to lead is above the PEL, without regard to the use of respirators, and as interim protection for employees performing level 3 trigger tasks listed in subsection (d)(2)(D).	The State proposes to amend subsection (i)(3)(A) to require employers to provide shower facilities as an interim protection for employees conducting level 3 trigger tasks, and also to remove the term “where feasible” from the requirements. These changes are necessary to provide greater protection for employees who work in areas that either have or are presumed to have high airborne concentrations of lead by ensuring that showers are provided. The State also proposes to add the phrase “without regard to the use of respirators.” This amendment is necessary to provide consistency with the requirements in subsection (i)(4), which explicitly state that airborne exposure above the PEL is without regard to the use of respirators.
	(i)(3)(B)	
(There is no corresponding federal requirement.)	The employer shall ensure that required shower facilities comply with section 3366(f).	The State proposes to redesignate subsection (i)(3)(B) as subsection (i)(3)(C), and add a new subsection, (i)(3)(B). In subsection (i)(3)(B), a reference would be made to Section 3366(f), which establishes requirements for the provision of showers, cleansing agents, and towels.

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
		This addition is necessary to provide clarity to employers about the specific requirements for providing shower facilities.
(i)(3)(ii)	(i)(3)(C)~~(B)~~	
The employer shall assure, where shower facilities are available, that employees shower at the end of the work shift and shall provide an adequate supply of cleansing agents and towels for use by affected employees.	The employer shall ~~assure~~ensure, where shower facilities are ~~available~~required, that employees shower at the end of the work shift and shall provide an adequate supply of cleansing agents and towels for use by affected employees.	The State proposes to require that, where showers are required, that employees shower at the end of their work shift. Existing language requires employees to shower where showers are available. This change reflects the proposed language in (i)(3)(A) that removes the condition of feasibility from the requirement to provide shower facilities for specified employees.
(i)(4)(i)	(i)(4)(A)	
The employer shall provide lunchroom facilities or eating areas for employees whose airborne exposure to lead is above the PEL, without regard to the use of respirators.	The employer shall provide readily accessible lunchroom facilities or eating areas for employees whose airborne exposure to lead is above the PEL, without regard to the use of respirators, and as interim protection for employees performing trigger tasks described in subsection (d)(2).	The State proposes to add the requirement to provide readily accessible lunchroom facilities or eating areas as an interim protection for employees conducting trigger tasks. This addition is necessary to provide greater protection to employees who work in areas that are presumed to have high airborne concentrations of lead by ensuring that a clean area is provided for eating, so as to reduce the likelihood of lead ingestion.
(i)(4)(ii)	~~(i)(4)(B)~~	

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
The employer shall assure that lunchroom facilities or eating areas are as free as practicable from lead contamination and are readily accessible to employees.	~~The employer shall assure that lunchroom facilities or eating areas are as free as practicable from lead contamination and are readily accessible to employees.~~	The State proposes to move the requirement, given in existing subsection (i)(4)(B) that lunchroom facilities or eating areas be readily accessible to employees, to subsection (i)(4)(A). Also, the State proposes that existing subsection (i)(4)(B) would be removed, as its requirements would be moved to subsections (i)(4)(A) and (i)(5).
(i)(4)(iii)	~~(i)(4)(C)~~	
The employer shall assure that employees whose airborne exposure to lead is above the PEL, without regard to the use of a respirator, wash their hands and face prior to eating, drinking, smoking or applying cosmetics.	~~The employer shall assure that employees whose airborne exposure to lead is above the PEL, without regard to the use of a respirator, wash their hands and face prior to eating, drinking, smoking or applying cosmetics.~~	The State proposes that existing subsection (i)(4)(C) would be removed, as its requirements would be moved to subsection (i)(1).
(i)(4)(iv)	(i)(4)(B~~D~~)	
The employer shall assure that employees do not enter lunchroom facilities or eating areas with protective work clothing or equipment unless surface lead dust has been removed by vacuuming, downdraft booth, or other cleaning method that limits dispersion of lead dust.	The employer shall ~~assure~~ensure that employees do not enter lunchroom facilities or eating areas with protective work clothing or equipment unless surface lead dust has been removed by HEPA vacuuming, downdraft booth, or other cleaning method that limits dispersion of lead dust.	The State proposes to redesignate existing subsection (i)(4)(D) as subsection (i)(4)(B), and the language would be modified to specify that when vacuums are used to remove surface lead dust from protective clothing or equipment, they must be HEPA vacuums. This addition is necessary to ensure that vacuums used to remove surface lead dust sufficiently limit the dispersion of lead dust, and the resulting inadvertent exposure of employees to this lead dust.
	(i)(5)	

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
(There is no corresponding heading nor requirements in the federal regulation.)	~~Hand Washing~~Cleaning of hygiene facilities. The employer shall establish, implement and maintain effective written methods and schedules to maintain the cleanliness of drinking and washing facilities, change rooms, showers, lunchrooms, and eating areas required by this subsection.	The State proposes to amend the heading of subsection (i)(5) from "Hand Washing facilities" to "Cleaning of hygiene facilities." This change is necessary as the requirements for hand washing would be moved to subsection (i)(1). Also in subsection (i)(5), language would be added that requires employers to develop and implement written methods and schedules to maintain the cleanliness of the hygiene facilities required by subsection (i). This addition is necessary to require employers to have a documented system in place to ensure that required hygiene facilities are maintained in a clean condition, so that the likelihood of ingestion of lead is reduced.
(i)(5)(i)	~~(i)(5)(A)~~	
The employer shall provide adequate handwashing facilities for use by employees exposed to lead in accordance with 29 CFR 1926.51(f).	~~The employer shall provide adequate handwashing facilities for use by employees exposed to lead in accordance with section 1527.~~	The State proposes to remove existing subsection (i)(5)(A), as the requirements in existing subsection (i)(5)(A) would be moved to subsection (i)(1)(B).
(i)(5)(ii)	~~(i)(5)(B)~~	
Where showers are not provided the employer shall assure that employees wash their hands and face at the end of the work-shift.	~~Where showers are not provided the employer shall assure that employees wash their hands and face at the end of the work-shift.~~	The State proposes to remove existing subsection (i)(5)(B), as the requirements in existing subsection (i)(5)(B) would be moved to subsection (i)(1)(C).

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	(i)(6)(A)	
(There are no corresponding requirements for regulated areas in the federal regulation.)	Employers shall establish regulated areas, ~~where~~ unless the employer can demonstrate that they are not feasible, for work areas where employees are exposed to lead ~~at or~~ above the PEL without regard to the use of respirators, and as interim protection for employees ~~or~~ performing ~~the~~trigger tasks described in subsection (d)(2).	The State proposes to modify the language in subsection (i)(6)(A). The changes would clarify requirements for establishing regulated areas, and expand the requirements for establishing regulated areas to include them as an interim protection for employees who perform trigger tasks.
	(i)(6)(B)	
(There is no corresponding requirement for regulated areas in the federal regulation.)	Regulated areas shall be posted with signs as described in subsection (m)(1~~2~~).	The State proposes to make a correction, to indicate that signage requirements are described in subsection (m)(1), and not in subsection (m)(2).
(j) Medical surveillance--	**(j) Medical surveillance.**	
(j)(1)(i)	(j)(1)(A)	
The employer shall make available initial medical surveillance to employees occupationally exposed on any day to lead at or above the action level. Initial medical surveillance consists of biological monitoring in the form of blood sampling and analysis for lead and zinc protoporphyrin levels.	The employer shall make available initial blood lead testing~~medical surveillance~~ to employees:	The State proposes to modify the language in subsection (j)(1)(A) by replacing the phrase “initial medical surveillance” with “initial blood lead testing.” This change is necessary as existing requirements for ZPP sampling and analysis would be removed from the blood lead testing requirements proposed here and in subsection (j)(2). Kosnett et al. (2007) reported that routine measurement of zinc protoporphyrin is not recommended because

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
		it is an insensitive biomarker of lead exposures in individuals with blood lead concentrations below 25 µg/dl. Therefore, ZPP testing would only be required as part of a medical examination, pursuant to subsection (j)(3), for employees with blood lead levels at or above 20 µg/dl. A second reason this change is necessary is to clearly differentiate the requirements in subsection (j)(1)(A), for employers to provide initial blood lead testing, from the requirements to provide more comprehensive medical surveillance, including follow-up blood lead testing and medical examinations and consultations, to employees specified in subsection (j)(1)(B). The State also proposes to remove a sentence from subsection (j)(1)(A) that states the required content of initial medical surveillance. As discussed above, the term "initial medical surveillance" is being replaced in subsection (j)(1)(A) with the term "initial blood lead testing."
(j)(1)(i)	(j)(1)(A)1.	
The employer shall make available initial medical surveillance to employees occupationally exposed on any day to lead at or above the action level. Initial medical surveillance consists of biological monitoring in the form of	Prior to assignment~~occupationally exposed on any day~~ to ~~lead~~work where exposure to lead is or is reasonably expected to be at or above the action level~~.~~; and	The State proposes to modify the requirements of subsection (j)(1)(A) such that employers would be required to make available initial blood lead testing for employees prior to assignment to work where exposure to lead is or is reasonably expected to be at or above the action level.

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
blood sampling and analysis for lead and zinc protoporphyrin levels.		This change to subsection (j)(1)(A) is necessary to establish baseline blood lead levels (BLLs) of employees before they begin work that involves significant, or presumed significant, airborne levels of lead. In this way, employees would have a baseline BLL against which to measure the results of subsequent tests. Also, any pre-existing elevation in an employee's BLL, whether occupational or non-occupational, could be identified, and employees with pre-existing elevated BLLs could be protected from further exposure to lead.
(d)(2)(v)(E)	(j)(1)(A)2.	
Biological monitoring in accordance with paragraph (j)(1)(i) of this section, to consist of blood sampling and analysis for lead and zinc protoporphyrin levels, and	As interim protection, prior to performing trigger tasks described in subsection (d)(2), unless a negative initial determination has been made as described in subsection (d)(5). ~~Initial medical surveillance consists of biological monitoring in the form of blood sampling and analysis for lead and zinc protoporphyrin levels.~~	The State proposes to modify the requirements of subsection (j)(1)(A) such that employers would be required to make available initial blood lead testing for employees prior to performing trigger tasks, unless a negative initial determination has been made. The requirement to provide medical surveillance to employees who perform tasks described in subsections (d)(2)(A), (B), (C) and (D) is also contained in subsection (d)(2)(E). The requirement is added here in subsection (j) for added clarity. This addition to subsection (j)(1)(A) is necessary to establish baseline BLLs of employees before they begin work that involves airborne levels of lead that are presumed to be significant. In this way,

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		employees would have a baseline BLL against which to measure the results of subsequent tests. Also, any pre-existing elevation in an employee's BLL, whether occupational or non-occupational, could be identified, and employees with pre-existing elevated BLLs could be protected from further exposure to lead.
(j)(1)(ii)	(j)(1)(B)	
The employer shall institute a medical surveillance program in accordance with paragraphs (j)(2) and (j)(3) of this section for all employees who are or may be exposed by the employer at or above the action level for more than 30 days in any consecutive 12 months;	The employer shall institute a medical surveillance program in accordance with subsections (j)(2) and (j)(3) ~~for all employees who are or may be exposed by the employer at or above the action level for more than 30 days in any consecutive 12 months;~~:	These State proposes to expand the scope of subsection (j)(1)(B) by reducing the amount of lead exposure allowed before medical surveillance must be made available to an employee.
(j)(1)(ii)	(j)(1)(B)1.	
The employer shall institute a medical surveillance program in accordance with paragraphs (j)(2) and (j)(3) of this section for all employees who are or may be exposed by the employer at or above the action level for more than 30 days in any consecutive 12 months;	For all employees who are or may be exposed to lead at or above the action level; and EXCEPTION: Medical surveillance is not required for an employee who is not exposed to lead at or above the action level for 10 or more days in any 12 consecutive months, and who is not exposed on any day at or above 100 µg/m^3 as an 8-hour TWA, without regard to respirator use.	The State proposes to require employers to institute a medical surveillance program for employees who are or may be exposed to lead at or above the action level. An exception would be given if an employee is not exposed at or above the action level for 10 or more days in any 12 consecutive months, and is not exposed on any day at or above 100 µg/m^3 as an 8-hour TWA, without regard to respirator use. This is a change from the existing threshold for a medical surveillance program of exposure for more than 30 days in any consecutive 12 months at or above the action level.

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
		This amendment supports the overall goal of maintaining employee BLLs below 10 µg/dl. Employees exposed to lead for up to 30 days a year may develop BLLs above 10 µg/dl, and yet not be covered by medical surveillance. Likewise, employees who are exposed to lead at or above 100 µg/m^3 on any day may develop elevated BLLs, even though these exposures may be infrequent. Significantly, blood lead testing detects elevated BLLs that occur due to ingestion of lead, as well as due to inhalation of airborne lead.
	(j)(1)(B)2.	
(There is no corresponding requirement in the federal regulation to provide a medical surveillance program, as interim protection, for employees who perform tasks described in subsection (d)(2).)	As interim protection, for all employees who perform trigger tasks described in subsection (d)(2). EXCEPTION 1: Medical surveillance is not required where a negative initial determination has been made in accordance with subsection (d)(5). EXCEPTION 2: Medical surveillance is not required for an employee who only performs level 1 trigger tasks and who does not perform these level 1 trigger tasks for 10 or more days in any 12 consecutive months.	The State proposes to require employers to institute a medical surveillance program, as interim protection, for employees who perform trigger tasks. Exceptions to this are given if a negative initial determination has been made in accordance with subsection (d)(5), or if an employee only performs level 1 trigger tasks, and does not perform these tasks for 10 or more days in any consecutive 12 months. Currently, employers are required only to provide, as interim protection, initial BLL/ZPP testing for employees who perform trigger tasks. This leaves significantly exposed employees, with lead exposures assumed to be above the PEL, not covered by medical surveillance. Requiring medical surveillance, as interim protection for employees who perform trigger

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
		tasks, as a default ensures these exposed employees are covered, irrespective of the timing of an employer's compliance with exposure monitoring requirements. This amendment is necessary to ensure that rising BLLs and lead-related adverse health effects are detected early, and supports the overall goal of maintaining employee BLLs below 10 µg/dl.
1926.62(j)(1)(iii)	(j)(1)(C)	
The employer shall assure that all medical examinations and procedures are performed by or under the supervision of a licensed physician.	The employer shall ~~assure~~ensure that all medical examinations and procedures are performed by or under the supervision of a licensed physician.	The State proposes here, and throughout the regulation, to replace the word "assure" with the word "ensure." This change is proposed as the word "ensure" means to make certain or to confirm, while the word "assure" means to promise. The standard requires the employer to make certain that requirements are met. OSHA standards issued recently, including 1926.1153 (Silica), use the words "shall ensure" when referring to the employers' duties.
	(j)(1)(E)	
(There is no corresponding federal requirement for employers to provide complete employee demographic information to healthcare providers who perform medical surveillance).	The employer shall provide complete employee identification information to the licensed healthcare provider who performs any services covered under subsections (j)(2) and (j)(3). The employer shall instruct the healthcare provider ordering blood lead tests to provide the analyzing laboratory	The State proposes to add a new subsection (j)(1)(E) which would establish requirements for employers to provide complete employee demographic information to healthcare providers who perform medical surveillance under subsections (j)(2) or (j)(3) of this standard, and also require employers to

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	with the employee identification information. Identification information includes:	instruct these healthcare providers to provide laboratories that analyze blood lead tests with the employee demographic information. This addition is necessary so that more complete demographic information would be provided to the California Occupational Blood Lead Registry, as required by the California Health and Safety Code 124130.
	(j)(1)(E)1.	
(There is no corresponding federal requirement.)	Employee name, date of birth, address, and phone number; and	
	(j)(1)(E)2.	
(There is no corresponding federal requirement.)	Employer name, address, and phone number.	
(j)(2)	(j)(2)	
Biological monitoring—	Blood lead testing~~Biological monitoring~~.	The State proposes to change the heading of subsection (j)(2) from “Biological monitoring” to “Blood lead testing.” This change is necessary as subsection (j)(2) would establish requirements related only to blood lead testing and analysis, as the ZPP test would no longer be a routine part of medical surveillance (see discussion of ZPP in subsection (j)(1)(A) above).
(j)(2)(i)	(j)(2)(A)	

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
Blood lead and ZPP level sampling and analysis. The employer shall make available biological monitoring in the form of blood sampling and analysis for lead and zinc protoporphyrin levels to each employee covered under paragraphs (j)(1)(i) and (ii) of this section on the following schedule:	Blood lead testing schedule~~and ZPP level sampling and analysis~~. The employer shall make available ~~biological monitoring in the form of~~ blood lead testing~~sampling and analysis for lead and zinc protoporphyrin levels~~ to each employee covered under subsections (j)(1)(A) ~~and~~or (B) on the following schedule:	The State proposes to change the heading of subsection (j)(2)(A) from "Blood lead and ZPP level sampling and analysis" to "Blood lead testing schedule." Also, a reference to biological monitoring would be removed, along with references to ZPP, and the term "blood sampling and analysis" would be replaced by "blood lead testing." The changes are necessary as subsection (j)(2)(A) would apply only to blood lead testing (see discussion of ZPP in subsection (j)(1)(A) above). In addition, in subsection (j)(2)(A), the reference to each employee covered under "subsections (j)(1)(A) and (B)" would be changed to "subsections (j)(1)(A) or (B)." This change is necessary to correct an error in logic, and is without regulatory effect. Existing subsection (j)(2)(A)2. clearly applies to each employee covered under "subsections (j)(1)(A) or (B);" for consistency, subsection (j)(2)(A) must also apply to employees covered under subsections (j)(1)(A) or (B).
(j)(2)(i)(A)	(j)(2)(A)1.	
For each employee covered under paragraph (j)(1)(ii) of this section, at least every 2 months for the first 6 months and every 6 months thereafter;	For each employee covered under subsection (j)(1)(B), initially in accordance with subsection (j)(1)(A), and then at least every 2 months for the first 6 months after	The State proposes to add, in subsection (j)(2)(A)1., a reference to subsection (j)(1)(A). This addition is necessary to clarify that employees who are covered under

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	initial placement, and then every 6 months thereafter;	subsection (j)(1)(B) need to be provided with initial blood lead testing required by subsection (j)(1)(A).
	(j)(2)(A)2.	
(There is no corresponding federal requirement.)	For each employee covered under subsection (j)(1)(B), at least every 2 months for the first 6 months after a change in task resulting in or likely to result in higher exposure to lead, and then every 6 months thereafter;	The State proposes to add new language under the designation subsection (j)(2)(A)2. which would require blood lead tests to be provided at least every 2 months for the first 6 months after a change in task resulting in, or likely to result in, higher exposure to lead, and then every 6 months thereafter. This addition is necessary as it is important to more frequently monitor an employee's BLL when their exposure to lead is increased.
	(j)(2)(A)~~2~~3.	
(There is no corresponding federal requirement.)	~~For~~At least every two months for each employee ~~covered under subsections (j)(1)(A) or (B)~~ whose last ~~blood sampling and analysis indicated a~~ blood lead level was at or above 10~~40~~ µg/dl but below 20 µg/dl~~, at least every two months~~. This frequency shall continue until two consecutive blood lead levels~~samples and analyses~~, taken at least 30 days apart, are ~~indicate a blood lead level~~ below 10~~40~~ µg/dl; ~~and~~	The State proposes, in subsection (j)(2)(A)3., to remove a reference to each employee "covered under subsections (j)(1)(A) or (B)." This removal is necessary to eliminate a redundancy, as the language in subsection (j)(2)(A) would indicate that the subsection applies to each employee covered under subsections (j)(1)(A) or (B). The State also proposes that the phrase "blood sampling and analysis indicated a" would be removed before the words "blood lead level," and the phrase "blood samples

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		and analysis" would be changed to "blood lead levels." These changes are necessary to reflect the removal of ZPP testing requirements from this subsection (see discussion of ZPP in subsection (j)(1)(A) above). In addition, blood lead testing would be required to be made available at least every two months for an employee whose last BLL was at or above 10 µg/dl but below 20 µg/dl of whole blood, rather than the existing requirement for blood testing to be made available every two months when an employee's blood lead level is at or above 40 µg/dl. Providing testing every 2 months would be required to continue until two consecutive BLLs, taken at least 30 days apart, are below 10 µg/dl, rather than the existing requirement of two consecutive BLLs of 40 µg/dl. These amendments are necessary to ensure that any BLL at or above 10 µg/dl is closely monitored until it is reduced to below 10 µg/dl. This supports the overall goal of maintaining employee BLLs below 10 µg/dl.
(j)(2)(i)(C)	(j)(2)(A)~~3~~4.	
For each employee who is removed from exposure to lead due to an elevated blood lead level at least monthly during the removal period.	At least monthly f~~F~~or each employee whose last blood lead level was at or above 20 µg/dl, and during the removal period of each employee who is removed from exposure to	The State proposes to add a requirement to make blood lead testing available at least monthly for employees whose last BLL was at or above 20 µg/dl would be added.

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	lead due to an elevated blood lead level ~~at least monthly during the removal period;~~.	This addition is necessary, because by requiring the provision of periodic and repeated blood lead testing on a more frequent basis and at lower BLLs, elevations in an employee's blood lead level would be discovered earlier, enabling an employer to take actions to reduce the employee's exposure to lead.
	(j)(2)(A)5.	
(There is no corresponding federal requirement.)	At least monthly, as interim protection in accordance with subsection (d)(2)(E), for each employee performing a level 3 trigger task as listed in subsection (d)(2)(D), including a blood test taken within 3 days after discontinuing all level 3 trigger task work; and	The State proposes to add requirements for the provision of blood lead testing at least monthly as an interim protection for employees who perform level 3 trigger tasks. A blood lead test would have to be provided to these employees within 3 days after discontinuing level 3 trigger task work. This addition is necessary as frequent testing of employees with exposure to high or presumed high levels of airborne lead would identify employees with elevated BLLs and cause employers to take steps to reduce exposure to lead from both oral and airborne routes of exposure. Also, testing employees within 3 days after discontinuing level 3 trigger task work would provide both employers and employees with important information about the effect of this work on employees' BLLs so that it could be distinguished from the effects on BLLs from other work that employees perform.

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	(j)(2)(A)6.	
There is no corresponding federal requirement.)	At least monthly for each employee whose airborne exposure is above 500 µg/m^3 as an 8-hour TWA, without regard to the use of respirators, including a blood test taken within 3 days after discontinuing all work associated with airborne exposure above 500 µg/m^3 as an 8-hour TWA.	The State proposes to add a requirement for the provision of blood lead testing at least monthly for employees whose airborne exposure is above 500 µg/ m^3 as an 8-hour TWA, without regard to the use of respirators. A blood lead test would have to be provided to these employees within 3 days after discontinuing work associated with airborne exposure above 500 µg/m^3. This addition is necessary as frequent testing of employees with exposure to high levels of airborne lead would identify employees with elevated BLLs and cause employers to take steps to reduce exposure to lead from both oral and airborne routes of exposure. Also, testing employees within 3 days after discontinuing work associated with airborne exposure above 500 µg/m^3 would provide both employers and employees with important information about the effect of this work on employees' BLLs so that it could be distinguished from the effects on BLLs from other work that employees perform.
(j)(2)(ii)	~~(j)(2)(B)~~	
Follow-up blood sampling tests. Whenever the results of a blood lead level test indicate that an employee's blood lead level is at or above the numerical criterion for medical removal under paragraph (k)(1)(i) of this section,	~~Follow-up blood sampling tests. Whenever the results of a blood lead level test indicate that an employee's blood lead level exceeds the numerical criterion for medical removal under subsection (k)(1)(A), the employer shall provide a second (follow-up) blood~~	The State proposes to remove the existing language in subsection (j)(2)(B). This language requires a second, confirmatory blood lead test be conducted whenever an employee's BLL exceeds the criterion for medical removal protection, before the

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the employer shall provide a second (follow-up) blood sampling test within two weeks after the employer receives the results of the first blood sampling test.	~~sampling test within two weeks after the employer receives the results of the first blood sampling test.~~	employee is removed from on-going exposure. This change is necessary to provide greater protection of employee health. It is more protective of an employee's health to not be required to wait for confirmatory results from a mandated follow-up blood lead test before removing an employee from exposure to lead. This change is facilitated by the increased reliability of blood lead testing and analysis since the time the regulation was promulgated in 1993.
(j)(2)(iii)	(j)(2)(B~~C~~)	
Accuracy of blood lead level sampling and analysis. Blood lead level sampling and analysis provided pursuant to this section shall have an accuracy (to a confidence level of 95 percent) within plus or minus 15 percent or 6 ug/dl, whichever is greater, and shall be conducted by a laboratory approved by OSHA.	Accuracy of blood lead testing~~level sampling and analysis~~**.** Blood lead testing~~level sampling and analysis~~ provided pursuant to this section shall include analysis by a Clinical Laboratory Improvement Amendments (CLIA)-approved laboratory (under the federal CLIA regulations, 42 CFR Part 493).~~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.~~	The State proposes to remove the requirement that blood lead testing meet a stated accuracy, and be conducted by a laboratory licensed by OSHA, and replace it with a requirement that blood lead testing include analysis by a CLIA-approved laboratory (under the federal Clinical Laboratory Improvement Amendments (CLIA) regulations). This change is necessary because OSHA no longer directly approves blood lead testing laboratories; OSHA recognizes that the CLIA criteria for blood lead proficiency testing constitute the federal government's legal requirements for laboratories performing human blood lead testing.
(j)(2)(iv)	(j)(2)(C~~D~~)	

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
Employee notification. (j)(2)(iv)(A) Within five working days after the receipt of biological monitoring results, the employer shall notify each employee in writing of his or her blood lead level; and	Employer notification to the ~~E~~employee ~~notification.~~ ~~1.~~ Within five working days after the receipt of blood lead test~~biological monitoring~~ results, the employer shall notify each employee in writing:	The State proposes to change the heading of this subsection to distinguish its requirements from those that would be created in proposed subsection (j)(2)(D). The State proposes to replace the term "biological monitoring" with "blood lead test." This change is necessary because the requirements in this subsection would pertain to blood lead testing only.
(j)(2)(iv)(A)	(j)(2)(C~~D~~)1.	
Within five working days after the receipt of biological monitoring results, the employer shall notify each employee in writing of his or her blood lead level; and	~~o~~Of that employee's~~his or her~~ blood lead level; ~~and~~	The State proposes to replace a reference to "his or her" with "that employee's." This change is necessary for consistency with the existing language of section 5198(j)(2)(E)1. and for greater clarity.
	(j)(2)(C~~D~~)2.	
(There is no corresponding federal requirement.)	That the standard requires the employer to make medical examinations and consultations available to employees exposed at or above the action level, and as interim protection, to employees performing trigger tasks, unless an employee's exposure or work is covered by the exceptions in 1532.1(j)(1)(B). When they are required, the employer must make medical examinations and consultations available as soon as possible, upon notification by an employee either that the employee has	The State proposes to add, to a currently-required written notification to employees, a requirement that employers notify employees about medical examinations and consultations that employers must make available. The requirement to make these examinations and consultations available is located in subsection (j)(3)(A). This addition is necessary to provide information, and thus greater health protection, to employees about the medical

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	developed signs or symptoms commonly associated with lead intoxication, 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, or that the employee has demonstrated difficulty breathing during a respirator fit test or during use; and	examinations and consultations that are available to them under subsection (j)(3)(A).
(j)(2)(i)(B) and (j)(2)(iv)(B)	(j)(2)(C~~D~~)3~~2~~.	
The employer shall notify each employee whose blood lead level is at or above 40 µg/dl that the standard requires temporary medical removal with Medical Removal Protection benefits when an employee's blood lead level exceeds the numerical criterion for medical removal under paragraph (k)(1)(i) of this section.	~~The employer shall notify each employee whose blood lead level exceeds 40 µg/dl t~~That the standard requires temporary medical removal with Medical Removal Protection benefits when an employee's blood lead level is at or above 30 µg/dl, the last two monthly blood lead levels are at or above 20 µg/dl, or the average of the results of all blood lead tests conducted in the last 6 months is at or above 20 µg/dl, as provided for in ~~is at or above the numerical criterion for medical removal under~~ subsection (k)(1)(A).	The State proposes to modify the language of this subsection to require employers to notify all employees, regardless of their BLL, about MRP and its benefits when they are notified of their BLL. In addition, employers would be required to notify employees of the specific BLL criteria for medical removal under subsection (k)(1)(A). These modifications are necessary to provide information, and thus greater health protection, by ensuring that all employees who have their BLL tested are made aware of temporary medical removal, the criteria for removal, and MRP benefits. This would also help ensure continued employee participation in future BLL testing.
	(j)(2)(D)	
(There is no corresponding federal requirement.)	Physician's notification to the employee. The employer shall ensure that the	The State proposes to establish a new subsection (j)(2)(D) with the heading

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	physician who orders the blood test explains the findings of the blood lead test and notifies the employee of the following:	"Physician's notification to the employee." Subsection (j)(2)(D) would require the employer to ensure that the physician who orders a blood test for an employee explains the findings of the blood lead test, and notifies the employee of specified information. The required information is specified in proposed subsection (j)(2)(D)(1. - 3.) This addition is necessary to ensure that employees receive information directly from the physicians who order their blood lead tests, about any recommended follow-up blood lead tests or medical exams, so that employees gain a better understanding of the significance of their blood lead test results.
	(j)(2)(D)1.	
(There is no corresponding federal requirement.)	The results of the blood lead test;	
	(j)(2)(D)2.	
(There is no corresponding federal requirement.)	Any recommended follow-up blood lead testing in accordance with subsection (j)(2)(A) and the timing of that recommended blood lead testing; and	
	(j)(2)(D)3.	
(There is no corresponding federal requirement.)	If the employee's blood lead level is 20 µg/dl or greater, the recommendation that the employee undergo a medical examination	

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	by a physician if the employee has not had a lead-specific medical exam in the preceding 12 months.	
	(j)(2)(E)	
(There is no corresponding federal requirement.)	Elevated blood lead level response.	The State proposes to establish a new subsection (j)(2)(E). Subsection (j)(2)(E)1. would require a response by employers when an employee has a BLL at or above 10 µg/dl. In that event, the employer would be required to establish and implement a written elevated blood lead level response plan with a description of means that would be used to reduce and maintain that employee's BLL below 10 µg/dl. Subsection (j)(2)E)2. would require this plan to be accompanied by any needed training and instruction to correct employee work practices, as identified by the plan. These additions are necessary to provide greater health protection to employees in that employers would be required to take steps to reduce elevated employee BLLs, even though they may not reach a level at which temporary medical removal is required. This supports the overall goal of maintaining all employee BLLs below 10 µg/dl.
	(j)(2)(E)1.	
(There is no corresponding federal requirement.)	Whenever an employee has a blood lead level at or above 10 µg/dl, the employer shall establish and implement a written	

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	elevated blood lead level response plan for that employee which describes specific means that will be used to reduce and maintain the employee's blood lead level below 10 µg/dl.	
	(j)(2)(E)2.	
(There is no corresponding federal requirement.)	Training and instruction shall be provided as needed for an employee who has a blood lead level at or above 10 µg/dl, to correct any employee work practices identified in the elevated blood lead level response plan established for that employee under subsection (j)(2)(E)1.	
(j)(3)(i)(A)	(j)(3)(A)1.	
At least annually for each employee for whom a blood sampling test conducted at any time during the preceding 12 months indicated a blood lead level at or above 40 ug/dl;	As soon as possible for each employee for whom a blood lead test result of 20 µg/dl or greater is received, if no lead-specific medical examination was done for that employee in the preceding 12 months, and aAt least annually thereafter until the employee's blood lead level is below~~for each employee for whom a blood sampling test conducted at any time during the preceding 12 months indicated a blood lead level at or above~~ 20~~40~~ µg/dl;	The State proposes, in subsection (j)(3)(A)1., to replace a reference to "blood sampling test" with "blood lead test." This amendment is necessary to provide consistency with the language proposed for use throughout this standard. The State also proposes, in subsection (j)(3)(A)1., that the BLL at which medical exams and consultations would be required to be made available to employees would be lowered from at or above 40 µg/dl to at or above 20 µg/dl. This amendment is necessary to provide greater health protection to employees

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		exposed to lead, in that an examination conducted when an employee's BLL is 20 µg/dl would detect lead-related adverse health effects at an earlier stage than an examination conducted when an employee's BLL reaches 40 µg/dl. In addition, the State proposes to amend the existing language in subsection (j)(3)(A)1. to require that the subject medical examinations be made available as soon as possible, if no lead-specific medical examination was done for that employee in the preceding 12 months. This amendment is necessary to provide greater health protection to employees by ensuring that these employees are provided with medical examinations and consultations in a timely manner when an elevated BLL has been identified, while allowing that such an examination need only be performed once in a 12 month period.
	(j)(3)(A)2.	
(There is no corresponding federal requirement.)	Prior to assignment for each employee covered by subsection (j)(1)(B);	The State proposes to add language requiring employers to make medical examinations and consultations available prior to assignment for each employee covered by subsection (j)(1)(B). This amendment is necessary to provide greater health protection to employees who are exposed to lead. Requiring employers to

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
		make medical examinations and consultations available prior to assignment for the specified employees would provide a baseline assessment of the health of employees before they begin to work in areas with significant airborne levels of lead. In this way, pre-existing health-related conditions, whether occupational or non-occupational, could be identified, and employees with pre-existing conditions could be protected, if medically necessary, from further exposure to lead. This amendment is also necessary for consistency with the current requirements of Section 5198(j)(3)(A)2.
1926.62(j)(3)(i)(B)	(j)(3)(A)3.	
As soon as possible, upon notification by an employee either that the employee has developed signs or symptoms commonly associated with lead intoxication, 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, that the employee is pregnant, or that the employee has demonstrated difficulty in breathing during a respirator fitting test or during use; and	As soon as possible, upon notification by an employee either that the employee has developed signs or symptoms commonly associated with lead intoxication, 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, that the employee is pregnant, or that the employee has demonstrated difficulty in breathing during a respirator fit~~ting~~ test or during use; and	In subsection (j)(3)(A)3., these proposals would amend the term “fitting test” to “fit test.” This change is necessary to correctly identify the test by referring to it by its proper name.
(j)(3)(i)(C)	(j)(3)(A)~~3~~4.	
As medically appropriate for each employee either removed from	As soon as possible, and then as medically appropriate, for each employee either	The State proposes to modify, in subsection (j)(3)(A)4., the language currently located in

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
exposure to lead due to a risk of sustaining material impairment to health, or otherwise limited pursuant to a final medical determination.	removed from exposure to lead due to elevated blood lead levels in compliance with the provisions of subsection (k)(1)(A) ~~a risk of sustaining material impairment to health~~, or whose exposure to lead is otherwise limited pursuant to a final medical determination in compliance with the provisions of subsection (k)(1)(B).	subsection (j)(3)(A)3. to specify that the medical exams and consultations employers are required to make available to employees removed from exposure to lead are to be made available as soon as possible. This amendment is necessary to provide greater health protection to employees by ensuring that these employees are provided with medical exams and consultations in a timely manner, and also for consistency with subsection (j)(3)(A)3. In addition, the State proposes to amend the language in subsection (j)(3)(A)4. to include the requirement that medical examinations and consultations are to be provided to employees removed from exposure to lead due to elevated BLLs, per the provisions of subsection (k)(1)(A). Although this requirement is also found in subsection (j)(3)(A)1., it is necessary to amend subsection (j)(3)(A)4. to state the requirement explicitly, because subsection (j)(3)(A)4. specifically addresses employees who are removed from exposure to lead, while subsection (j)(3)(A)1. does not. Also, the language in subsection (j)(3)(A)4. would be amended to delete the term “a risk of sustaining material impairment to health” and add language to specify that medical examinations and consultations are to be made available to each employee whose

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
		exposure to lead is otherwise limited pursuant to a final medical determination in compliance with the provisions of subsection (k)(1)(B). This amendment is necessary to more clearly state the requirement, because the term "a risk of sustaining material impairment to health" is vague and ambiguous.
(j)(3)(ii)	(j)(3)(B)	
Content. The content of medical examinations made available pursuant to paragraph (j)(3)(i)(B)-(C) of this section shall be determined by an examining physician and, if requested by an employee, shall include pregnancy testing or laboratory evaluation of male fertility. Medical examinations made available pursuant to paragraph (j)(3)(i)(A) of this section shall include the following elements:	Content. The content of medical examinations made available pursuant to subsection (j)(3)(A)~~2. - 3.~~ shall ~~be determined by an examining physician and, if requested by an employee, shall include pregnancy testing or laboratory evaluation of male fertility. Medical examinations made available pursuant to subsections~~ (j)(3)(A)1. ~~shall~~ include the following elements:	In the first sentence of subsection (j)(3)(B), the requirement that the content of medical examinations made available pursuant to subsections (j)(3)(A)2. – 3. be determined by an examining physician would be removed. In the proposed language, rather than being determined by an examining physician, the content of all medical examinations made available pursuant to subsection (j)(3)(A) would be specified in subsection (j)(3)(B)1. – 6. This amendment is necessary to provide greater health protection to employees by ensuring that all medical examinations made available pursuant to subsection (j)(3)(A) include the elements necessary to diagnose adverse health effects related to an employee's exposure to lead, as well as pre-existing health-related conditions that could be exacerbated by exposure to lead. The examining physician would retain the ability to order any other test relevant to lead

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
		exposure they deem necessary by sound medical practice, under the provisions of subsection (j)(3)(B)6. Also in the first sentence of subsection (j)(3)(B), the requirement that the content of medical examinations made available pursuant to subsections (j)(3)(A)2. – 3. include a pregnancy test or laboratory evaluation of male fertility, if requested by an employee, would be removed. This requirement would be added to subsection (j)(3)(B)2., where it would apply to all medical examinations made available pursuant to subsection (j)(3)(A) [see explanation in (j)(3)(B)2. below].
(j)(3)(ii)(B)	(j)(3)(B)2.	
A thorough physical examination, with particular attention to teeth, gums, hematologic, gastrointestinal, renal, cardiovascular, and neurological systems. Pulmonary status should be evaluated if respiratory protection will be used;	A thorough physical examination, with particular attention to teeth, gums, hematologic, gastrointestinal, renal, cardiovascular, and neurological systems. <u>If requested by an employee, pregnancy testing or laboratory evaluation of male fertility shall be included.</u> Pulmonary status should be evaluated if respiratory protection will be used;	In the first sentence of subsection (j)(3)(B), the requirement that the content of medical examinations made available pursuant to subsections (j)(3)(A)2. – 3. include a pregnancy test or laboratory evaluation of male fertility, if requested by an employee, would be removed. This requirement would be added to subsection (j)(3)(B)2., where it would apply to all medical examinations made available pursuant to subsection (j)(3)(A). These changes are necessary, as the requirement would apply to the required content for all medical examinations made available pursuant to subsection (j)(3)(A),

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
		and thus provide greater health protection to employees. This requirement, which evaluates the reproductive system, is appropriate to include in subsection (j)(3)(B)2., which lists the bodily systems that are to be included in a thorough physical examination.
(j)(3)(ii)(D)(3)	(j)(3)(B)4.c.	
Zinc protoporphyrin;	Zinc protoporphyrin <u>for each employee whose last blood lead level was at or above 20 µg/dl</u>;	The State proposes to amend, in subsection (j)(3)(B)4.c., the requirement for ZPP testing in that ZPP testing would be required only for those employees whose last BLL was at or above 20 µg/dl. This amendment is necessary because zinc protoporphyrin is an insensitive biomarker of lead exposures in individuals with blood lead concentrations below 25 µg/dl, and is not recommended for routine measurement (Kosnett et al., 2007).
1926.62(j)(3)(iii)(C)	(j)(3)(C)3.	
If the findings, determinations or recommendations of the second physician differ from those of the initial physician, then the employer and the employee shall assure that efforts are made for the two physicians to resolve any disagreement.	If the findings, determinations or recommendations of the second physician differ from those of the initial physician, then the employer and the employee shall ~~assure~~<u>ensure</u> that efforts are made for the two physicians to resolve any disagreement.	The State proposes here, and throughout the regulation, to replace the word “assure” with the word “ensure.” This change is proposed as the word “ensure” means to make certain or to confirm, while the word “assure” means to promise. The standard requires the employer to make certain that requirements are met. OSHA standards issued recently, including 1926.1153 (Silica), use the words “shall

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
		ensure" when referring to the employers' duties.
(j)(3)(iv)(A)(5)	(j)(3)(D)1.e.	
Prior blood lead determinations; and	Prior blood lead test results~~determinations~~; ~~and~~	The State proposes, in subsection (j)(3)(D)1.e., to replace the word "determinations" with "test results." This amendment is necessary for greater clarity and to avoid confusion with other uses of the word "determination" in this standard.
1926.62(j)(3)(iv)(A)(6)	(j)(3)(D)1.f.	
All prior written medical opinions concerning the employee in the employer's possession or control.	All prior written medical opinions concerning the employee in the employer's possession or control; and~~.~~	The State proposes to make a minor editorial change to subsection (j)(3)(D)1.f.
	(j)(3)(D)1.g.	
(There is no corresponding federal requirement.)	A copy of the written elevated blood lead level response plan for that employee as required by subsection (j)(2)(E)1.	The State proposes to add a new subsection, (j)(3)(D)1.g, which would require that employers provide to an initial physician conducting a medical examination or consultation under this section a copy of the employer's written elevated blood lead level response plan as required by subsection (j)(2)(E)1. This addition is necessary to ensure that the physician has accurate information about the means the employer will use to reduce and maintain the employee's BLL below 10 µg/dl.
	(j)(3)(E)	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
(There is no corresponding federal requirement.)	~~Written medical opinions.~~Physician's written medical report for the employee. The employer shall ensure that the physician explains to the employee the results of the medical examination and provides each employee with a written medical report within 30 days of each medical examination performed. The written report shall contain:	The State proposes to move the requirements currently located in subsection (j)(3)(E) to subsection (j)(3)(F). The State also proposes to change the heading of subsection (j)(3)(E) to "Physician's written medical report for the employee." In addition, these proposals would add new language in subsection (j)(3)(E) to establish a requirement for the employer to ensure that an explanation and written report is provided directly from the physician to the employee following a medical examination. The new language in subsection (j)(3)(E) is adapted from the medical surveillance language in the Construction Safety Orders, Section 1532.3(h)(5) (Occupational Exposures to Respirable Crystalline Silica), as well as 29 CFR 1926.1153(h)(5) (Respirable Crystalline Silica). Sections 1532.3(h)(5) and 1926.1153(h)(5) set a precedence for the employer being required to ensure that the physician communicates results and next steps to the employee directly. This amendment is necessary to ensure that employees receive information directly from the physician who performs a medical examination for them about any recommended follow-up blood lead testing and medical examinations. Thus, any gap in medical care related to lead medical surveillance that may result due to indirect

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		communication of medical information to the employee can be avoided.
	~~(j)(3)(E)1.~~	
	~~The employer shall obtain and furnish the employee with a copy of a written medical opinion from each examining or consulting physician which contains only the following information:~~	The State proposes to move the requirements currently located in subsection (j)(3)(E) to subsection (j)(3)(F).
	~~(j)(3)(E)1.a.~~	
	~~The physician's opinion as to whether the employee has any detected medical condition which would place the employee at increased risk of material impairment of the employee's health from exposure to lead;~~	The State proposes to move the requirements currently located in subsection (j)(3)(E) to subsection (j)(3)(F).
	~~(j)(3)(E)1.b.~~	
	~~Any recommended special protective measures to be provided to the employee, or limitations to be placed upon the employee's exposure to lead;~~	The State proposes to move the requirements currently located in subsection (j)(3)(E) to subsection (j)(3)(F).
	~~(j)(3)(E)1.c.~~	
	~~Any recommended limitations upon the employee's use of respirators, including a determination of whether the employee can wear a powered air purifying respirator if an physician determines that the employee~~	The State proposes to move the requirements currently located in subsection (j)(3)(E) to subsection (j)(3)(F).

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	~~cannot wear a negative pressure respirator; and~~	
	~~(j)(3)(E)1.d.~~	
	~~The results of the blood lead determinations.~~	The State proposes to move the requirements currently located in subsection (j)(3)(E) to subsection (j)(3)(F).
	~~(j)(3)(E)(2)~~	
	~~The employer shall instruct each examining and consulting physician to:~~	The State proposes to move the requirements currently located in subsection (j)(3)(E) to subsection (j)(3)(F).
	~~(j)(3)(E)2.a.~~	
	~~Not reveal either in the written opinion or orally, or in any other means of communication with the employer, findings, including laboratory results, or diagnoses unrelated to an employee's occupational exposure to lead; and~~	The State proposes to move the requirements currently located in subsection (j)(3)(E) to subsection (j)(3)(F).
	~~(j)(3)(E)2.b.~~	
	~~Advise the employee of any medical condition, occupational or nonoccupational, which dictates further medical examination or treatment.~~	The State proposes to move the requirements currently located in subsection (j)(3)(E) to subsection (j)(3)(F).
	(j)(3)(E)1.	
(There is no corresponding federal requirement.)	The physician's opinion as to whether the employee has any detected health-related	As noted above, the State proposes to change the heading of subsection (j)(3)(E) to

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	condition that would place the employee's health, including the ability to procreate a healthy child, at increased risk of material impairment from exposure to lead;	"Physician's written medical report for the employee." In addition, new language would be added in subsection (j)(3)(E) to establish a requirement for the employer to ensure that an explanation and written report is provided directly from the physician to the employee following a medical examination. See rationale in (j)(3)(E) above.
	(j)(3)(E)2.	
(There is no corresponding federal requirement.)	Any recommended special protective measures to be provided to the employee, or recommended limitations to be placed upon the employee's exposure to lead;	
	(j)(3)(E)3.	
(There is no corresponding federal requirement.)	Any recommended limitations upon the employee's use of respirators, including a determination of whether the employee should wear a powered air-purifying respirator instead of a non-powered air-purifying respirator;	
	(j)(3)(E)4.	
(There is no corresponding federal requirement.)	The employee's blood lead test results;	
	(j)(3)(E)5.	
(There is no corresponding federal requirement.)	Any recommended follow-up blood lead testing and medical examinations and the timing of each; and	

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(j)(3)(v)(B)(2)	(j)(3)(E)6.	
Advise the employee of any medical condition, occupational or nonoccupational, which dictates further medical examination or treatment.	The physician's opinion as to whether the employee has any health-related condition, occupational or non-occupational, that dictates further medical examination or treatment.	The State proposes to replace the term "medical condition" (which is used in text currently designated as subsection (j)(3)(E)1.a.) with "health-related condition." This change is necessary to avoid, by implication, calling pregnancy a "medical condition," and to make clear that an employee's reproductive health, including pregnancy, is protected as part of the employee's overall health.
(j)(3)(v)	(j)(3)(F)	
Written medical opinions.	Physician's written medical opinion for the employer.	The State proposes to move the requirements currently located in subsection (j)(3)(E) to subsection (j)(3)(F). In addition, the State proposes to amend the heading for subsection (j)(3)(F) to "Physician's written medical opinion for the employer." This change is necessary to distinguish the "physician's written medical opinion for the employer," which would be required by subsection (j)(3)(F), from the "physician's written medical report for the employee," which would be required by subsection (j)(3)(E). The requirements in revised subsection (j)(3)(F) would include the requirements

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		given in existing subsection (j)(3)(E), with a few modifications as detailed below.
(j)(3)(v)(A)	(j)(3)(F)1.	
The employer shall obtain and furnish the employee with a copy of a written medical opinion from each examining or consulting physician which contains only the following information:	The employer shall obtain a written medical opinion from the examining physician within 30 days of the medical examination. The written opinion shall contain the following information:	The State proposes to move the requirement for the employer to furnish the employee with a copy of a written medical opinion to subsection (j)(3)(F)3.
(j)(3)(v)(A)(1)	(j)(3)(F)1.a.	
The physician's opinion as to whether the employee has any detected medical condition which would place the employee at increased risk of material impairment of the employee's health from exposure to lead;	The physician's opinion as to whether the employee has any detected health-related condition that would place the employee's health, including the ability to procreate a healthy child, at increased risk of material impairment from exposure to lead;	The State proposes to modify the language redesignated as subsection (j)(3)(F)1.a. to add a requirement that each written medical report from an examining or consulting physician include an opinion as to whether an employee has any detected condition that would place the employee's ability to procreate a healthy child at risk due to exposure to lead. In addition, the word "medical" would be replaced by the term "health-related." These changes would make references to "the ability to procreate a healthy child" in language that is not gender-specific, and without using the word "pregnancy." The wording "ability to procreate a healthy child" is used in the existing language of subsection (j)(3)(A). These changes are necessary to avoid, by implication, calling pregnancy a "medical condition," and to make clear that an employee's reproductive health, including

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		pregnancy, is protected as part of the employee's overall health.
(j)(3)(v)(A)(2)	(j)(3)(F)1.b.	
Any recommended special protective measures to be provided to the employee, or limitations to be placed upon the employee's exposure to lead;	Any recommended special protective measures to be provided to the employee, or limitations to be placed upon the employee's exposure to lead;	No changes are proposed from the existing requirements of subsection (j)(3)(E)1.b.
(j)(3)(v)(A)(3)	(j)(3)(F)1.c.	
Any recommended limitation upon the employee's use of respirators, including a determination of whether the employee can wear a powered air purifying respirator if a physician determines that the employee cannot wear a negative pressure respirator; and	Any recommended limitation upon the employee's use of respirators, including a determination of whether the employee can wear a powered air-purifying respirator if the physician determines that the employee cannot wear a negative pressure respirator; and	No changes are proposed from the existing requirements of subsection (j)(3)(E)1.c.
(j)(3)(v)(A)(4)	(j)(3)(F)1.d.	
The results of the blood lead determinations.	The employee's blood lead test results.	The State proposes that in the language redesignated as subsection (j)(3)(F)1.d., the phrase "results of the blood lead determinations" would be replaced with "employee's blood lead test results." This change is necessary to clarify that the written medical opinion must include blood lead test results for the employee who had the examination. The change is also necessary to avoid confusion with other uses of the word "determination" in this standard.

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
(j)(3)(v)(B)	(j)(3)(F)2.	
The employer shall instruct each examining and consulting physician to: 1926.62(j)(3)(v)(B)(1) Not reveal either in the written opinion or orally, or in any other means of communication with the employer, findings, including laboratory results, or diagnoses unrelated to an employee's occupational exposure to lead; and	The employer shall instruct the examining physician to not reveal either in the written opinion to the employer, or in any other means of communication with the employer, findings, including laboratory results, or diagnoses unrelated to the employee's occupational exposure to lead.	No changes are proposed from the existing requirements of subsections (j)(3)(E)2. and (j)(3)(E)2.a.
(j)(3)(v)(A)	(j)(3)(F)3.	
The employer shall obtain and furnish the employee with a copy of a written medical opinion from each examining or consulting physician which contains only the following information:	The employer shall ensure that the employee receives a copy of the physician's written medical opinion described in subsection (j)(3)(F)1. within 30 days of each medical examination performed.	The State proposes to add a 30-day time limit for the employer to ensure that the employee receives a copy of the physician's written medical opinion. This addition is necessary to ensure that the employee receives the medical opinion in a timely manner. This requirement is adapted from the medical surveillance language in the Construction Safety Orders, Section 1532.3(h)(6) (Occupational Exposures to Respirable Crystalline Silica), as well as 29 CFR 1926.1153(h)(6) (Respirable Crystalline Silica).
(j)(4)(i)	(j)(4)(A)	

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The employer shall assure that any person whom he retains, employs, supervises or controls does not engage in prophylactic chelation of any employee at any time.	The employer shall ~~assure~~ensure that any person whom the employer~~he/she~~ retains, employs, supervises or controls does not engage in prophylactic chelation of any employee at any time.	The State proposes to replace the term "he/she" with "the employer." This change is necessary for greater clarity.
1926.62(j)(4)(ii)	(j)(4)(B)	
If therapeutic or diagnostic chelation is to be performed by any person in paragraph (j)(4)(i) of this section, the employer shall assure that it be done under the supervision of a licensed physician in a clinical setting with thorough and appropriate medical monitoring and that the employee is notified in writing prior to its occurrence.	If therapeutic or diagnostic chelation is to be performed by any person in subsection (j)(4)(A), the employer shall ~~assure~~ensure that it be done under the supervision of a licensed physician in a clinical setting with thorough and appropriate medical monitoring and that the employee is notified in writing prior to its occurrence.	The State proposes here, and throughout the regulation, to replace the word "assure" with the word "ensure." This change is proposed as the word "ensure" means to make certain or to confirm, while the word "assure" means to promise. The standard requires the employer to make certain that requirements are met. OSHA standards issued recently, including 1926.1153 (Silica), use the words "shall ensure" when referring to the employers' duties.
(k) Medical removal protection—	**(k) Medical removal protection.**	
(k)(1)(i)	(k)(1)(A)	
Temporary removal due to elevated blood lead level. The employer shall remove an employee from work having an exposure to lead at or above the action level on each occasion that a periodic and a follow-up blood sampling test conducted pursuant to this section indicate that the employee's blood lead level is at or above 50 ug/dl; and,	Temporary removal due to elevated blood lead level. The employer shall remove an employee from work having an exposure to lead at or above the action level, involving a trigger task as described in subsection d)(2) and an exposure assessment as required in subsection (d) has not been completed, or altering or disturbing any material containing lead at a concentration equal to or greater than 0.5% by weight, on each occasion that:	The State proposes to add the requirement that employers remove employees placed on MRP from work involving a trigger task, and from altering or disturbing any material containing lead at a concentration equal to or greater than 0.5% by weight. These additions are necessary to prevent all significant lead exposure to employees who are placed on MRP.

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
(k)(1)(i)	(k)(1)(A)1.	
Temporary removal due to elevated blood lead level. The employer shall remove an employee from work having an exposure to lead at or above the action level on each occasion that a periodic and a follow-up blood sampling test conducted pursuant to this section indicate that the employee's blood lead level is at or above 50 ug/dl; and,	The last ~~a periodic and a follow-up~~ blood lead~~sampling~~ test ~~conducted pursuant to this section~~ indicates that the employee's blood lead level is at or above 30~~50~~ µg/dl;	The State proposes to lower the BLL at which an employee shall be removed from work with lead, from 50 µg/dl to 30 µg/dl. This change is necessary to provide added health protection to employees whose BLLs are elevated, such that they are at risk of experiencing or developing adverse health effects as the result of their exposure to lead, and are based on the recommendations of Kosnett et al. (2007). The State also proposes to remove existing language that requires a second, confirmatory blood lead test to be conducted whenever an employee's BLL exceeds the criterion for medical removal protection, before the employee is removed from on-going lead exposure. This change is necessary to provide greater protection of employee health. It is more protective of an employee's health to not be required to wait for confirmatory results from a mandated follow-up blood lead test before removing an employee from exposure to lead. This change is facilitated by the increased reliability of blood lead testing and analysis since the time the regulation was promulgated in 1993.
	(k)(1)(A)2.	

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(There is no corresponding federal regulation.)	Effective [OAL insert 1 year from effective date here], the last two blood lead test results are at or above 20 µg/dl; or~~and,~~	The State proposes to establish the requirement that an employee be removed from work with lead when their last two BLLs are at or above 20 µg/dl. This change is necessary to provide added health protection to employees whose BLLs are elevated, such that they are at risk of experiencing or developing adverse health effects as the result of their exposure to lead, and are based on the recommendations of Kosnett et al. (2007).
	(k)(1)(A)3.	
(There is no corresponding federal regulation.)	Effective [OAL insert 1 year from effective date here], the average of the results of all blood lead tests conducted in the last 6 months is at or above 20 µg/dl.	The State proposes to establish the requirement that an employee be removed from work with lead when the average of all of their BLLs in the prior six months is at or above 20 µg/dl. This change is necessary to provide added health protection to employees whose BLLs are elevated, such that they are at risk of experiencing or developing adverse health effects as the result of their exposure to lead, and are based on the recommendations of Kosnett et al. (2007).
(k)(1)(ii)(A)	(k)(1)(B)1.	
The employer shall remove an employee from work having an exposure to lead at or above the action	The employer shall remove an employee from work having an exposure to lead at or above the action level, involving a trigger	The State proposes to add the requirement that employers remove employees placed on MRP from work involving a trigger task, and

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
level on each occasion that a final medical determination results in a medical finding, determination, or opinion that the employee has a detected medical condition which places the employee at increased risk of material impairment to health from exposure to lead.	task as described in subsection (d)(2) and an exposure assessment as required in subsection (d) has not been completed, or altering or disturbing any material containing lead at a concentration equal to or greater than 0.5% by weight, on each occasion that a final medical determination results in a medical finding, determination, or opinion that the employee has a detected health-relatedmedical condition which places the employee's health, including the ability to procreate a healthy child, at increased risk of material impairment to health from exposure to lead.	from altering or disturbing any material containing lead at a concentration equal to or greater than 0.5% by weight. These additions are necessary to prevent all significant lead exposure to employees who are placed on MRP. The State also proposes to modify the language in subsection (k)(1)(B)1. to expand the conditions under which employers would be required to remove an employee from work with lead, to include each occasion that a final medical determination results in a medical finding, determination, or opinion that such an employee has a detected condition that would place the employee's ability to procreate a healthy child at risk due to exposure to lead. In addition, the word "medical" would be replaced by the term "health-related." These changes would make references to "the ability to procreate a health child" in language that is not gender-specific, and without using the word "pregnancy." The wording "ability to procreate a healthy child" is used in the existing language of subsection (j)(3)(A). These changes are necessary to avoid, by implication, calling pregnancy a "medical condition," and to make clear that an employee's reproductive health, including pregnancy, is protected as part of the employee's overall health.

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
1926.62(k)(1)(iii)(A)(1)	(k)(1)(C)1.a.	
(A) The employer shall return an employee to his or her former job status: (1) For an employee removed due to a blood lead level at or above 50 [mu]g/dl when two consecutive blood sampling tests indicate that the employee's blood lead level is below 40 µg/dl;	1. The employer shall return an employee to his or her former job status: a. For an employee removed under the provisions of subsection (k)(1)(A), ~~due to a blood lead level at or above 50µg/dl~~ when two consecutive blood lead ~~sampling~~ tests, taken at least 30 days apart, both indicate that the employee's blood lead level is below 15 ~~40~~µg/dl; and	The State proposes to lower the BLL that must be achieved for an employer to return an employee to his or her former job status, from below 40 µg/dl to below 15 µg/dl. This change is necessary to provide added protection to employees who have elevated BLLs by preventing additional exposure to lead until their BLLs decline to significantly below the level at which MRP is required. The State also proposes to add language requiring that when an employee has been medically removed from exposure to lead, the employer shall return an employee to his or her former job status when two consecutive tests, taken at least 30 days apart, both indicate that the employee's BLL is below 15 µg/dl. This change is necessary to ensure that a decline in an employee's BLL is persistent over a 30 day period rather than being a short-lived condition.
(k)(1)(iii)(A)(2)	(k)(1)(C)1.b.	
For an employee removed due to a final medical determination, when a subsequent final medical determination results in a medical finding, determination, or opinion that the employee no longer has a detected	For an employee removed due to a final medical determination, when a subsequent final medical determination results in a medical finding, determination, or opinion that the employee no longer has a detected health-related ~~medical~~ condition which	The State proposes to add language requiring that when an employee is removed from work with lead due to a final medical determination, the employee's return to his or her former job status would be dependent on a subsequent final medical determination

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
medical condition which places the employee at increased risk of material impairment to health from exposure to lead.	places the employee's health, including the ability to procreate a healthy child, at increased risk of material impairment ~~to health~~ from exposure to lead.	that the employee no longer has a detected condition that would place the employee's ability to procreate a healthy child at risk due to exposure to lead. In addition, the word "medical" would be replaced by the term "health-related." These changes would make references to "the ability to procreate a health child" in language that is not gender-specific, and without using the word "pregnancy." The wording "ability to procreate a healthy child" is used in the existing language of subsection (j)(3)(A). These changes are necessary to avoid, by implication, calling pregnancy a "medical condition," and to make clear that an employee's reproductive health, including pregnancy, is protected as part of the employee's overall health.
(k)(1)(v)	(k)(1)(E)	
Employer options pending a final medical determination. Where the multiple physician review mechanism, or alternate medical determination mechanism used pursuant to the medical surveillance provisions of this section, has not yet resulted in a final medical determination with respect to an employee, the employer shall act as follows:	Employer options pending a final medical determination. Where the multiple physician review mechanism, or alternate physician~~medical~~ determination mechanism used pursuant to the medical surveillance provisions of this section, has not yet resulted in a final medical determination with respect to an employee, the employer shall act as follows:	The State proposes to replace the term "alternate medical determination mechanism" with "alternate physician determination mechanism." This change is necessary to provide consistency with existing language proposed for redesignation as subsection (j)(3)(G).
(k)(1)(v)(B)	(k)(1)(E)2.	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
Return. The employer may return the employee to his or her former job status, end any special protective measures provided to the employee, and remove any limitations placed upon the employee, consistent with the medical findings, determinations, or recommendations of any of the physicians who have reviewed the employee's health status, with two exceptions. (k)(1)(v)(B)(1) If the initial removal, special protection, or limitation of the employee resulted from a final medical determination which differed from the findings, determinations, or recommendations of the initial physician or; (k)(1)(v)(B)(2) If the employee has been on removal status for the preceding eighteen months due to an elevated blood lead level, then the employer shall await a final medical determination.	Return. The employer may return the employee to his or her former job status, end any special protective measures provided to the employee, and remove any limitations placed upon the employee, consistent with the medical findings, determinations, or recommendations of any of the physicians who have reviewed the employee's health status.~~, with two exceptions. If:~~ EXCEPTION 1:~~a.~~ If the initial removal, special protection, or limitation of the employee resulted from a final medical determination which differed from the findings, determinations, or recommendations of the initial physician.~~ or;~~ EXCEPTION 2:~~b.~~ If the employee has been on removal status for the preceding eighteen months due to an elevated blood lead level, then the employer shall await a final medical determination.	These proposals would modify the language in subsection (k)(1)(E)2. such that the two exceptions given, currently designated as a. and b., would be listed as Exception 1 and Exception 2. This change is necessary to correct a grammatical error in the existing language.
(k)(2)(vi)	(k)(2)(F)	
Voluntary removal or restriction of an employee. Where an employer, although not required by this section to do so, removes an employee from exposure to lead or otherwise places limitations on an employee due to the effects of lead exposure on the	Voluntary removal or restriction of an employee. Where an employer, although not required by this section to do so, removes an employee from exposure to lead or otherwise places limitations on an employee due to the effects of lead exposure on the	The State proposes to replace the term “medical” with “health-related.” This change is necessary for consistency with the language proposed for other subsections, including subsection (k)(1)(B)1.

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
employee's medical condition, the employer shall provide medical removal protection benefits to the employee equal to that required by paragraph (k)(2)(i) and (ii) of this section.	employee's ~~medical~~health-related condition, the employer shall provide medical removal protection benefits to the employee equal to ~~that~~those required by subsection (k)(2)(A) and (B).	
(l) Communication of hazards	**(*l*) Communication of hazards.**	
	(*l*)(1)(A)1.	
(There is no corresponding federal requirement.)	Cardiovascular effects;	The State proposes to add to subsection (*l*)(1)(A) the requirement that, in addressing the hazards of lead under Section 5194, cardiovascular health effects be included. This addition is necessary as it is now known that cardiovascular effects, including hypertension, are one of the health effects that can develop from exposure to even low levels of lead.
(l)(1)(ii)	(*l*)(1)(B)	
The employer shall train each employee who is subject to exposure to lead at or above the action level on any day, or who is subject to exposure to lead compounds which may cause skin or eye irritation (e.g., lead arsenate, lead azide), in accordance with the requirements of this section. The employer shall institute a training program and ensure employee participation in the program.	~~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), t~~The employer shall provide a training program in accordance with subsection (*l*)(2) and ~~assure~~ensure employee participation~~.~~:	The State proposes to reformat subsection (*l*)(1)(B) and add three new subsections, (*l*)(1)(B)1., 2. and 3.

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
(There is no corresponding federal requirement.)	1. For employees who are exposed to lead at or above the action level on any day; 2. For employees who are exposed to lead that may cause skin or eye irritation (e.g. lead arsenate, lead azide); or 3. As interim protection, for employees who perform trigger tasks described in subsection (d)(2).	Existing training requirements would be moved into subsections (*l*)(1)(B)1. – 2. The State also proposes a new subsection (*l*)(1)(B)3. which would require, as interim protection, training for employees who perform trigger tasks. This addition is necessary so that employees, whose exposure is presumed to be above the PEL, and therefore above the action level threshold designated in subsection (*l*)(1)(B)1., but not yet determined through an employee exposure assessment, receive training about the hazards of working with and being exposed to lead.
	(*l*)(1)(C)	
(There is no corresponding federal requirement.)	The employer shall ensure that the training, and any training materials used, are appropriate to the educational level, literacy level, and language of employees. ~~The employer shall provide the training program as initial training prior to the time of job assignment or prior to the start up date for this requirement, whichever comes last.~~	The State proposes to add a new requirement under subsection (*l*)(1)(C) to require that employers ensure that training and training materials are appropriate to the educational level, literacy level, and language of employees. This addition is necessary for added protection to employees by ensuring that they understand the information in the training that is provided to them, and is consistent with language used in other

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
		sections, including Section 5199. Aerosol Transmissible Diseases. In addition, the State proposes moving a requirement in subsection (*l*)(1)(C) requiring employers to provide training prior to the time of job assignment to subsection (*l*)(1)(D).
(l)(1)(iii) and (l)(1)(iv)	(*l*)(1)(D)	
The employer shall provide the training program as initial training prior to the time of job assignment or prior to the start up date for this requirement, whichever comes last. The employer shall also provide the training program at least annually for each employee who is subject to lead exposure at or above the action level on any day.	~~The employer shall also provide the training program at least annually for each employee who is subject to lead exposure at or above the action level on any day.~~ For each employee covered by subsection (*l*)(1)(B), the employer shall provide initial training covering all content in subsection (*l*)(2) prior to the time of initial job assignment, and at least annually thereafter.	The State proposes that, in subsection (*l*)(1)(D), language be added to clarify which employees the training requirements would apply to, as well as the required content of the training. Also, existing language requiring training to be provided at least annually would be rephrased. These changes are necessary for greater clarity, and to reflect the addition proposed in subsection (*l*)(1)(B)3., described above.
	(*l*)(1)(E)	
(There is no corresponding federal requirement.)	Where the certification of employee and supervisor training is required, as described in subsection (*l*)(3), the training shall be conducted by a training provider accredited by the California Department of Public Health ~~Services~~, in accordance with Title 17, California Code of Regulations, Division 1, Chapter 8.	The State proposes that a reference to the California Department of Health Services be changed to the California Department of Public Health. This change is necessary as the name for that department has changed.
(*l*)(2)	(*l*)(2)	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
Training program. The employer shall assure that each employee is trained in the following:	Training program. The employer shall ~~assure~~ensure that effective training on the following topics is provided for each employee covered by subsection (*l*)(1)(B)~~is trained in the following~~:	The State proposes to modify the requirements of subsection (*l*)(2) by adding language to require effective training. This addition is necessary to provide added protection to employees by ensuring that training provided to them fulfills its purpose. Also, the State proposes to add a reference to subsection (*l*)(1)(B). This addition is necessary to clarify that subsection (*l*)(1)(B) specifies which employees are covered by the training requirements.
(*l*)(2)(ii)	(*l*)(2)(B)	
The specific nature of the operations which could result in exposure to lead above the action level;	The specific nature of the operations which could result in exposure to lead at or above the action level;	The State proposes the words “at or” be inserted before “above the action level.” This change is required to correctly reflect the threshold for the relevant requirements of this section, i.e. exposures at or above the action level.
	(*l*)(2)(C)	
(There is no corresponding federal requirement.)	The importance of effective hygiene practices, including hand washing, and when required, showering, and how to effectively remove lead contamination from skin surfaces with the proper use of special cleansing compounds designed specifically for this purpose, in accordance with section 1527(a)(2);	The State proposes that new language be added, to require that training includes information on the importance of hygiene and how to remove lead contamination from skin. This addition is necessary because proper hygiene is required to prevent significant exposures to lead that can occur through

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
		ingestion via lead contamination on the hands and skin.
(*l*)(2)(iv)	(*l*)(2)(F)	
The purpose and a description of the medical surveillance program, and the medical removal protection program 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);	~~including information concerning t~~The ~~adverse~~ health effects of ~~associated with excessive~~ exposure to lead (with particular attention to ~~the adverse reproductive~~ cardiovascular effects ~~on both males and females and hazards to the fetus and additional precautions for employees who are pregnant~~), including low-level chronic exposure;	The State proposes that information on the cardiovascular health effects of exposure to lead, as well as information on low-level chronic exposure to lead, be added to the required training topics. Also, a reference to "excessive" exposure to lead would be removed. These additions are necessary to ensure that employees receive important information on health effects, including cardiovascular effects, which can occur at even low levels of lead exposure.
(*l*)(2)(iv)	(*l*)(2)(G)	
The purpose and a description of the medical surveillance program, and the medical removal protection program 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);	The damage to both male and female reproductive health caused by low-level lead exposure, including damage associated with blood lead levels under 5 µg/dl;	The State proposes that language be added to require that training on damage to both male and female reproductive health includes information that this health damage can be caused by low-level lead exposure, including damage associated with BLLs under 5 µg/dl. These additions are necessary to ensure that employees receive important information that reproductive health effects can occur at even low levels of lead exposure.
	(*l*)(2)(H)	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
(There is no corresponding federal requirement.)	The employer's duty, as required by subsection (j)(3)(A), to make medical examinations and consultations available to each employee who notifies the employer that they desire medical advice concerning their ability to procreate a healthy child, when the employee is exposed at or above the action level, and as interim protection, to an employee who performs trigger tasks, unless the employee's exposure or work is covered by the exceptions in subsection (j)(1)(B);	The State proposes that in new subsection (*l*)(2)(H), new language would be added to require that training includes information on the employer's duty to provide medical examinations and consultations upon request to specified employees who desire medical advice about their ability to procreate a healthy child. This addition is necessary to ensure that employees receive information on their rights to medical examinations and consultations when they notify their employer that they desire medical advice concerning their ability to have a healthy child. This may result in more employees with lead exposure having examinations and consultations, thus preventing adverse reproductive health outcomes.
	(*l*)(2)(I)	
(There is no corresponding federal requirement.)	The routes of exposure to lead, including inhalation of airborne lead and ingestion of lead from contaminated hands and other surfaces;	The State proposes that new language be added, to require that training includes information on the routes of exposure to lead. This addition is necessary to ensure that employees are informed that lead exposure can result from lead in the air they breathe, as well as from lead that they ingest from contaminated hands or other surfaces. Better informed employees will be more likely to use required respiratory protection, and

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
		follow hygiene procedures, such as hand washing, thus limiting their exposure to lead.
	(*l*)(2)(J)	
(There is no corresponding federal requirement.)	The possibility that lead contamination brought into personal vehicles or the home on an employee's clothes, shoes, and body will endanger the health of household members, especially that of young children and pregnant women;	The State proposes that new language be added to require that training includes information on the harm to household members that can be caused by lead contamination on an employee's clothing, shoes and body, as well as in their vehicles. These additions are necessary to ensure that employees are informed that lead can be transported on their contaminated clothes, shoes and body, and cause harm to their household members, especially to young children and pregnant women. Better informed employees will be more likely to follow proper procedures regarding contaminated personal protective equipment (PPE) and clothing, and hygiene, including showering.
	(*l*)(2)(K)	
(There is no corresponding federal requirement.)	The recommendation to shower immediately upon returning home from work to minimize take-home lead exposure; NOTE: When employees are exposed above the PEL, or perform level 3 trigger tasks listed in subsection (d)(2)(D), the employer must provide shower facilities and ensure that employees shower at the end of the	The State proposes that new language be added to require that training includes the recommendation to shower to minimize take-home lead exposure. In addition, a note would be added, clarifying the conditions under which an employer must provide shower facilities and ensure their use. These additions are necessary to ensure that employees are informed that showering immediately upon returning home from work

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	work shift, in accordance with subsection (i)(3).	is recommended. Better informed employees will be more likely to shower, thus reducing lead exposure to employees and their household members.
1926.62(l)(2)(v)	(*l*)(2)(L~~E~~)	
The engineering controls and work practices associated with the employee's job assignment including training of employees to follow relevant good work practices described in appendix B of this section;	The engineering controls and work practices associated with the employee's job assignment, and ~~including~~ training in~~of employees to~~ following applicable ~~relevant good~~ work practices described in Appendix B of this section;	The State proposes to redesignate subsection *(l)*(2)(E) to *(l)*(2)(L). In proposed subsection (*l*)(2)(L), minor wording changes would be made. These changes are necessary because new requirements have been added, and to increase clarity of the existing requirements.
1926.62(l)(2)(vii)	(*l*)(2)(N~~G~~)	
Instructions to employees that chelating agents should not routinely be used to remove lead from their bodies and should not be used at all except under the direction of a licensed physician; and	Instructions ~~to employees~~ that chelating agents should not routinely be used to remove lead from ~~their bodies~~the body and should not be used at all except under the direction of a licensed physician; and	The State proposes to redesignate subsection *(l)*(2)(G) to *(l)*(2)(N). In proposed subsections (*l*)(2)(N), minor wording changes would be made. These changes are necessary because new requirements have been added, and to increase clarity of the existing requirements.
(l)(2)(viii)	(*l*)(2)(O)	
The employee's right of access to records under 29 CFR 1910.20.	The employee's right of access to their exposure and medical records under section 3204.	The State proposes the words “their exposure and medical” would be added before the word “records.”

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
		This addition is necessary for greater clarity of the requirement.
	(*l*)(3)	
(There is no corresponding federal requirement.)	Certification of training for residential and public buildings. The employer shall ensure that all employees and supervisors who are engaged in lead-related construction work as defined in Title 17, California Code of Regulations, s~~S~~ection 35040, and have been shown to be exposed to lead at or above ~~the permissible exposure limit~~50 µg/m^3 as an 8-hour TWA, meet the training requirements of this section, are trained by an accredited training provider and are certified by the California Department of Public Health (CDPH)~~Services~~. Lead-related construction work is defined in Title 17 to be any construction, alteration, painting, demolition, salvage, renovation, repair, or maintenance of any residential or public building, including preparation and cleanup, that, by using or disturbing lead containing material or soil, may result in significant exposure of adults or children to lead. As used in the definition of lead-related construction work, “public building” means a structure which is generally accessible to the public, including but not limited to, schools, daycare centers, museums, airports, hospitals, stores, convention	The State proposes to replace the term “the permissible exposure limit” with “50 µg/m^3 as an 8-hour TWA.” This change is necessary so the proposed training and certification requirements would remain consistent with the current requirements. The State also proposes that a reference to the California Department of Health Services would be changed to the California Department of Public Health (CDPH). This change is necessary as the name for this department has changed.

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	centers, government facilities, office buildings and any other building which is not an industrial building or a residential building. Regulations for accreditation of training providers and for the certification of employees and supervisors are found in Title 17, California Code of Regulations, Division 1, Chapter 8.	
(m) Signs—	**(m) Signs.**	
(m)(1)(i)	(m)(1)(A)	
The employer shall post the following warning signs in each work area where an employee's exposure to lead is above the PEL. DANGER LEAD WORK AREA MAY DAMAGE FERTILITY OR THE UNBORN CHILD CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM DO NOT EAT, DRINK OR SMOKE IN THIS AREA	The employer shall post the following warning signs in each regulated area, and in each ~~or~~ work area where an employee's exposure to lead is at or above the action level~~PEL.~~: DANGER LEAD WORK AREA MAY DAMAGE FERTILITY OR THE UNBORN CHILD CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM DO NOT EAT, DRINK OR SMOKE IN THIS AREA	The State proposes to lower the level of airborne exposure where employers are required to post warning signs, from work areas where the PEL is exceeded to work areas where exposures are at or above the action level. This change is necessary to support the overall goal of maintaining employee BLLs below 10 µg/dl. Significant exposure to airborne lead can occur when airborne levels are at or above the action level. In addition, these areas could have significant levels of lead contamination on surfaces.
(m)(1)(v)	(m)(1)(E)	
Prior to June 1, 2016, employers may use the following legend in lieu of that specified in paragraph (m)(1)(i) of this section: WARNING	~~Prior to June 1, 2016, employers may use the following legend in lieu of that specified in subsection (m)(1)(A) of this section:~~ ~~WARNING~~	The State proposes to remove subsection (m)(1)(E). This change is necessary as its requirements only applied prior to June 1, 2016.

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
LEAD WORK AREA POISON NO SMOKING OR EATING	~~LEAD WORK AREA~~ ~~POISON~~ ~~NO SMOKING OR EATING~~	
(n) Recordkeeping—	**(n) Recordkeeping.**	
(n)(1)(ii)(D)	(n)(1)(B)4.	
Name and job classification of the employee monitored and of all other employees whose exposure the measurement is intended to represent; and	The ~~N~~name, another unique identifier (such as date of birth or employee identification number~~social security number~~), and job classification of the employee monitored and of all other employees whose exposure the measurement is intended to represent; and	The State proposes to require a unique identifier (such as date of birth or employee identification number) to be used in lieu of a social security number (SSN) to identify employees in records of exposure monitoring. This change is necessary to comply with a Cal/OSHA directive to remove from its regulations all requirements to include employee SSNs on exposure monitoring, medical surveillance, or other records, in order to facilitate employers' efforts to safeguard employee privacy. This directive is in response to federal OSHA's Standards Improvement Project proposal to remove requirements for including employee SSNs in its regulations.
(n)(1)(ii)(E)	(n)(1)(B)5.	
The environmental variables that could affect the measurement of employee exposure.	The work operations performed by the monitored employees and the workplace conditions under which they were performed, including the processes, types of material, control methods, and work practices used, as well as the environmental	The State proposes to require that information be recorded about the work operations conducted by individuals who are monitored and the conditions prevailing in employers' operations.

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	conditions prevailing during the monitored operations ~~environmental variables that could affect the measurement of employee exposure~~.	This change is necessary to ensure that sufficient information is recorded to demonstrate the applicability of exposure data to satisfy the requirements of subsections (d)(3), (d)(4), (d)(5), and (d)(6).
	(n)(2)	
(There is no corresponding requirement in the federal regulation).	Written compliance program review. Records of the semi-annual revision and update of the employer's written compliance program, required under subsection (e)(2)(A), shall include the name of the person(s) who reviewed the program, the date the review was completed, and a summary of the revisions and updates to the program. The records shall be retained for three years.	The State proposes to add a new heading, "Written compliance program review." In addition, new language would be added to this subsection, to require that records of revisions and updates to the employer's written compliance program be retained for three years. These additions are necessary to ensure that records of revisions and updates to the written compliance programs required by subsection (e)(2)(E) are retained and thus available to serve as documentation of the current status of the employer's lead compliance program as it evolves over time.
(n)(2)(ii)(A)	(n)(~~2~~3)(B)1.	
The name and description of the duties of the employee;	The name, another unique identifier (such as date of birth or employee identification number~~social security number~~), and description of the duties of the employee;	The State proposes to require a unique identifier (such as date of birth or employee identification number) to be used in lieu of a SSN to identify employees in records of medical surveillance. This change is necessary to comply with a Cal/OSHA directive regarding SSNs (see subsection (n)(1)(B)4. above).

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
1926.62(n)(2)(iii)	(n)(~~2~~3)(C)	
The employer shall keep, or assure that the examining physician keeps, the following medical records:	The employer shall keep, or ~~assure~~ensure that the examining physician keeps, the following medical records:	The State proposes here, and throughout the regulation, to replace the word “assure” with the word “ensure.” This change is proposed as the word “ensure” means to make certain or to confirm, while the word “assure” means to promise. The standard requires the employer to make certain that requirements are met. OSHA standards issued recently, including 1926.1153 (Silica), use the words “shall ensure” when referring to the employers’ duties.
(n)(2)(iii)(C)	(n)(~~2~~3)(C)3.	
A copy of the results of biological monitoring.	A copy of the results of blood lead testing~~biological monitoring~~.	The State proposes to replace the phrase “biological monitoring” with “blood lead testing.” This change is necessary as the requirement to conduct routine ZPP testing would be removed (see discussion of ZPP in subsection (j)(1)(A) above). Thus “blood lead testing” more accurately describes the record which must be kept pursuant to this subsection.
1926.62(n)(2)(iv)	(n)(~~2~~3)(D)	
The employer shall maintain or assure that the physician maintains medical records in accordance with the provisions of 29 CFR 1910.33.	The employer shall maintain or ~~assure~~ensure that the physician maintains medical records in accordance with the provisions of section 3204.	The State proposes here, and throughout the regulation, to replace the word “assure” with the word “ensure.”

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
		This change is proposed as the word "ensure" means to make certain or to confirm, while the word "assure" means to promise. The standard requires the employer to make certain that requirements are met. OSHA standards issued recently, including 1926.1153 (Silica), use the words "shall ensure" when referring to the employers' duties.
	(n)(4)	
(There is no corresponding requirement in the federal regulation).	Written elevated blood lead level response plans. Written elevated blood lead level response plans, required under subsection (j)(2)(E), shall be retained for three years.	The State proposes to replace existing language with entirely new language in subsection (n)(4). It would be given the new heading "Written elevated blood lead level response plans." The new language in this subsection would require that these plans be retained for three years. This addition is necessary to ensure that written elevated BLL response plans are retained. The plans would then be available for review, so that implementation of the means of reducing and maintaining an employee's blood lead level below 10 µg/dl could be evaluated over time.
(n)(3)(ii)(A)	(n)(~~3~~5)(B)1.	
The name of the employee;	The name and another unique identifier (such as date of birth or employee identification number ~~social security number~~) of the employee;	The State proposes to require a unique identifier (such as date of birth or employee identification number) to be used in lieu of a SSN to identify employees in records of medical removals.

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
		This change is necessary to comply with a Cal/OSHA directive regarding SSNs (see subsection (n)(1)(B)4. above).
	(n)(6)	
(There is no corresponding requirement in the federal regulation).	Training. (A) After conducting any training required by this section, the employer shall prepare a record that indicates the name and job classification of each employee trained, the date of the training, the name of the person(s) who conducted the training, and the topic(s) of the training. (B) Training records shall be maintained for three years.	The State proposes to add, in proposed subsection (n)(6), a new heading, "Training." In addition, new language in this subsection would specify the information required in training records, and require that the records be maintained for three years. This addition is necessary to demonstrate that employees have received the initial, annual, or supplemental training (provided in accordance with subsection (j)(2)(E)) required by this section.
1926.62(o)(2)(i)	(o)(2)(A)	
Whenever observation of the monitoring of employee exposure to lead requires entry into an area where the use of respirators, protective clothing or equipment is required, the employer shall provide the observer with and assure the use of such respirators, clothing and equipment, and shall require the observer to comply with all other applicable safety and health procedures.	Whenever observation of the monitoring of employee exposure to lead requires entry into an area where the use of respirators, protective clothing or equipment is required, the employer shall provide the observer with and ~~assure~~ensure the use of such respirators, clothing and equipment, and shall require the observer to comply with all other applicable safety and health procedures.	The State proposes here, and throughout the regulation, to replace the word "assure" with the word "ensure." This change is proposed as the word "ensure" means to make certain or to confirm, while the word "assure" means to promise. The standard requires the employer to make certain that requirements are met. OSHA standards issued recently, including 1926.1153 (Silica), use the words "shall ensure" when referring to the employers' duties.
Appendices A, B, C and D	**Appendices A, B, C and D**	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
		There are four appendices to Section 1532.1: A, B, C and D. Per Section 1532.1(q) Appendices: "The information contained in the appendices to this section is not intended by itself, to create any additional obligations not otherwise imposed by this standard nor detract from any existing obligation." This statement is also found in 29 CFR 1926.62(p) Appendices. The State proposes to make numerous changes to the appendices. A brief description of these changes is given below. Because the appendices are purely informational, and do not by themselves create any additional obligations not otherwise imposed by Section 1532.1 nor detract from any existing obligation, individual changes proposed for the appendices, and a rationale for each, are not included in this Standards Comparison.
Appendix A	Appendix A to §Section 1532.1 – Substance Data Sheet for Occupational Exposure to Lead	
	This appendix is a substance data sheet for occupational exposure to lead in construction. It includes information about how exposure to lead can affect your health. I. Substance Identification A. Substance: Pure lead (Pb) is a heavy	The State proposes to modify the language in Appendix A – Substance Data Sheet for Occupational Exposure to Lead to reflect current knowledge about the adverse health effects of exposure to lead, as well as changes that are proposed for Section 1532.1.

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	metal at room temperature and pressure and is a basic chemical element. It can combine with various other substances to form numerous lead compounds. B. Compounds covered by the standard: The word “lead” when used in this standard means elemental lead, all inorganic lead compounds and a class of organic lead compounds called lead soaps. This standard does not apply to other organic lead compounds. C. Uses: Exposure to lead occurs in several different occupations in the construction industry, including demolition or salvage of structures where lead or lead-containing materials are present; removal or encapsulation of lead-containing materials~~,~~; new construction, alteration, repair, or renovation of structures that contain lead or materials containing lead; and installation of products containing lead. In addition, there are construction~~-~~-related activities where exposure to lead may occur, including transportation, disposal, storage, or containment of lead or materials containing lead on construction sites, and maintenance operations associated with construction activities. D. Permissible exposure: The permissible exposure limit (PEL) set by the standard is ~~50~~10 micrograms of lead per cubic meter of air (~~50~~10 µg/m^3) ~~averaged over~~calculated as	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	an 8-hour ~~workday~~time-weighted average (TWA). As an exception, until [OAL insert five years from effective date here], no employee conducting abrasive blasting shall be exposed to lead at concentrations greater than 25 µg/m^3, calculated as an 8-hour TWA. E. Action level: The standard establishes an action level of ~~30~~2 micrograms of lead per cubic meter of air (~~30~~2 µg/m^3) ~~averaged over~~calculated as an 8-hour ~~workday~~TWA. The action level refers to employee exposure, without regard to the use of respirators. The action level triggers several ~~ancillary~~additional provisions of the standard such as exposure monitoring, medical surveillance, ~~and~~ training, and signs. II. Health Hazard Data A. Ways in which lead enters your body. When absorbed into your body ~~in certain doses~~, lead is a toxic substance. The object of the lead standard is to prevent absorption of harmful quantities of lead. The standard is intended to protect you not only from the immediate toxic effects of lead, but also from the serious toxic effects that may not become apparent until years of exposure have passed. Lead can be absorbed into your body by inhalation (breathing) and ingestion (eating). Lead (except for certain	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	organic lead compounds not covered by the standard, such as tetraethyl lead) is not significantly absorbed through your skin. When lead is scattered in the air as a dust, fume or mist it can be inhaled and absorbed through your lungs and upper respiratory tract. Inhalation of airborne lead is generally the most important source of occupational lead absorption. You can also absorb lead through your digestive system if lead gets into your mouth and is swallowed. If you handle food, beverages, cigarettes, chewing tobacco, or make-up which have lead on them or handle them with hands contaminated with lead, this will contribute to ingestion. A significant portion of the lead that you inhale or ingest gets into your blood stream. Once in your blood-stream, lead is circulated throughout your body and stored in various organs and body tissues. Some of this lead is quickly filtered out of your body and excreted, but some remains in the blood and other tissues. As exposure to lead continues, the amount stored in your body will increase if you are absorbing more lead than your body is excreting. Even though you may not be aware of any immediate symptoms of disease, this lead stored in your tissues can be slowly causing irreversible damage, first to individual cells, then to your organs and whole body systems. B. Effects of overexposure to lead.	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	(1) Short-~~-~~term (acute) overexposure. Lead is a potent, systemic poison that serves no known useful function once absorbed by your body. Taken in large enough doses, lead can kill you in a matter of days. A condition affecting the brain called acute encephalopathy may arise which develops quickly to seizures, coma, and death from cardio~~respiratory~~pulmonary arrest. A very high, short-~~-~~term dose of lead can lead to acute encephalopathy. Short-~~-~~term occupational exposures of this magnitude are highly unusual, but not impossible. Similar forms of encephalopathy may, however, arise from extended, chronic exposure to lower doses of lead. The most severe, often fatal, form of encephalopathy may be preceded by vomiting, a feeling of dullness progressing to drowsiness and stupor, poor memory, restlessness, irritability, tremor, and convulsions. There is no sharp dividing line between rapidly developing acute effects of lead, and chronic effects which take longer to ~~acquire~~develop. Lead adversely affects numerous body systems, and causes forms of health impairment and disease which arise after periods of exposure as short as days or as long as several years. For example, short-term reproductive effects may include miscarriage and reduced birth weight of children exposed to lead during pregnancy. Both high and lower level lead exposures have been associated with these	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	outcomes. Sperm abnormalities may develop at relatively high blood lead levels (at or above 20 micrograms of lead per deciliter of whole blood (µg/dl)). (2) Long-term (chronic) overexposure. Chronic overexposure to lead may result in severe damage to your cardiovascular, blood-forming, nervous, urinary and reproductive systems. Damage to multiple organs may occur at blood lead levels previously thought to be without recognized harm. At higher lead levels, Ssome ~~common~~ symptoms of chronic overexposure include loss of appetite, metallic taste in the mouth, anxiety, constipation, nausea, pallor, excessive tiredness, weakness, insomnia, headache, nervous irritability, muscle and joint pain or soreness, fine tremors, numbness, dizziness, hyperactivity and lead colic. In lead colic there may be severe abdominal pain. Some people may not experience any symptoms even though lead is causing toxic effects in their bodies. It is important to note that permanent damage may occur even in the absence of symptoms. *Cardiovascular system (heart and blood circulation).* Long-term, low dose lead exposures may result in high blood pressure. Since high blood pressure is a significant risk factor for heart disease, stroke, and kidney (renal) disease, lead exposure may exert an important influence	

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	on death related to the effects on the heart, brain, and kidneys. *Neurologic system (brain and nervous system)*. Nervous system dysfunction, including declines in brain (cognitive) function and slowing of nerve conduction velocity, may occur at long-term, low blood lead levels. High-dose exposures may ~~Damage~~damage ~~to~~ the central nervous system in general and the brain (encephalopathy) in particular ~~is~~in one of the most severe forms of lead poisoning. ~~The most severe, often fatal, form of encephalopathy may be preceded by vomiting, a feeling of dullness progressing to drowsiness and stupor, poor memory, restlessness, irritability, tremor, and convulsions. It may arise suddenly with the onset of seizures, followed by coma, and death.~~ There is a tendency for muscular weakness to develop at the same time. This weakness may progress to paralysis often observed as a characteristic “wrist drop” or “foot drop” and is a manifestation of a disease to the nervous system called peripheral neuropathy. *Renal system (kidneys).* ~~Chronic overexposure to lead also results in kidney disease with few, if any, symptoms appearing until extensive and most likely permanent kidney damage has occurred~~ Decreases in kidney function can start at	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	low levels of exposure to lead. With higher levels of lead exposure, kidney disease may progress with few, if any, symptoms appearing until extensive and most likely permanent kidney damage has occurred. Routine laboratory tests reveal the presence of this kidney disease only after about two-thirds of kidney function is lost. When overt symptoms of urinary dysfunction arise, it is often too late to correct or prevent worsening conditions, and progression to kidney dialysis or death is possible. *Reproductive system.* Chronic overexposure to lead impairs the reproductive systems of both ~~men~~women and ~~women~~men. ~~Overexposure to lead may result in decreased sex drive, impotence and sterility in men. Lead can alter the structure of sperm cells raising the risk of birth defects. There is evidence of miscarriage and stillbirth in women whose husbands were exposed to lead or who were exposed to lead themselves. Lead exposure also may result in decreased fertility, and abnormal menstrual cycles in women.~~ The course of pregnancy may be adversely affected by exposure to lead since lead crosses the placental barrier and poses risks to developing fetuses. Reduced birth weight of children exposed to lead during pregnancy has been documented with low-level chronic lead exposures. Children born of parents either one of whom were exposed to excess lead levels are more likely to have birth	

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	defects, mental retardation, behavioral disorders or die during the first year of childhood. Lead exposure also may result in decreased fertility and abnormal menstrual cycles in women. Overexposure to lead may result in decreased sex drive, impotence, and sterility in men. Lead can alter the structure of sperm cells raising the risk of birth defects. There is evidence of miscarriage and stillbirth in women whose husbands were exposed to lead or who were exposed to lead themselves. *Blood-forming system.* Overexposure to lead also disrupts the blood-forming system resulting in decreased hemoglobin (the substance in the blood that carries oxygen to the cells) and ultimately anemia. Anemia is characterized by weakness, pallor and ~~fatigability~~fatigue as a result of decreased oxygen-carrying capacity in the blood. (3) Health protection goals of the standard. Prevention of ~~adverse~~ health damage~~effects~~ for most ~~workers~~employees from exposure to lead throughout a working lifetime requires that an ~~worker's~~employee's blood lead level (BLL~~, also expressed as PbB~~) be maintained ~~at or below forty micrograms per deciliter of whole blood (40 µg/dl)~~as low as possible. The ~~blood lead levels~~BLL of female ~~workers~~employees ~~(both male and female workers)~~ who intend to have children	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	should be maintained below ~~30~~5 µg/dl to minimize adverse reproductive health effects to the ~~parents~~mother and to the developing fetus. The measurement of your ~~blood lead level~~ (~~BLL~~) is the most useful indicator of the amount of lead being absorbed by your body. ~~Blood lead levels are most often reported in units of milligrams (mg) or micrograms (µg) of lead (1 mg=1000µg) per 100 grams (100g), 100 milliliters (100 ml) or deciliter (dl) of blood. These three units are essentially the same. Sometimes BLLs are expressed in the form of mg% or µg%. This is a shorthand notation for 100g, 100 ml, or dl. (Reference to BLL measurements in this standard are expressed in the form of µg/dl.)~~ ~~BLL measurements show the amount of lead circulating in your blood stream, but do not give any information about the amount of lead stored in your various tissues. BLL measurements merely show current absorption of lead, not the effect that lead is having on your body or the effects that past lead exposure may have already caused.~~ Your BLL is a measure of the amount of lead in your blood. This reflects both recent exposure as well as how much lead is stored in your bones. Past research into lead-related diseases~~, however,~~ has focused heavily on associations between BLLs and various diseases. As a result, your BLLs over time provide ~~is~~ an important	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	indicator of the likelihood that you will gradually ~~acquire~~develop a lead-related health impairment or disease. ~~Once your blood lead level climbs about 40µg/dl~~ As your BLL increases, your risk of disease increases. There is a wide variability of individual response to lead, thus, it is difficult to say that a particular BLL in a given person will cause a particular effect. Health damage has been found at chronic BLLs of 5 µg/dl and greater, including high blood pressure, reduced birth weight, essential tremor, and kidney dysfunction. At the other extreme, ~~S~~studies have associated fatal encephalopathy with BLLs ~~as low as~~of 150 µg/dl, but encephalopathy may occur at BLLs of 80 µg/dl. ~~Other studies have shown other forms of diseases in some workers with BLLs well below 80 µg/dl.~~ Your BLL is a crucial indicator of the risks to your health, but one other factor is also extremely important. This factor is the length of time you have had elevated BLLs. The longer you have an elevated BLL, the greater the risk that large quantities of lead are being gradually stored in your organs and tissues (body burden). The greater your overall body burden, the greater the chances of substantial permanent damage. The best way to prevent all forms of lead-related health impairments and diseases ~~--~~	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	(both short-term and long-term) -- is to maintain your BLL below 40 µg/dlas low as possible. The provisions of the standard isare designed with this end in mind to detect BLL increases early and take action to control exposures. Your employer has prime responsibility to assureensure that the provisions of the standard are complied with both by the company and by individual workersemployees. You, as an employeeworker, however, also have a responsibility to assist your employer in complying with the standard. You can play a key role in protecting your own health by learning about the lead hazards and their control, learning what the standard requires, following the standard where it governs your own actions, and seeing that your employer complies with provisions governing his or her actions. (4) Reporting signs and symptoms of health problems. You should immediately notify your employer if you develop signs or symptoms associated with lead poisoning or if you desire medical advice concerning the effects of current or past exposure to lead or your ability to have a healthy child. You should also notify your employer if you have difficulty breathing during a respirator fit test or while wearing a respirator. In each of these cases, your employer must make available to you appropriate medical	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	examinations or consultations. These must be provided at no cost to you and at a reasonable time and place. The standard contains a procedure whereby you can obtain a second opinion by a physician of your choice if your employer selected the initial physician.	
Appendix B	Appendix B to ~~§~~Section 1532.1 – Employee Standard Summary	
	This appendix summarizes key provisions of the standard for lead in construction that you as an ~~worker~~employee should become familiar with. I. Permissible Exposure Limit (PEL) - subsection (c) The standard sets a permissible exposure limit (PEL) of 10~~50~~ micrograms of lead per cubic meter of air (10 ~~50~~µg/m^3), ~~averaged over an 8-hour workday which is referred to~~calculated as an 8-hour time-weighted average (TWA). ~~This is the highest level of lead in air to which you may be permissibly exposed over an 8-hour workday~~Your lead exposure over your entire workday, when calculated as an 8-hour TWA, cannot be higher than the PEL. However, since ~~this~~the PEL is an 8-hour ~~average~~TWA, short ~~e~~exposures above the PEL are permitted so long as for each ~~8-hour~~ work-day your average exposure does not exceed ~~this level~~the PEL. ~~This standard, however, takes~~	The State proposes to modify the language in Appendix B – Employee Standard Summary to reflect changes that are proposed for Section 1532.1, as well as to reflect current information about the most common chelating agents.

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	~~into account the fact that your daily exposure to lead can extend beyond a typical 8-hour workday as the result of overtime or other alterations in your work schedule. To deal with this situation, the standard contains a formula which reduces your permissible exposure when you are exposed more than 8 hours. For example, if you are exposed to lead for 10 hours a day, the maximum permitted average exposure would be 40µg/m^3.~~ The standard contains an exception to the PEL described above for employees who conduct abrasive blasting. Until [OAL insert five years from the effective date here], employees conducting abrasive blasting must not be exposed to airborne lead at a concentration greater than 25 µg/m^3, calculated as an 8-hour TWA. II. Exposure Assessment - ~~S~~subsection (d) If lead is present in your workplace in any quantity, your employer is required to make an initial determination of whether any employee's exposure to lead exceeds the action level (2 ~~30~~ µg/m^3 ~~averaged over~~calculated as an 8-hour ~~day~~TWA). Employee exposure, as defined here, is that exposure which would occur if the employee were not using a respirator. This initial determination requires your employer to monitor ~~workers'~~employees' exposures unless ~~he or she has~~they have objective	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	data which can demonstrate conclusively that no employee will be exposed to lead in excess of the action level. Where objective data is used in lieu of actual monitoring, the employer must establish and maintain an accurate record, documenting its relevancy in assessing exposure levels for current job conditions. If such objective data is available, the employer need proceed no further on employee exposure assessment until such time that conditions have changed and the determination is no longer valid. Objective data for surfaces and materials that is less than 0.06% lead dry weight (600 ppm) is indicative of materials that will not give lead concentrations above the action level. For this objective data to be used, l~~L~~ead analysis must be performed for each unique surface coating or material. Surface coating or material objective data cannot be used to replace air monitoring for exposure assessments required for the ~~lead-related~~trigger tasks listed in subsection (d)(2). Objective data may be compiled from various sources, e.g., insurance companies and trade associations and information from suppliers or exposure data collected from similar operations. Objective data may also comprise previously-collected sampling data including area monitoring. If it cannot be determined through using objective data that ~~worker~~employee exposure is less than the action level, your	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	employer must conduct monitoring or must rely on relevant previous personal sampling, if available. Where monitoring is required for the initial determination, it may be limited to a representative number of employees who are reasonably expected to have the highest exposure levels. If your employer has conducted appropriate air sampling for lead in the past 12 months, ~~he or she~~they may use these results, provided they are applicable to the same employee tasks and exposure conditions and meet the requirements for accuracy as specified in the standard. As with objective data, if such results are relied upon for the initial determination, your employer must establish and maintain a record as to the relevancy of such data to current job conditions. If there have been any employee complaints of symptoms which may be attributable to exposure to lead or if there is any other information or observations which would indicate employee exposure to lead, this must also be considered as part of the initial determination. If this initial determination shows that a reasonable possibility exists that any employee may be exposed, without regard to respirators, over the action level, your employer must set up an air monitoring program to determine the exposure level representative of each employee exposed to lead at your workplace. In carrying out this	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	air monitoring program, your employer is not required to monitor the exposure of every employee, but ~~he or she~~ must monitor a representative number of employees and job types. Enough sampling must be done to enable each employee's exposure level to be reasonably represented by at least one full-shift ~~exposure~~air sample. In addition, these air samples must be taken under conditions which represent each employee's regular, daily exposure to lead. Sampling performed in the past 12 months may be used to determine exposures above the action level if such sampling was conducted during work activities essentially similar to present work conditions. The standard lists certain tasks which may likely result in exposures to lead in excess of the PEL and, in some cases, exposures in excess of 50 times the PEL. These tasks are known as trigger tasks, and are described in subsection (d)(2) of the lead standard. There are level 1, level 2 and level 3 trigger tasks. Performing level 3 trigger tasks is presumed to result in the highest exposures to lead. Level 1 trigger tasks include manual demolition of structures, such as dry wall, manual scraping, and heat gun applications where lead-containing coatings or paint are present. Level 2 trigger tasks include, where lead is present, manual sanding, power tool cleaning, grinding, or sanding with dust collection systems, and spray painting with lead paint. Level 3	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	trigger tasks include using lead-containing mortar or lead burning, and where lead is present, rivet busting, power tool cleaning, grinding or sanding without dust collection systems, cleanup activities where dry expendable abrasives are used, abrasive blasting enclosure movement and removal, abrasive blasting, welding, torch cutting, torch burning, and needle gunning. If you are performing any of these tasks, or if your employer has any reason to believe that you may be exposed to lead over the PEL, your employer must provide you, as interim protection, with appropriate respiratory protection, protective clothing and equipment, change areas, shower facilities (for level 3 trigger tasks), eating areas, regulated areas, medical surveillance~~biological monitoring~~, and training until such time that an exposure assessment is conducted which demonstrates that your exposure level is below the PEL. Some of these protections (medical surveillance and training) are required even if your exposure is determined, by air monitoring, to be below the PEL. These protections are required if your exposure is determined, by air monitoring, to be at or above the action level (2 µg/m^3 as an 8-hour TWA). In addition, the standard requires that hand washing facilities be provided, and used, whenever you are exposed to lead. Objective data cannot be used to replace air monitoring for	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	this exposure assessment. In addition, until an exposure assessment is done, the amount of time you can conduct dry abrasive blasting is limited to 5 hours per day, except that after [OAL insert five years from the effective date] you may only conduct dry abrasive blasting for 2 hours per day, until an exposure assessment is done. If you are exposed to lead and air sampling is performed, your employer is required to notify you in writing within 5 working days of the air monitoring results which represent your exposure. If the results indicate that your exposure exceeds the PEL (without regard to your use of a respirator), then your employer must also notify you of this in writing, and provide you with a description of the corrective action that has been taken or will be taken to reduce your exposure. Your exposure must be rechecked by monitoring, at least every 12~~six~~ months if your exposure is at or ~~over~~above the action level (2 µg/m^3 as an 8-hour TWA) but below 30 µg/m^3 as an 8-hour TWA ~~the PEL~~. Your employer may discontinue monitoring for you if ~~2~~two consecutive measurements, taken at least 7 days apart, are ~~at or~~ below the action level. Air monitoring must be repeated every 6~~3~~ months if you are exposed at or ~~over~~above 30 µg/m^3 as an 8-hour TWA but at or below 50 µg/m^3 as an 8-hour TWA ~~the PEL~~. Your employer must	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	continue monitoring for you ~~at this frequency~~every 6 months until ~~2~~two consecutive measurements, taken at least 7 days apart, are below 30 µg/m^3 as an 8-hour TWA.~~the PEL but above the action level, at which time your employer must repeat monitoring of your exposure every six months and may discontinue monitoring only after your exposure drops to or below the action level.~~ Air monitoring must be repeated every 3 months if you are exposed above 50 µg/m^3 as an 8-hour TWA. Your employer must continue monitoring for you every 3 months until two consecutive measurements, taken at least 7 days apart, are at or below 50 µg/m^3 as an 8-hour TWA. However, whenever there is a change of equipment, process, control, or personnel or a new type of job is added at your workplace which may result in new or additional exposure to lead, your employer must perform additional monitoring. III. Methods of Compliance - ~~S~~subsection (e) Your employer is required to ~~assure~~ensure that no employee is exposed to lead in excess of the PEL ~~as an 8-hour TWA~~. The standard for lead in construction requires employers to institute engineering and work practice controls, including administrative controls, to the extent feasible to reduce employee exposure to lead. Where such	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	controls are feasible but not adequate to reduce exposures below the PEL, they must be used nonetheless to reduce exposures to the lowest level that can be accomplished by these means, and then supplemented with appropriate respiratory protection. ~~Your employer must establish a regulated area that includes the work area where airborne exposure to lead is above the PEL, or where the lead-related tasks listed in subsection (d)(2) are performed.~~ Your employer is required to develop and implement a written compliance program prior to the commencement of any job where employee exposures may ~~reach~~exceed the PEL ~~as an 8-hour TWA~~. The standard identifies the various elements that must be included in the program~~plan~~. For example, employers are required to include a description of operations in which lead is emitted, detailing other relevant information about the operation such as the type of equipment used, the type of material involved, crew size, employee job responsibilities, operating procedures and maintenance practices. In addition, your employer's compliance program~~plan~~ must specify the means that will be used to achieve compliance and, where engineering controls are required, include any engineering plans or studies that have been used to select the control methods. If engineering and work practice controls were considered but not put in place, the program	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	must include a report that shows how they were demonstrated not to be feasible. Also, ~~i~~If administrative controls involving job rotation are used to reduce employee exposure to lead, the job rotation schedule must be included in the compliance ~~plan~~program. The ~~plan~~program must also detail the type of protective clothing and equipment, including respirators, housekeeping and hygiene practices that will be used to protect you from the ~~adverse~~harmful effects of exposure to lead. Finally, on sites with more than one contractor, the program must describe arrangements made among contractors to inform affected employees of potential exposure to lead and of regulated areas. The written compliance program must be made available, upon request, to affected employees and their designated representatives, the Cal/OSHA Chief, and the National Institute for Occupational Safety and Health (NIOSH). ~~Finally,~~ The ~~plan~~program must be reviewed and updated at least every 6 months to ~~assure~~ensure it reflects the current status in exposure control. IV. Respiratory Protection - ~~S~~subsection (f) Your employer is required to provide and ~~assure~~ensure your use of respirators when your exposure to lead is not controlled below the PEL by other means, and as	

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	interim protection if you perform trigger tasks and an exposure assessment has not been completed. The employer must pay the cost of the respirator. Whenever you request one, your employer is also required to provide you a respirator even if your airborne exposure level is not above the PEL. You might ~~desire~~want a respirator when, for example, you have received medical advice that your lead absorption should be decreased. Or, you may intend to have children in the near future, and want to reduce the level of lead in your body to minimize ~~adverse~~harmful reproductive effects. While respirators are the least satisfactory means of controlling your exposure, they are capable of providing significant protection if properly chosen, fitted, worn, cleaned, maintained, and replaced when they stop providing adequate protection. Your employer is required to select respirators as specified in the Respiratory Protection standard, in section 5144(d)(3)(A)1~~from the types listed in Table I of the Respiratory Protection section of the standard (section 1532.1(f))~~. However, when respirators are required, filtering facepiece respirators (disposable respirators or dust masks) are not to be selected by your employer and are not to be used for protection from lead. Any respirator chosen must be approved by ~~the National Institute for Occupational Safety and Health (~~NIOSH~~)~~	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	under the provisions of 42 CFR part 84. The~~is~~ respirator selection table in section 5144 will enable your employer to choose a type of respirator which will give you a proper amount of protection based on your airborne lead exposure. Your employer may select a type of respirator that provides greater protection than that required by the standard; that is, one recommended for a higher concentration of lead than is present in your workplace. An air-purifying respirator works by removing particles, gases, or vapors from the air you breathe, if the correct type of filter, cartridge, or canister is used with the facepiece. The typical air-purifying respirator is a negative pressure respirator because it requires the force of your inhalation to draw air through the purifying element. ~~For example,~~ A~~a~~ powered air-purifying respirator (PAPR) is much more protective than a typical negative pressure respirator, and may also be more comfortable to wear. A PAPR has a filter, cartridge, or canister to clean the air, and a power source which continuously blows filtered air into your breathing zone. ~~Your employer might make a~~A PAPR ~~available to you to~~may ease the burden of having to wear a negative pressure air--purifying respirator for long periods of time. The standard ~~provides~~requires that your employer must provide ~~can obtain~~you with a PAPR upon request. Your employer also must provide	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	high-efficiency particulate air (HEPA) filters for PAPRs and N-100, R-100, or P-100 filters for non-powered air-purifying respirators. In addition, if you are exposed to lead aerosols that cause eye or skin irritation at the use concentrations, your employer must provide you with a full facepiece respirator instead of a half mask respirator. A supplied-air respirator (SAR) can also be more protective than a typical negative pressure respirator. A SAR is supplied with breathing-quality air from a source such as an air compressor or compressed air cylinder. Three types of supplied-air respirators are demand, pressure-demand, and continuous flow. The demand-type provides protection equivalent to that of a non-powered negative pressure air-purifying respirator of the same facepiece type. Greater protection is provided by either the pressure-demand or continuous-flow types because positive air pressure exists within the respirator at all times. Your employer must implement a respiratory protection program in accordance with section 5144. This program must include written procedures for proper respirator selection, medical evaluations, fit testing, use, cleaning, storage, and maintenance of respirators, and training, as well as procedures to ensure adequate air quality,	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	quantity, and flow for supplied-air respirators. Your employer must ~~assure~~ensure that your respirator facepiece fits properly. Proper fit of a respirator facepiece is critical. Obtaining a proper fit on each employee may require your employer to make available two or three different mask types, in various sizes. In order to ~~assure~~ensure that your respirator fits properly and that facepiece leakage is minimized, your employer must give you either a qualitative fit test or a quantitative fit test as specified in Appendix A of the Respiratory Protection standard, ~~located at~~ section 5144. You must also receive from your employer proper training in the use of respirators. Your employer is required to teach you how to wear a respirator, to know why it is needed, and to understand its limitations. The standard provides that if your respirator uses filter elements, you must be given an opportunity to change the filter elements whenever an increase in breathing resistance is detected. You also must be permitted to periodically leave your work area to wash your face and respirator facepiece whenever necessary to prevent skin irritation. Before you begin using a respirator, and again i~~I~~f you ever have difficulty in breathing during a fit test or while using a respirator, your employer must	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	make a medical ~~examination~~evaluation available to you to determine whether you can safely wear a respirator. The result of this examination may be to give you a positive pressure respirator (which reduces breathing resistance) or to provide alternative means of protection. V. Protective Work Clothing and Equipment - ~~S~~subsection (g) If you are exposed to lead above the PEL ~~as an 8-hour TWA~~, without regard to your use of a respirator, perform trigger tasks and an exposure assessment has not been completed, or if you are exposed to lead compounds such as lead arsenate or lead azide which can cause skin and eye irritation, your employer must provide you with protective work clothing and equipment appropriate for the hazard. If work clothing is provided, it must be provided in a clean and dry condition at least weekly, and daily if your airborne exposure to lead is greater than 30 ~~200~~µg/m^3. Appropriate protective work clothing and equipment can include coveralls or similar full-body work clothing, gloves, hats, shoes or disposable shoe coverlets, and face shields or vented goggles. Your employer is required to provide all such equipment at no cost to you. In addition, your employer is responsible for providing repairs and replacement as necessary, and also is responsible for the cleaning, laundering or	

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	disposal of protective clothing and equipment. The standard requires that your employer ~~assure~~ensure that you follow good work practices when you are working in areas where your exposure to lead may exceed the PEL. With respect to protective clothing and equipment, where appropriate, the following procedures should be observed prior to beginning work: 1. Change into work clothing and shoe covers in the clean section of the designated changing areas; 2. ~~Use~~Put on work garments ~~of~~and appropriate protective gear, including respirators, before entering the work area; and 3. Store any clothing not worn under protective clothing in the designated changing area. ~~Workers~~Employees should follow these procedures upon leaving the work area: 1. HEPA vacuum heavily contaminated protective work clothing while it is still being worn. At no time may lead be removed from protective clothing by any means which result in uncontrolled dispersal of lead into the air;	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	2. Remove shoe covers and leave them in the work area; 3. Remove protective clothing and gear in the dirty area of the designated changing area. Remove protective coveralls by carefully rolling down the garment to reduce exposure to dust. 4. Remove respirators last; and 5. Wash hands, exposed arms, and face. ~~Workers~~Employees should follow these procedures upon finishing work for the day (in addition to procedures described above): 1. Where applicable, place disposal coveralls, and shoe covers with the abatement waste; 2. Contaminated clothing which is to be cleaned, laundered or disposed of must be placed in closed containers in the change room. 3. Clean protective gear, including respirators, according to standard procedures; 4. Wash hands, exposed arms, and face again. If showers are available, take a shower and wash hair. If shower facilities are not available at the work site, shower immediately at home and wash hair. VI. Housekeeping - ~~S~~subsection (h)	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	Your employer must establish a housekeeping program sufficient to maintain all surfaces as free as practicable of accumulations of lead dust. HEPA v~~V~~acuuming is the preferred method of meeting this requirement, and the use of compressed air to clean floors and other surfaces is generally prohibited unless removal with compressed air is done in conjunction with ventilation systems designed to contain dispersal of the lead dust. Dry or wet sweeping, shoveling, or brushing may not be used except where vacuuming or other equally effective methods have been tried and do not work. Vacuums must be used equipped with a special filter called a ~~high-efficiency particulate air (~~HEPA~~)~~ filter and be used and emptied in a manner which minimizes the reentry of lead into the workplace. VII. Hygiene Facilities, Practices and Regulated Areas - ~~S~~subsection (i) The standard requires that hand washing facilities be provided, and used, where occupational exposure to lead occurs. In addition, change areas~~, showers (where feasible),~~ and lunchrooms or eating areas are to be made available to ~~workers~~employees exposed to lead above the PEL without regard to the use of respirators, and as interim protection to employees performing trigger tasks. Also, showers must be provided for employees	

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	exposed above the PEL and as interim protection for employees who perform level 3 trigger tasks. Where shower facilities are required, employees must shower at the end of their work shift. Your employer must ~~assure~~ensure that ~~except in these facilities,~~ food and beverage is not present or consumed, tobacco products are not present or used, and cosmetics are not applied, where employees are exposed to lead~~airborne exposures are above the PEL~~. Clean ~~C~~change ~~rooms~~areas must be provided by your employer where employees are exposed to lead above the PEL without regard to the use of respirators, and as interim protection for employees performing trigger tasks. The change area must be equipped with separate storage facilities for your protective clothing and equipment, and your street clothes to avoid cross-contamination. ~~After showering, no required protective clothing or equipment worn during the shift may be worn home.~~ It is important that contaminated clothing or equipment be removed in change areas and not be ~~worn~~brought home. Bringing lead contamination home prolongs ~~or you will extend~~ your exposure to lead and exposes your family, as ~~since~~ lead ~~from your clothing~~ can accumulate in your ~~house,~~ car, house, etc. Where showers are required to be	

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	provided, employees must shower at the end of their shift. Lunchrooms or eating areas may not be entered with protective clothing or equipment unless surface dust has been removed by HEPA vacuuming, downdraft booth, or other cleaning method. ~~Finally,~~ ~~workers~~Employees exposed to lead~~above the PEL~~ must wash ~~both~~ their hands, exposed arms, and faces prior to entering an eating area, eating, drinking, smoking, or applying cosmetics, and at the end of their shift. ~~All of the facilities and hygiene practices just discussed are essential to minimize additional sources of lead absorption from inhalation or ingestion of lead that may accumulate on you, your clothes, or your possessions. Therefore,~~ eEmployers ~~shall~~must establish regulated areas, where access is controlled by the supervisor, for work areas where employees are exposed to lead ~~at or~~ above the PEL without regard to the use of respirators, and as interim protection where employees are ~~or~~ performing ~~the specific~~trigger tasks ~~that require air monitoring~~, as required by subsection (d)(2) of the lead standard. Employers must post signs in the regulated area and ensure that ~~A~~any employee that enters the regulated area ~~must be~~is provided with protective work clothing and equipment.	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	All of the hygiene facilities, practices, and regulated areas described above are essential to minimize additional sources of lead absorption from inhalation or ingestion of lead that may accumulate on you, your clothes, or your possessions. Strict compliance with these provisions can virtually eliminate several sources of lead exposure which significantly contribute to excessive lead absorption. VIII. Medical Surveillance - ~~S~~subsection (j) The medical surveillance program is part of the standard's comprehensive approach to the prevention of lead-related disease. Its purpose is to supplement the main thrust of the standard which is aimed at minimizing airborne concentrations of lead and sources of ingestion. Only medical surveillance can determine if the other provisions of the standard have ~~a~~effectively protected you as an individual. Compliance with the standard's provisions will protect most ~~workers~~employees from the ~~adverse~~harmful effects of lead exposure, but may not be satisfactory to protect individual ~~workers~~employees (1) who have high body burdens of lead acquired over past years, (2) who have additional uncontrolled sources of non-occupational lead exposure, (3) who ~~exhibit unusual variations in~~absorb lead at an unusually high~~absorption~~ rate~~s~~, or (4) who have specific non-work related	

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	~~medical~~health-related conditions which could be aggravated by lead exposure (e.g., ~~renal~~kidney disease, anemia). In addition, control systems may fail, or hygiene and respirator programs may be inadequate. Periodic medical surveillance of individual ~~workers~~employees will help detect those failures. Medical surveillance ~~will~~is also ~~be~~ important to protect your reproductive ~~ability~~health, ~~-~~regardless of ~~whether you are a man or woman~~gender. All medical surveillance required by the standard must be performed by or under the supervision of a licensed physician. The employer must provide required medical surveillance without cost to employees and at a reasonable time and place. The standard's medical surveillance program has two parts – blood lead testing~~periodic biological monitoring~~ and medical examinations. ~~Your employer's obligation to offer you medical surveillance is triggered by the results of the air monitoring program. Full medical surveillance must be made available to all employees who are or may be exposed to lead in excess of the action level for more than 30 days a year and whose blood lead level exceeds 40µg/dl.~~ A. Blood Lead Testing Initial ~~medical surveillance consisting of~~ blood lead testing~~sampling and analysis for lead and zinc protoporphyrin~~ must be	

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	provided to all employees prior to assignment to work where exposure to lead is or is likely to be at or above the action level, and as interim protection, prior to performing trigger tasks~~exposed at any time (1 day) above the action level~~. Blood lead test results show your blood lead level (BLL). BLL means the concentration of lead measured in whole blood, expressed as micrograms per deciliter (µg/dl). After the initial blood lead testing, additional blood lead testing must be made available to you. There are two exceptions to this requirement. The first exception is if you are exposed to lead at or above the action level for less than 10 days in any 12 consecutive months, and your exposure is not on any day at or above 100 µg/m^3 as an 8-hour TWA, without regard to respirator use, then additional blood lead testing is not required to be provided. The second exception is if you only perform level 1 trigger tasks, and perform these level 1 trigger tasks for less than 10 days in any 12 consecutive months, then additional blood lead testing is not required to be provided. Also, if your initial BLL is at or above 10 µg/dl, you must be provided with additional blood lead testing as described in the next paragraph. There are no exceptions to this. Unless your exposure to lead or work with lead falls under one of the exceptions described above, after the initial testing,	

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	blood lead testing~~Biological monitoring~~ under the standard must be provided on the following schedule: at least every 2 months for the first 6 months after initial placement, and also for the first 6 months after any change in task resulting in higher exposure; and at least every 6 months thereafter ~~until your blood lead level is below 40µg/dl~~. ~~A zinc protoporphyrin (ZPP) test is a very useful blood test which measures an adverse metabolic effect of lead on your body and is therefore an indicator of lead toxicity.~~ If your last BLL ~~exceeds~~is at or above 10 ~~40~~µg/dl but is below 20 µg/dl, the ~~monitoring~~testing frequency must be ~~increased from every 6 months to~~ at least every 2 months ~~and not reduced~~ until two consecutive BLLs, taken at least 30 days apart, ~~indicate a blood lead level~~are below 10 ~~40~~µg/dl. Blood lead testing then must be provided as described in the schedule given at the start of this paragraph. If your last BLL is at or above 20 µg/dl, or you are removed from exposure to lead due to an elevated BLL, blood lead testing must be provided to you at least monthly. Monthly blood lead tests must also be provided as an interim protection if you perform level 3 trigger tasks, including a blood test taken within 3 days after discontinuing all level 3 trigger task work. Finally, blood lead tests must be provided to you at least monthly if your airborne exposure to lead is above 500 µg/m^3 as an 8-hour TWA, without regard to your use of a respirator, including a blood	

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	test taken within 3 days after discontinuing all work associated with airborne exposure above 500 µg/m^3 as an 8-hour TWA.~~Each time your BLL is determined to be over 40µg/dl,~~ Y~~y~~our employer must notify you of your BLL~~this~~ in writing within five working days of his or her receipt of the test results. In addition, the physician who orders your blood test will notify you of the results of your blood lead test and recommend any follow-up blood testing and/or a medical exam, based on your blood test results. The employer must also inform you that the standard requires temporary medical removal with economic protection when your BLL is at or above~~exceeds~~ 30 ~~50~~µg/dl, or effective [OAL insert 1 year from effective date here], your last two monthly BLLs are at or above 20 µg/dl, or when the average of the results of all of your blood lead tests in the last 6 months are at or above 20 µg/dl~~.~~ (S~~s~~ee ~~Discussion of~~ Medical Removal Protection ~~-S~~subsection (k)~~.~~). ~~Anytime your BLL exceeds 50µg/dl your employer must make available to you within two weeks of receipt of these test results a second follow-up BLL test to confirm your BLL.~~ If ~~the two tests both exceed 50µg/dl, and~~ you are temporarily removed, then your employer must make successive BLL tests available to you on a monthly basis during the period of your medical removal. Finally, if you have a BLL at or above 10 µg/dl, your employer	

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	must establish and implement a written elevated blood lead level response plan designed to reduce and maintain your BLL below 10 µg/dl. B. Medical Examination and Consultation An initial medical examination and consultation must be made available to you prior to your assignment to lead work if your exposure to lead will be at or above the action level, or you will perform trigger tasks and an exposure assessment has not been completed. There are two exceptions to this requirement. The first exception is if you are exposed to lead at or above the action level for less than 10 days in any 12 consecutive months, and your exposure is not on any day at or above 100 µg/m^3 as an 8-hour TWA, without regard to respirator use, then a medical examination is not required to be provided. The second exception is if you only perform level 1 trigger tasks, and perform these level 1 trigger tasks for less than 10 days in any 12 consecutive months, then a medical examination is not required to be provided. The initial examination will provide information to establish a baseline for you to which subsequent data can be compared. Medical examinations beyond the initial one must be made available on an annual basis if your ~~blood lead level~~BLL ~~exceeds~~is 20 ~~40~~µg/dl or greater at any time during the	

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	preceding year ~~and you are being exposed above the airborne action level of 30µg/m^3 for 30 or more days per year. The initial examination will provide information to establish a baseline to which subsequent data can be compared~~. Such a medical examination must be made available as soon as possible upon receiving a blood lead test result of 20 µg/dl or greater if you have not had a lead-specific medical examination in the last 12 months. ~~An initial medical examination to consist of blood sampling and analysis for lead and zinc protoporphyrin must also be made available (prior to assignment) for each employee being assigned for the first time to an area where the airborne concentration of lead equals or exceeds the action level at any time.~~ In addition, a medical examination or consultation beyond the initial one must be made available as soon as possible if you notify your employer that you are experiencing signs or symptoms commonly associated with lead poisoning or that you have difficulty breathing while wearing a respirator or during a respirator fit test. You must also be provided a medical examination or consultation beyond the initial one if you notify your employer that you desire medical advice concerning the effects of current or past exposure to lead on your ability to procreate a healthy child.	

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	Finally, after the initial medical examination or consultation is provided, you must be provided with an additional medical examination or consultation as soon as possible, and then as medically appropriate, when you ~~appropriate follow-up medical examinations or consultations may also be provided for employees who~~ have been temporarily removed from exposure to lead, or your exposure to lead is otherwise limited under the medical removal protection provisions of the standard. (See Part IX, below.) The standard specifies the minimum content of pre-assignment and annual medical examinations. The content of other types of medical examinations and consultations is left up to the sound discretion of the examining physician. Pre-assignment and annual medical examinations must include (1) a detailed work history and medical history; (2) a thorough physical examination, including an evaluation of your pulmonary status if you will be ~~required to use~~using a respirator; (3) a blood pressure measurement; ~~and~~ (4) a series of laboratory tests designed to check your blood chemistry and your kidney function; and (5) a zinc protoporphyrin (ZPP) test if your last blood lead level was at or above 20 µg/dl. In addition, at any time upon your request, a laboratory evaluation of male fertility will be made (microscopic examination of a sperm sample), or a pregnancy test will be given.	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	The standard does not require that you participate in any of the medical procedures, tests, etc. which your employer is required to make available to you. Medical surveillance can, however, play a very important role in protecting your health. You are strongly encouraged, therefore, to participate in a meaningful fashion. The standard contains a multiple physician review mechanism which will give you a chance to have a physician of your choice directly participate in the medical surveillance program. If you are dissatisfied with an examination by a physician chosen by your employer, you can select a second physician to conduct an independent analysis. The two doctors would attempt to resolve any differences of opinion, and select a third physician to resolve any firm dispute. Generally your employer will choose the physician who conducts medical surveillance under the lead standard - unless you and your employer can agree on the choice of a physician or physicians. Some companies and unions have agreed in advance, for example, to use certain independent medical laboratories or panels of physicians. Any of these arrangements are acceptable so long as required medical surveillance is made available to ~~workers~~employees. The standard requires your employer to provide certain information to a physician to	

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	aid in his or her examination of you. This information includes (1) the standard and its appendices, (2) a description of your duties as they relate to occupational lead exposure, (3) your exposure level or anticipated exposure level, (4) a description of any personal protective equipment you wear, (5) prior blood lead level results, ~~and~~ (6) prior written medical opinions concerning you that the employer has, and (7) a copy of your employer's written elevated blood lead level response plan (required when an employee's BLL is at or above 10 µg/dl). After a medical examination or consultation the physician must prepare a written ~~report~~opinion for your employer which must contain (1) the physician's opinion as to whether you have any health-related~~medical~~ condition which places your health, including the ability to procreate a healthy child, at increased risk of material impairment ~~to health~~ from exposure to lead, (2) any recommended special protective measures to be provided to you or any limitations to be placed on your exposure to lead, (3) ~~any~~ blood lead ~~level~~ test results~~determinations~~, and (4) any recommended limitation on your use of respirators. This last element must include a determination of whether you can wear a powered air- purifying respirator (PAPR) if you are found unable to wear a negative pressure respirator. Your employer must ensure that you also receive a copy of the	

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	physician's written medical opinion. In addition, the physician who conducts your medical examination will explain the results of your medical examination to you and provide you with a separate written medical report within 30 days of your medical exam. This report will contain the information in the physician's written medical opinion, plus additional information, including a determination of whether you should wear a PAPR instead of a non-powered (negative pressure) air-purifying respirator, any recommended follow-up blood lead testing or medical exams, and the physician's opinion as to whether you have any health-related condition, work-related or not, for which you should have a further medical examination or treatment. C. Additional Information about Medical Surveillance The medical surveillance program of the ~~interim~~ lead standard may at some point in time serve to notify certain ~~workers~~employees that they have acquired a disease or other adverse ~~medical~~health-related condition as a result of occupational lead exposure. If this is true, these ~~workers~~employees might have legal rights to compensation from public agencies, their employers, firms that supply hazardous products to their employers, or other persons. Some states have laws, including workers' compensation laws, that disallow an ~~worker~~employee who learns of a job-	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	related health impairment to sue, unless the ~~worker~~employee sues within a short period of time after learning of the impairment. (This period of time may be a matter of months or years.) An attorney can be consulted about these possibilities. It should be stressed that Cal/OSHA is in no way trying to either encourage or discourage claims or lawsuits. However, since results of the standard's medical surveillance program can significantly affect the legal remedies of an ~~worker~~employee who has acquired a job-related disease or impairment, it is proper for Cal/OSHA to make you aware of this. The medical surveillance section of the standard also contains provisions dealing with chelation. Chelation is the use of certain drugs (administered in pill form or injected into the body) to reduce the amount of lead absorbed in body tissues. Experience accumulated by the medical and scientific communities has largely confirmed the effectiveness of this type of therapy for the treatment of very severe lead poisoning. On the other hand, it has also been established that there can be a long list of extremely harmful side effects associated with the use of chelating agents. The medical community has balanced the advantages and disadvantages resulting from the use of chelating agents in various circumstances and has established when the use of these agents is acceptable. The standard includes these accepted limitations	

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	due to a history of abuse of chelation therapy by some lead companies. The most widely used chelating agents are succimer and calcium disodium EDTA~~,~~ (Ca Na2$_2$ EDTA)~~, Calcium Disodium Versenate (Versenate), and d-penicillamine (penicillamine or Cupramine)~~. The standard prohibits “prophylactic chelation” of any employee by any person the employer retains, supervises or controls. “Prophylactic chelation” is the routine use of chelating or similarly acting drugs to prevent elevated blood lead levels in ~~workers~~employees who are occupationally exposed to lead, or the use of these drugs to routinely lower blood lead levels to predesignated concentrations believed to be “safe.”~~.~~ It should be emphasized that where an employer takes an ~~worker~~employee who has no symptoms of lead poisoning and has chelation carried out by a physician (either inside or outside of a hospital) solely to reduce the ~~worker's~~employee's blood lead level, that will generally be considered prophylactic chelation. The use of a hospital and a physician does not mean that prophylactic chelation is not being performed. Routine chelation to prevent increased or reduce current blood lead levels is unacceptable whatever the setting. The standard allows the use of “therapeutic” or “diagnostic” chelation if administered under the supervision of a licensed	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	physician in a clinical setting with thorough and appropriate medical monitoring. Therapeutic chelation responds to severe lead poisoning where there are marked symptoms. Diagnostic chelation involves~~d~~ giving a patient a dose of the drug then collecting all urine excreted for some period of time as an aid to the diagnosis of lead poisoning. In cases where the examining physician determines that chelation is appropriate, you must be notified in writing of this fact before such treatment. This will inform you of a potentially harmful treatment, and allow you to obtain a second opinion. IX. Medical Removal Protection - ~~S~~subsection (k) Excessive lead absorption subjects you to increased risk of disease. Medical removal protection (MRP) is a means of protecting you when, for whatever reasons, other methods, such as engineering controls, work practices, and respirators, have failed to provide the protection you need. MRP involves the temporary removal of an ~~worker~~employee from ~~his or her~~their regular job to a place of significantly lower exposure without any loss of earnings, seniority, or other employment rights or benefits. The purpose of this program is to cease further lead absorption and allow your body to naturally excrete lead which has previously	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	been absorbed. Temporary medical removal can result from an elevated blood lead level, or a medical opinion. For up to 18 months, or for as long as the job the employee was removed from lasts, protection is provided as a result of either form of removal. The vast majority of removed ~~workers~~employees, however, will return to their former jobs long before this ~~eighteen~~18-~~-~~month period expires. Your employer must remove you from work having an exposure to lead at or above the action level of 2 µg/m^3, from work involving a trigger task where an exposure assessment has not been completed, and from work altering or disturbing any material containing lead at a concentration at least 0.5% by weight, on each occasion that your BLL is at or above 30 µg/dl, or effective [OAL insert 1 year from effective date here], your last two BLL results are at or above 20 µg/dl, or the average of the results of all of your blood lead tests conducted in the last 6 months is at or above 20 µg/dl. If you are removed from your normal job because of a high BLL, your employer must return you to your former job status when two consecutive blood lead tests, taken at least 30 days apart, both indicate that your BLL is below 15 µg/dl. You may also be removed from exposure even if your blood lead level is below 30 ~~50~~µg/dl or the other criteria mentioned	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	above, if a final medical determination indicates that you temporarily need reduced lead exposure for medical reasons. If the physician who is implementing your employer's medical program makes a final written opinion recommending your removal or other special protective measures, your employer must implement the physician's recommendation. If you are removed in this manner, you ~~may~~must only be returned when the doctor indicates that it is safe for you to do so. The standard does not give specific instructions dealing with what an employer must do with a removed ~~worker~~employee. Your job assignment upon removal is a matter for you, your employer and your union (if any) to work out consistent with existing procedures for job assignments. Each removal must be accompanied in a manner consistent with existing collective bargaining relationships. Your employer is given broad discretion to implement temporary removals so long as no attempt is made to override existing agreements. Similarly, a removed ~~worker~~employee is provided no right to veto an employer's choice which satisfies the standard. In most cases, employers will likely transfer removed employees to other jobs with sufficiently low lead exposure. Alternately, an ~~worker's~~employee's hours may be reduced so that the time-~~-~~weighted average	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	exposure is reduced to below the action level, or ~~he or she~~they may be temporarily laid off if no other alternative is feasible. In all of these situations, MRP benefits must be provided during the period of removal - i.e., you continue to receive the same earnings, seniority, and other rights and benefits you would have had if you had not been removed. Earnings include~~s~~ more than just your base wage; it includes overtime, shift differentials, incentives, and other compensation you would have earned if you had not been removed. During the period of removal you must also be provided with appropriate follow-up medical surveillance. If you were removed because your blood lead level was too high, you must be provided with a monthly blood lead ~~level~~test. If a medical opinion caused your removal, you must be provided medical tests or examinations that the doctor believes to be appropriate. If you do not participate in this follow-up medical surveillance, you may lose your eligibility for MRP benefits. When you are medically eligible to return to your former job, your employer must return you to your “former job status.” This means that you are entitled to the position, wages, benefits, etc., you would have had if you had not been removed. If you would still be in your old job if no removal had occurred that is where you go back. If not, you are returned consistent with whatever job	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	assignment discretion your employer would have had if no removal had occurred. MRP only seeks to maintain your rights, not expand them or diminish them. If you are removed under MRP and you are also eligible for workers' compensation or other compensation for lost wages, your employer's MRP benefits obligation is reduced by the amount that you actually receive from these other sources. This is also true if you obtain other employment during the time you are laid off with MRP benefits. The standard also covers situations where an employer voluntarily removes an ~~worker~~employee from exposure to lead due to the effects of lead on the employee's ~~medical~~health-related condition, even though the standard does not require removal. In these situations MRP benefits must still be provided as though the standard required removal. Finally, it is important to note that in all cases where removal is required, respirators cannot be used as a substitute. Respirators may be used before removal becomes necessary, but not as an alternative to a transfer to a low exposure job, or to lay-off with MRP benefits.	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	X. Communication of Hazards~~Employee Information, Training and Certification~~ - ~~S~~subsection (*l*) Your employer must include lead in their hazard communication program and training. Also, y~~Y~~our employer is required to provide an information and training program for all employees exposed to lead above the action level on any day or who may ~~suffer~~experience skin or eye irritation from lead compounds such as lead arsenate or lead azide, and as interim protection for employees who perform trigger tasks. The program must train these employees regarding the specific hazards associated with their work environment, protective measures which can be taken, including the contents of any compliance plan in effect, the danger of lead to their bodies (including their reproductive systems), and their rights under the standard. All employees must be trained prior to initial assignment to areas where there is a possibility of exposure as described above~~over the action level~~. This training program must also be provided at least annually thereafter ~~unless further exposure above the action level will not occur~~. The California Department of Public Health ~~Services~~(CDPH) requires the certification of employees and supervisors performing lead related construction activities in residential and public buildings, as defined in Title 17,	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	California Code of Regulations, Division 1, Chapter 8, when it has been shown that they have been exposed to lead at or above 50 µg/m^3 as an 8-hour TWA. Lead related construction work is defined in Title 17 as any construction, alteration, painting, demolition, salvage, renovation, repair, or maintenance of any residential or public building, including preparation and cleanup, that, by using or disturbing lead containing material or soil, may result in significant exposure of adults or children to lead. "Public building" means a structure which is generally accessible to the public, including but not limited to, schools, daycare centers, museums, airports, hospitals, stores, convention centers, government facilities, office buildings and any other building which is not an industrial building or a residential building. Where training certification is required, the training must be given by a training provider accredited by the CDPH~~California Department of Health Services~~. XI. Signs - ~~S~~subsection (m) The standard requires that the following warning sign be posted in each regulated area, or in work areas where the exposure to lead ~~exceeds~~is at or above the action level~~PEL~~: DANGER LEAD WORK AREA	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	MAY DAMAGE FERTILITY OR THE UNBORN CHILD CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM DO NOT EAT, DRINK OR SMOKE IN THIS AREA ~~Prior to June 1, 2016, employers may use the following legend in lieu of that specified above:~~ ~~WARNING~~ ~~LEAD WORK AREA~~ ~~POISON~~ ~~NO SMOKING OR EATING~~ These signs are to be posted and maintained in a manner which ~~assures~~ensures that the legend is readily visible. XII. Recordkeeping - ~~S~~subsection (n) Your employer is required to keep all records of exposure monitoring for airborne lead. These records must include the name and job classification of employees measured, details of the sampling and analytical techniques, the results of this sampling, and the type of respiratory protection being worn by the person sampled. Such records are to be retained for at least 30 years. Your employer is also required to keep all records of blood lead testing~~biological monitoring~~ and medical examination results. These records must	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	include the name~~s~~ of the employee~~s~~, the physician's written opinion, and a copy of the results of the examination. Medical records must be preserved and maintained for the duration of employment plus 30 years. However, if the employee's duration of employment is less than one year, the employer need not retain that employee's medical records beyond the period of employment if they are provided to the employee upon termination of employment. Recordkeeping is also required if you are temporarily removed from your job under the medical removal protection program. This record must include your name and unique identifier~~social security number~~, the date of your removal and return, how the removal was or is being accomplished, and whether or not the reason for the removal was an elevated blood lead level. Your employer is required to keep each medical removal record only for as long as the duration of an employee's employment. In addition, the standard requires that your employer keep records of their semi-annual review of their written compliance program, and written elevated blood lead level response plans, for three years. They are also required to keep records of any training required by this standard for three years. The standard requires that if you request to see or copy environmental monitoring, blood	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	lead level monitoring, or medical removal records, they must be made available to you or to a representative that you authorize. Your union also has access to these records. Medical records other than BLL's must also be provided upon request to you, to your physician or to any other person whom you may specifically designate. Your union does not have access to your personal medical records unless you authorize their access. XIII. Observation of Monitoring - ~~S~~subsection (o) When air monitoring for lead is performed at your workplace as required by this standard, your employer must allow you or someone you designate to act as an observer of the monitoring. Observers are entitled to an explanation of the measurement procedure, and to record the results obtained. Since results will not normally be available at the time of the monitoring, observers are entitled to record or receive the results of the monitoring when returned by the laboratory. Your employer is required to provide the observer with any personal protective devices required to be worn by employees working in the area that is being monitored. The employer must require the observer to wear all such equipment and to comply with all other applicable safety and health procedures.	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	~~XIV. Effective Date - Subsection (p)~~ ~~The standard's effective date was November 4, 1993. Employer obligations under the standard begin as of that date with full implementation of engineering controls as soon as possible but no later than within 4 months, and all other provisions completed as soon as possible, but no later than within 2 months from the effective date.~~ XIV. For Additional Information A. A copy of the standard for lead in construction can be obtained free of charge at http://www.dir.ca.gov/Title8/1532_1.html or by calling or writing your local Cal/OSHA Office. B. Additional information about the standard, its enforcement, and your employer's compliance can be obtained at http://www.dir.ca.gov/dosh/EnforcementPage.htm or from the nearest Cal/OSHA Office listed in your telephone directory.	
Appendix C	Appendix C to §Section 1532.1 – Medical Surveillance ~~Guidelines~~Requirements	
	This appendix outlines the medical surveillance provisions of the construction standard for lead and provides further information to the physician regarding the	The State proposes to modify the language in Appendix C – Medical Surveillance ~~Guidelines~~Requirements to reflect current information about the medical evaluation and treatment of exposure to lead, as well as

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	examination and evaluation of employees exposed to lead. Introduction The primary purpose of the Occupational Safety and Health Act of 1970 is to ~~assure~~ensure, so far as possible, safe and healthful working conditions for every working man and woman. The occupational health standard for lead in construction is designed to protect ~~workers~~employees exposed to inorganic lead including metallic lead, all inorganic lead compounds and organic lead soaps. Under this standard occupational exposure to inorganic lead is to be limited to ~~50~~10 µg/m^3 (micrograms per cubic meter) ~~based on~~calculated as an 8-~~-~~hour time-weighted average (TWA). This permissible exposure limit (PEL) must be achieved through a combination of engineering, work practice and administrative controls to the extent feasible. Where these controls are in place but are found not to reduce employee exposures to or below the PEL, they must be used nonetheless, and supplemented with respirators to meet the ~~50~~10 µg/m^3 exposure limit. As an exception, until [OAL insert five years from the effective date], the PEL for employees conducting abrasive blasting is 25 µg/m^3, calculated as an 8-hour TWA.	changes that are proposed for Section 1532.1. In addition, the title of Appendix C would be changed to indicate that the provisions in Appendix C are requirements, rather than guidelines.

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	The standard establishes an action level of 2 µg/m^3 calculated as an 8-hour TWA. The action level refers to employee exposure, without regard to the use of respirators. The action level triggers several ancillary provisions of the standard such as exposure monitoring, medical surveillance, training, and signs. The standard lists certain construction tasks which, when lead is present, may likely result in exposures to lead in excess of the PEL and, in some cases, exposures in excess of 50 times the PEL. These tasks are known as trigger tasks, and are described in subsection (d)(2) of the lead standard. Trigger tasks are categorized as level 1, level 2, or level 3 trigger tasks. Performing level 3 trigger tasks is presumed to result in the highest exposures to lead. Level 1 trigger tasks include manual demolition of structures (such as dry wall), manual scraping, and heat gun applications. Level 2 trigger tasks include manual sanding, power tool cleaning, grinding, or sanding with dust collection systems, and spray painting with lead paint. Level 3 trigger tasks include using lead-containing mortar or lead burning, and rivet busting, power tool cleaning, grinding or sanding without dust collection systems, cleanup activities where dry expendable abrasives are used, abrasive blasting enclosure movement and removal, abrasive blasting, welding, torch cutting, torch burning, and	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	needle gunning. If an employee performs any of these trigger tasks when lead is present, or if the employer has any reason to believe that the employee may be exposed to lead over the PEL, the employer must provide the employee with interim protection, until such time that an exposure assessment is conducted which demonstrates that the employee's exposure level to lead is below the PEL. Interim protections include appropriate respiratory protection, protective clothing and equipment, change areas, shower facilities (for level 3 trigger tasks), eating areas, regulated areas, and medical surveillance. The standard also provides for a program of ~~biological monitoring~~medical surveillance for employees, ~~exposed to lead above the action level at any time, and additional~~ as outlined in section I of this Appendix. This program consists of initial blood lead testing and medical evaluation, along with periodic blood lead testing and medical evaluation, to be performed on a schedule which is defined by previous laboratory results, employee complaints or concerns, and the clinical assessment of the examining physician.~~medical surveillance for all employees exposed to levels of inorganic lead above 30 µg/m^3 (TWA) for more than 30 days per year and whose BLL exceeds 40 µg/dl.~~ ~~The purpose of this document is to outline~~	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	~~the medical surveillance provisions of the interim standard for inorganic lead in construction, and to provide further information to the physician regarding the examination and evaluation of workers exposed to inorganic lead.~~ Section I~~1~~ provides a detailed description of the medical surveillance~~monitoring~~ procedures including the required frequency of blood lead testing and medical examination and consultation for exposed ~~workers~~employees, provisions for medical removal protection (MRP), the ~~recommended~~ right of the employee to a second medical opinion, and notification and recordkeeping requirements of the physician and the employer. A discussion of the requirements for respirator use and respirator monitoring and Cal/OSHA's position on prophylactic chelation therapy are also included in this section. Section II~~2~~ discusses the toxic effects and clinical manifestations of lead poisoning and effects of lead intoxication on the cardiovascular, neurologic, renal, gastrointestinal, and ~~enzymatic pathways in heme synthesis~~hematologic systems. The adverse effects on both male and female reproductive capacity and on the fetus are also discussed. Section III~~3~~ outlines the recommended medical evaluation of the ~~worker~~employee	

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	exposed to inorganic lead, including details of the medical history, physical examination, and recommended laboratory tests, which are based on the toxic effects of lead as discussed in ~~S~~section II~~2~~. Section IV~~4~~ provides detailed information concerning the laboratory tests available for the monitoring of exposed ~~workers~~employees. Included also is a discussion of the relative value of each test and the limitations and precautions which are necessary in the interpretation of the laboratory results. I. Medical Surveillance ~~and Monitoring~~ Requirements for ~~Workers~~Employees Exposed to Inorganic Lead A. Blood Lead Testing Under the standard for inorganic lead in the construction industry, initial ~~medical surveillance consisting of biological monitoring to include~~ blood lead testing ~~and ZPP level determination~~ shall be provided to employees prior to assignment to work where exposure to lead is or is likely to be at or above the action level, and as interim protection, prior to performing trigger tasks described in subsection (d)(2) of the lead standard. ~~exposed to lead at or above the action level on any one day. In addition, a program of biological monitoring is to be made available to all employees exposed~~	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	~~above the action level at any time and additional medical surveillance is to be made available to all employees exposed to lead above 30 µg/m^3 TWA for more than 30 days each year and whose BLL exceeds 40 µg/dl.~~ After the initial blood lead testing, additional blood lead testing must be made available to employees. ~~This program consists of periodic blood sampling and medical evaluation to be performed on a schedule which is defined by previous laboratory results, worker complaints or concerns, and the clinical assessment of the examining physician.~~ There are two exceptions to this requirement. The first exception is if an employee is exposed to lead at or above the action level for less than 10 days in any 12 consecutive months, and their exposure is not on any day at or above 100 µg/m^3 as an 8-hour TWA, without regard to respirator use, then additional blood lead testing is not required to be provided. The second exception is if they only perform level 1 trigger tasks, and perform these level 1 trigger tasks for less than 10 days in any 12 consecutive months, then additional blood lead testing is not required to be provided. Also, if the employee's initial blood lead level (BLL) is at or above 10 µg/dl, they must be provided with additional blood lead testing, as described in the next paragraph. There are no exceptions to this.	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	Unless an employee's exposure to lead or work with lead falls under one the exceptions described above, blood lead testing under the standard must be provided on the following schedule:~~Under this program, the blood lead level (BLL) of all employees who are exposed to lead above 30 µg/m^3 for more than 30 days per year or whose blood lead is above 40 µg/dl but exposed for no more than 30 days per year is to be determined~~ at least every two months for the first six months ~~of~~ after initial placement, and also for the six months after any change in task resulting in higher exposure; and every six months thereafter. If an employee's last BLL is at or above 10 µg/dl but is below 20 µg/dl, ~~T~~the testing frequency ~~is increased to~~must be at least every two months~~ for employees whose last blood lead level was 40 µg/dl or above~~. This frequency must continue until two consecutive BLLs, taken at least 30 days apart, are less than 10 µg/dl. Blood lead testing then must be provided as described in the schedule given at the start of this paragraph. For employees whose last blood lead test indicated a BLL at or above 20 µg/dl or who are removed from exposure to lead due to an elevated blood lead, a new ~~blood lead level~~BLL must be measured monthly. Monthly blood lead tests must also be provided as an interim protection for each employee who performs a level 3 trigger task as listed in subsection (d)(2)(D), including a blood test taken within 3 days	

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	after discontinuing all level 3 trigger task work. Finally, blood lead tests must be provided at least monthly to each employee whose airborne exposure to lead is above 500 µg/m^3 as an 8-hour TWA, without regard to the use of respirators, including a blood test taken within 3 days after discontinuing all work associated with airborne exposure above 500 µg/m^3 as an 8-hour TWA. ~~A zinc protoporphyrin (ZPP) measurement is strongly recommended on each occasion that a blood lead level measurement is made.~~ B. Medical Examination and Consultation An ~~annual~~initial medical examination and consultation performed under the guidelines discussed in ~~S~~section III~~3~~ is to be made available to an employee prior to assignment to work where exposure to lead will be at or above the action level, and as interim protection prior to performing trigger tasks. There are two exceptions to this requirement. The first exception is if an employee is exposed to lead at or above the action level for less than 10 days in any 12 consecutive months, and their exposure is not on any day at or above 100 µg/m^3 as an 8-hour TWA, without regard to respirator use, then a medical evaluation is not required to be provided. The second exception is if an employee only performs level 1 trigger tasks, and they perform these level 1 trigger tasks for less than 10 days in	

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	any 12 consecutive months, then a medical evaluation is not required to be provided. Medical examinations beyond the initial one must be made available on an annual basis if an employee's BLL is 20 µg/dl or greater at any time during the preceding year. This medical examination must be made available as soon as possible upon receiving a blood lead test result of 20 µg/dl or greater if the employee has not had a lead-specific medical examination in the last 12 months. ~~each employee exposed above 30 µg/m^3 for more than 30 days per year for whom a blood test conducted at any time during the preceding 12 months indicated a blood lead level at or above 40 µg/dl. Also, an examination is to be given to all employees prior to their assignment to an area in which airborne lead concentrations each or exceed the 30 µg/m3 for more than 30 days per year.~~ In addition, a medical examination must be provided as soon as possible after notification by an employee that the employee has developed signs and symptoms commonly associated with lead intoxication, that the employee desires medical advice regarding lead exposure and the ability to procreate a healthy child, or that the employee has demonstrated difficulty in breathing during a respirator fit~~ting~~ test or during respirator use. A~~n~~ medical examination beyond the initial one is also to be made available to each employee removed from exposure to lead	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	due to ~~a risk of sustaining material impairment to health~~an elevated blood lead level, as discussed in the next section, or otherwise limited or specially protected pursuant to medical recommendations. The requirements of section 1532.1 for the medical surveillance of employees who are exposed to lead are summarized in Table 1. Table 1. Minimum Requirements for Medical Surveillance.	

A. Initial blood lead level (BLL) test required to be made available.	Prior to assignment to work where exposure to lead is or reasonably expected to be ≥ the action level (2 µg/m^3 as an 8-hour TWA); and Prior to performing trigger tasks, and an exposure assessment has not been completed.
B. Additional BLL tests required to be made available.	For employees: whose last BLL was ≥ 10 µg/dl; or who are exposed ≥ action level for ≥ 10

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.		RATIONALE
		days in any 12 consecutive months; or who are exposed on any day ≥ 100 µg/m^3 as an 8-hour TWA; or who perform trigger tasks, and an exposure assessment has not been completed*. *Note that additional blood lead tests are not required for an employee who only performs level 1 trigger tasks and who performs these level 1 trigger tasks for < 10 days in any 12 consecutive months, unless their last BLL was ≥ 10 µg/dl.	
	C. Schedule of BLL tests required to be made available for employees when their:		

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.		RATIONALE
	1. Last BLL was < 10 µg/dl, and the employee is included in B above.	Every 2 months for the first 6 months after initial placement, and also for the first 6 months after a change in task resulting in higher exposure, and then every 6 months.	
	2. Last BLL was ≥ 10 µg/dl but < 20 µg/dl.	Every 2 months. Continue until 2 BLLs, taken at least 30 days apart, are < 10 µg/dl.	
	3. Last BLL was ≥ 20 µg/dl.	Every 1 month.	
	D. Schedule of BLL tests required to be made available for employees whose airborne exposure is above 500 $\mu g/m^3$ as an 8-hour TWA.	Every 1 month. Include a blood test taken within 3 days after discontinuing all work associated with airborne exposure > 500 $\mu g/m^3$ as an 8-hour TWA.	
	E. Schedule of BLL tests required to	Every 1 month. Include a blood test taken within 3 days	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.		RATIONALE
	be made available for employees who perform a level 3 trigger task, and an exposure assessment has not been completed.	after discontinuing all level 3 trigger task work.	
	F. Initial medical examination and consultation required to be made available.	Prior to assignment for employees who will be: exposed ≥ the action level for ≥ 10 days in any 12 consecutive months; or exposed on any day ≥ 100 µg/m^3 as an 8-hour TWA; or performing trigger tasks, and an exposure assessment has not been completed*. *Note that medical examinations are not	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.		RATIONALE
		required for an employee who only performs level 1 trigger tasks and who performs these level 1 trigger tasks for < 10 days in any 12 consecutive months.	
	G. Additional medical examinations and consultations required to be made available.	For employees who are: exposed ≥ the action level for ≥ 10 days in any 12 consecutive months; exposed on any day ≥ 100 µg/m^3 as an 8-hour TWA; or performing trigger tasks, and an exposure assessment has not been completed*. *Note that medical examinations are not required for an employee who only performs level 1 trigger tasks and who performs these level 1 trigger tasks for <	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.		RATIONALE
		10 days in any 12 consecutive months.	
	H. Schedule of additional medical examinations and consultations required to be made available, for employees included in G above.	As soon as possible when an employee's BLL is ≥ 20 µg/dl, if no lead-specific medical examination was done in the preceding 12 months; and annually until the employee's BLL is < 20 µg/dl. As soon as possible, upon notification by an employee either that the employee has developed signs or symptoms commonly associated with lead intoxication, 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, that the	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	employee is pregnant, or that the employee has demonstrated difficulty in breathing during a respirator fit test or during use.	
	[Note: Exposure levels in Table 1 are without regard to an employee's use of a respirator.]	
	C. Medical Removal Protection	
	Results of BLL testing~~biological monitoring~~ or the recommendations of an examining physician may necessitate removal of an employee from further lead exposure pursuant to the standard's medical removal protection (MRP) program. The object of the MRP program is to provide temporary medical removal to ~~workers~~employees either with substantially elevated ~~blood lead levels~~BLLs or otherwise at risk of sustaining material health impairment from continued substantial exposure to lead.	
	Under the standard's ~~ultimate worker~~employee medical removal criteria, an ~~worker~~employee is to be removed from any work having ~~an eight hour TWA exposure to lead of 30 µg/m^3 when his or her blood lead level reaches 50 µg/dl and is confirmed by a second follow-up blood lead level performed within two weeks after the~~	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	~~employer receives the results of the first blood sampling test. Return of the employee to his or her job status depends on a worker's blood lead level declining to 40 µg/dl.~~an exposure to lead at or above the action level, involving a trigger task as listed in subsection (d)(2) of the lead standard, or altering or disturbing any material containing lead at a concentration equal to or greater than 0.5% by weight, on each occasion that: 1. The last blood lead test indicates that the employee's BLL is at or above 30 µg/dl; or 2. Effective [OAL insert 1 year from effective date here], the last two blood lead test results are at or above 20 µg/dl; or 3. Effective [OAL insert 1 year from effective date here], the average of the results of all blood lead tests conducted in the last 6 months is at or above 20 µg/dl. Medical removal is to continue until two consecutive BLLs, taken at least 30 days apart, are below 15 µg/dl. ~~As part of the interim standard, the employer is required to notify in writing each employee whose blood lead level exceeds 40 µg/dl. In addition each such employee is to be informed that the standard requires medical removal with MRP benefits, discussed below, when an employee's blood lead level exceeds the above defined limit.~~	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	In addition to the above ~~blood lead level~~BLL criteria~~on~~, temporary medical~~worker~~ removal for employees may also take place as a result of medical determinations and recommendations. A ~~Written~~written medical opinion~~s~~ must be prepared after each examination pursuant to the standard. If the examining physician includes a medical finding, determination or opinion that the employee has a ~~medical~~health-related condition which places the employee's health, including the ability to procreate a healthy child, at increased risk of material ~~health~~ impairment from exposure to lead, then the employee must be removed from work having an exposure to lead at or above the action level, involving a trigger task as listed in subsection (d)(2) of the lead standard, or altering or disturbing any material containing lead at a concentration equal to or greater than 0.5% by weight~~exposure to lead at or above 30 µg/m^3~~. Alternatively, if the examining physician recommends special protective measures for an employee (e.g., use of a powered air purifying respirator) or recommends limitations on an employee's exposure to lead, then the employer must implement these recommendations. Monthly BLL tests must be made available during the medical removal period for an employee who is removed from exposure to lead due to an elevated BLL. In addition, unless an employee's exposure or work is	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	covered by the exceptions described in subsection I.B. of this appendix, a medical examination is to be made available as soon as possible and then as medically appropriate to each employee removed from exposure to lead due to an elevated BLL or due to a risk of sustaining material impairment to health, or otherwise limited or specially protected pursuant to medical recommendations. Recommendations may be more stringent than the specific provisions of the standard. The examining physician, therefore, is given broad flexibility to tailor special protective procedures to the needs of individual employees. This flexibility extends to the evaluation and management of pregnant ~~workers~~employees and male and female ~~workers~~employees who are planning to raise children. Based on the history, physical examination, and laboratory studies, the physician might recommend special protective measures or medical removal for an employee who is pregnant or who is planning to conceive a child when, in the physician's judgment, continued exposure to lead at the current job would pose a significant risk. The return of the employee to his or her former job status, or the removal of special protections or limitations, depends upon the examining physician determining that the employee is no longer at increased risk of material impairment or that special measures are no	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	longer needed. During the period of any form of special protection or removal, the employer must maintain the ~~worker's~~employee's earnings, seniority, and other employment rights and benefits (as though the ~~worker~~employee had not been removed) for a period of up to 18 months or for as long as the job the employee was removed from lasts if less than 18 months. This economic protection will maximize meaningful ~~worker~~employee participation in the medical surveillance program, and is appropriate as part of the employer's overall obligation to provide a safe and healthful workplace. The provisions of MRP benefits during the employee's removal period may, however, be conditioned upon participation in medical surveillance. On rare occasions, an employee's BLL may not acceptably decline within 18 months of removal. This situation will arise only in unusual circumstances, thus the standard relies on an individual medical examination to determine how to protect such an employee. This medical determination is to be based on both laboratory values, including BLLs, zinc protoporphyrin levels, blood counts, and other tests felt to be warranted, as well as the physician's judgment that any symptoms or findings on physical examination are a result of lead toxicity. The medical determination may be	

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	that the employee is incapable of ever safely returning to their former job status. The medical determination may provide additional removal time past 18 months for some employees or specify special protective measures to be implemented. The requirements of section 1532.1 for the temporary removal of an exposed employee and their subsequent return to work with lead are summarized in Table 2. Table 2. Minimum Requirements During the Medical Removal Protection (MRP) Period. A. BLL requiring employee medical removal. — one BLL ≥ 30 µg/dl; or effective [OAL insert 1 year from effective date here], the last two BLLs are ≥ 20 µg/dl; or effective [OAL insert 1 year from effective date here], the average of all BLLs	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.		RATIONALE
		over the last 6 months is ≥ 20 µg/dl.	
	B. MRP due to a final medical determination.	A written medical opinion on the employee's health status by the examining physician results in a medical finding, determination, or opinion that the employee has a detected health-related condition which places the employee's health, including the ability to procreate a healthy child, at increased	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.			RATIONALE
		risk of material impairment from exposure to lead.		
	C. Frequency of BLL tests required to be made available for an employee removed from exposure to lead because of an elevated BLL.	Every 1 month.		
	D. Medical examinations and consultations required to be made available.	As soon as possible, then as medically appropriate, for an employee: who is		

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.				RATIONALE
			exposed (without regard to respirator use) ≥ the action level for ≥ 10 days in any 12 consecutive months; or who is exposed (without regard to respirator use) on any day ≥ 100 µg/m^3 as an 8-hour TWA; or who performs trigger tasks, and an exposure assessment has not been completed*. *Note that medical examination		

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.			RATIONALE
		s are not required for an employee who only performs level 1 trigger tasks and who performs these level 1 trigger tasks for < 10 days in any 12 consecutive months.		
	E. Permissible working conditions for an employee on MRP.	Employee must be removed from any work: having an exposure to lead (without regard to respirator use) ≥ the action level; or involving a		

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.		RATIONALE
		trigger task; or altering or disturbing any material containing lead at a concentration ≥ 0.5% by weight.	
	F. When an employee has been placed on MRP due to elevated BLL, the BLL at which an employee shall be returned to their former work.	Two consecutive BLLs, taken at least 30 days apart, both indicate a BLL < 15 µg/dl.	
	G. When an employee has been placed on MRP due	A subsequent final medical determination results in a	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	to a final medical determination, the conditions under which an employee shall be returned to their former work. / medical finding, determination, or opinion that the employee no longer has a detected health-related condition that places the employee's health, including the ability to procreate a healthy child, at increased risk of material impairment from exposure to lead. NOTE: When a medical opinion indicates that an employee is at risk of material impairment from exposure to lead, the physician can remove an employee from exposures exceeding the action level (or less) or recommend special protective measures as deemed appropriate and necessary. Medical monitoring during the	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	medical removal period can be more stringent than noted in the table above if the physician so specifies. Return to work or removal of limitations and special protection is permitted when the physician indicates that the employee is no longer at risk of material impairment. The lead standard provides for a multiple physician review in cases where the employee wishes a second opinion concerning potential lead poisoning or toxicity. If an employee wishes a second opinion, he or she can make an appointment with a physician of his or her choice. This second physician will review the findings, recommendations or determinations of the first physician and conduct any examinations, consultations or tests deemed necessary in an attempt to make a final medical determination. If the first and second physicians do not agree in their assessment they must try to resolve their differences. If they cannot reach an agreement then they must designate a third physician to resolve the dispute. D. Requirements for Providing Information to Laboratories, Employees, Employers, and Healthcare Providers For Blood Lead Tests: The employer must instruct the healthcare provider who orders blood lead tests to	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	provide the analyzing laboratory with complete employee identification information. This information includes: 1. Employee name, date of birth, address, and phone number; and 2. Employer name, address, and phone number. The employer must ensure that the ordering physician explains the findings of any blood lead test and notifies the employee of the following: 1. The results of the blood lead test; 2. Any recommended follow-up blood lead testing in accordance with subsection (j)(2)(A) and the timing of that recommended blood lead testing; and 3. If the employee's blood lead level is 20 µg/dl or greater, the recommendation that the employee undergo a medical examination by a physician if the employee has not had a lead-specific medical exam in the preceding 12 months. In addition, the employer is required to provide a written notification to the employee within five working days after the receipt of the employee's blood lead test results. The employer must notify each employee: 1. Of that employee's BLL; 2. That the standard requires the employer to make medical examinations and consultations available to employees exposed at or above the action level, and as	

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	interim protection, to employees performing trigger tasks, unless an employee's exposure or work is covered by the exceptions in 1532.1(j)(1)(B). When they are required, the employer must make medical examinations and consultations available as soon as possible, upon notification by an employee either that the employee has developed signs or symptoms commonly associated with lead intoxication, 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, or that the employee has demonstrated difficulty breathing during a respirator fit test or during use; and 3. That the standard requires medical removal with MRP benefits when an employee's BLL exceeds any of the limits defined for medical removal. For Medical Examination and Consultation: The employer must provide examining and consulting physicians with the following specific information: 1. A copy of the lead regulations and all appendices~~,~~; 2. ~~a~~A description of the employee's duties as related to exposure~~,~~; 3. ~~t~~The exposure level or anticipated level to lead and any other toxic substances (if applicable)~~,~~; 4. ~~a~~A description of personal protective	

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	equipment used~~,~~; 5. Prior ~~blood lead levels~~BLLs~~,~~; 6. ~~and a~~All prior written medical opinions regarding the employee in the employer's possession or control~~.~~; and 7. A copy of the employer's written elevated blood lead level response plan (required when an employee's BLL is at or above 10 µg/dl). The employer must ensure that the physician explains to the employee the results of the medical examination and provides each employee with a written medical report within 30 days of each medical examination performed. The written report shall contain: 1. The physician's opinion as to whether the employee has any detected health-related condition that would place the employee's health, including the ability to procreate a healthy child, at increased risk of material impairment from exposure to lead; 2. Any recommended special protective measures to be provided to the employee, or recommended limitations to be placed upon the employee's exposure to lead; 3. Any recommended limitations upon the employee's use of respirators, including a determination of whether the employee should wear a powered air-purifying respirator (PAPR) instead of a non-powered air-purifying respirator; 4. The employee's BLL;	

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	5. Any recommended follow-up blood lead testing and medical examinations and the timing of each; and 6. The physician's opinion as to whether the employee has any health-related condition, occupational or non-occupational, that dictates further medical examination or treatment. The employer must also obtain ~~from the physician and provide the employee with~~ a written medical opinion from the examining physician within 30 days of the medical examination. The written opinion shall contain the following information: 1. The physician's opinion as to whether the employee has any detected health-related condition that would place the employee's health, including the ability to procreate a healthy child, at increased risk of material impairment from exposure to lead; 2. Any recommended special protective measures to be provided to the employee, or limitations to be placed upon the employee's exposure to lead; 3. Any recommended limitation upon the employee's use of respirators, including a determination of whether the employee can wear a PAPR if the physician determines that the employee cannot wear a negative pressure respirator; and 4. The employee's BLL. ~~containing blood lead levels, the physician's opinion as to whether the employee is at~~	

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	~~risk of material impairment to health, any recommended protective measures for the employee if further exposure is permitted, as well as any recommended limitations upon an employee's use of respirators.~~ Employers must instruct each physician not to reveal to the employer in writing or in any other way his or her findings, laboratory results, or diagnoses which are felt to be unrelated to occupational lead exposure. ~~They must also instruct each physician to advise the employee of any occupationally or non-occupationally related medical condition requiring further treatment or evaluation.~~ E. Additional Requirements The standard provides for the use of respirators where engineering and other primary controls do not provide adequate protection~~are not effective~~. However, the use of respirator<u>y</u> protection shall not be used in lieu of temporary medical removal due to elevated ~~blood lead levels~~BLLs or findings that an employee is at risk of material health impairment. This is based on the numerous inadequacies of respirators including skin rash where the facepiece makes contact with the skin, unacceptable stress to breathing in some ~~workers~~employees with underlying cardiopulmonary impairment, difficulty in providing adequate fit, the tendency for respirators to create additional hazards by interfering with vision, hearing, and mobility,	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	and the difficulties of assuring the maximum effectiveness of a complicated work practice program involving respirators. Respirators do, however, serve a useful function where engineering and work practice controls are inadequate by providing supplementary, interim, or short-term protection, provided they are properly selected for the environment in which the employee will be working, properly fitted to the employee, maintained and cleaned periodically, and worn by the employee when required. When respirators are required, filtering facepiece respirators (disposable respirators or dust masks) are not to be used for protection from lead. Also, a PAPR is much more protective than a typical negative pressure respirator, and may also be more comfortable to wear. The standard provides that an employer must provide a PAPR to an employee upon request. ~~In its standard on occupational exposure to inorganic lead in the construction industry, OSHA has prohibited~~Pprophylactic chelation is prohibited by the lead standard. Diagnostic and therapeutic chelation are permitted only under the supervision of a licensed physician with appropriate medical monitoring in an acceptable clinical setting. The decision to initiate chelation therapy must be made on an individual basis and take into account the severity of symptoms felt to be a result of lead toxicity along with ~~blo~~od lead levelsBLLs, zinc protoporphyrin	

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	(ZPP) levels, and other laboratory tests as appropriate. ~~EDTA~~Calcium disodium EDTA (Ca Na2 EDTA) and ~~penicillamine~~succimer, which are the primary chelating agents used in the therapy of occupational lead poisoning, have significant potential side effects and their use must be justified on the basis of expected benefits to the ~~worker~~employee. Unless frank and severe symptoms are ~~prevent~~ present, therapeutic chelation is not recommended, given the opportunity to remove an ~~worker~~employee from exposure and allow the body to naturally excrete accumulated lead. As a diagnostic aid, the chelation mobilization test ~~using CA EDTA~~ has limited applicability. It offers very limited utility as a biomarker of long-term lead exposure, and does not predict the clinical efficacy of chelation.~~According to some investigators, the test can differentiate between lead-induced and other nephropathies. The test may also provide an estimation of the mobile fraction of the total body lead burden.~~ Employers are required to ~~assure~~ensure that accurate records are maintained on exposure assessment, including environmental monitoring, medical surveillance, and medical removal for each employee. Exposure assessment records must be kept for at least 30 years. Medical surveillance records must be kept for the duration of employment plus 30 years	

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	except in cases where the employment was less than one year. If duration of employment is less than one year, the employer need not retain this record beyond the term of employment if the record is provided to the employee upon termination of employment. Medical removal records also must be maintained for the duration of employment. All records required under the standard must be made available upon request to the Cal/OSHA Chief, and the National Institute for Occupational Safety and Health (NIOSH). Employers must also make environmental and biological monitoring and medical removal records available to affected employees and to former employees or their authorized employee representatives. Employees or their specifically designated representatives have access to their entire medical surveillance records. In addition, the standard requires that the employer inform all ~~workers~~employees who are exposed to lead at or above the action level~~30 µg/m^3~~ on any one day; who are exposed to lead that may cause skin or eye irritation (e.g., lead arsenate, lead azide); or who perform trigger tasks of the provisions of the standard and all its appendices, the purpose and description of medical surveillance, and provisions for medical removal protection if temporary removal is required. An understanding of the potential health effects of lead exposure by all	

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	exposed employees along with full understanding of their rights under the lead standard is essential for an effective monitoring program. II. Adverse Health Effects of Inorganic Lead Although the toxicity of lead has been known for 2,000 years, the knowledge of the complex relationship between lead exposure and human response is still being refined. Significant research into the toxic properties of lead continues throughout the world~~, and it should be anticipated that our understanding of thresholds of effects and margins of safety will be improved in future years~~. The most recent scientific evidence shows multiple health effects at BLLs once thought to be without recognized harm. Prolonged exposure to these low levels of lead can result in adverse cumulative effects. These health effects may be permanent. The provisions of the lead standard are founded on two prime medical judgments: ~~F~~first, the prevention of adverse health effects from exposure to lead throughout a working lifetime requires that ~~worker~~employee ~~blood lead levels~~BLLs be maintained ~~at or below~~as low as possible ~~40 µg/dl,~~ and second, the ~~blood lead levels~~BLLs of female ~~workers~~employees~~, male or female,~~ who are trying to conceive~~intend to parent in the near future~~	

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	should be maintained below 5~~30~~ µg/dl to minimize adverse reproductive health effects to the motherparents and developing fetus. The lead standard is designed to detect BLL increases early and take action to control exposures. The adverse effects of lead on reproduction are being actively researched and Cal/OSHA encourages the physician to remain abreast of recent developments in the area to best advise pregnant workersemployees or workersemployees planning to conceive children. The spectrum of health effects caused by lead exposure can be subdivided into fivefour developmental stages: Normal, physiological changes of uncertain significance, pathophysiological changes, overt symptoms (morbidity), and mortality. Within this process there are no sharp distinctions, but rather a continuum of effects. Boundaries between categories overlap due to the wide variation of individual responses and exposures in the working population. OSHA's development of the lead standard focused on pathophysiological changes as well as later stages of disease. In terms of mechanisms of disease, lead interferes with cellular metabolism in tissues throughout the body. As a divalent cation, lead interferes with calcium metabolism which affects, for example,	

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	neurotransmission and vascular tone. Lead has a high affinity for negatively charged sulfhydryl groups, ultimately affecting the synthesis of heme required for production of hemoglobin, cytochromes involved in cellular respiration, and microsomal oxidases involved in biotransformation pathways. In addition, lead increases reactive oxygen species, which effects vascular tone. Lead also affects cell membranes and nucleic acids with multi-system effects. In the nervous system, lead alters the permeability of the blood brain barrier and accumulates in astroglia. Other modes of action include cell death, genotoxicity, inflammation, and endocrine disruption. 1. Cardiovascular Effects. Current evidence indicates a causal relationship between lead exposure and hypertension, and between lead exposure and coronary heart disease. Various mechanisms of action may mediate the hypertensive effect, including oxidative stress, inflammation, hormonal and blood pressure regulatory-system dysfunction, and vasomodulator imbalance. These mechanisms, and possibly subclinical atherosclerosis which has been demonstrated in some studies, likewise contribute to coronary heart disease. Since hypertension is a significant risk factor for heart disease, stroke, and renal insufficiency, lead exposure may exert an important influence on cardiovascular,	

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	cerebrovascular, and renovascular mortality. Prospective cohort studies have demonstrated an approximate 50% increase in cardiovascular mortality associated with chronic BLLs of 10 µg/dl or greater. ~~1~~2. Heme Synthesis Inhibition. The earliest ~~demonstrated~~hematologic effect ~~of lead~~ involves lead's~~its~~ ability to inhibit at least two enzymes of the heme synthesis pathway at very low ~~blood levels~~BLLs. Inhibition of delta -aminolevulinic acid dehydratase (ALA-D) which catalyzes the conversion of delta-aminolevulinic acid (ALA) to protoporphyrin is observed at a ~~blood lead level~~BLL ~~below 20~~as low as 10 µg/dl. At a ~~blood lead level~~BLL of 40 µg/dl, more than 20% of the population would have 70% inhibition of ALA-D. There is an exponential increase in ALA excretion at ~~blood lead levels~~BLLs greater than 40 µg/dl. Another enzyme, ferrochelatase, is also inhibited at low ~~blood lead levels~~BLLs. Inhibition of ferrochelatase leads to increased free erythrocyte protoporphyrin (FEP) in the blood which can then bind to zinc to yield zinc protoporphyrin (ZPP). At a ~~blood lead level~~BLL of 50 µg/dl or greater, nearly 100% of the population will have an increase in FEP. There is also an exponential relationship between ~~blood lead levels~~BLLs greater than 40 µg/dl and the associated ZPP level, which has led to the development of the ZPP screening test for	

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FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	lead exposure. While the significance of these effects is subject to debate, ~~it is Cal/OSHA's position that~~ these enzyme disturbances are early stages of a disease process which ~~may~~ eventually result<u>s</u> in the clinical symptoms of lead poisoning. Whether or not the effects do progress to the later stages of clinical disease, disruption of these enzyme processes over a working lifetime is ~~considered to be~~ a material impairment of health. One of the eventual results of lead-induced inhibition of enzymes in the heme synthesis pathway is anemia which can be asymptomatic if mild<u>,</u> but <u>is</u> associated with a wide array of symptoms including dizziness, fatigue, and tachycardia when more severe. <u>Recent evidence suggests that bone lead stores may exert a subclinical effect on hematopoiesis, since bone lead levels have been found to correlate with decreased hemoglobin and hematocrit in individuals with low BLLs (mean BLL<10 µg/dl).</u> ~~Studies have indicated that~~ <u>Once BLLs</u>~~lead levels~~ <u>reach</u>~~as low as~~ 50 µg/dl<u>,</u> ~~can be associated with~~ a definite decrease~~d~~ <u>in</u> hemoglobin <u>is evident</u>, although most cases of lead-induced anemia, as well as shortened red-cell survival times, occur at <u>BLLs</u>~~lead levels~~ exceeding 80 µg/dl. Inhibited hemoglobin synthesis is more common in chronic cases<u>,</u>	

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SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	whereas shortened erythrocyte life span is more common in acute cases. In lead-induced anemias, there is usually a reticulocytosis along with the presence of basophilic stippling, and ringed sideroblasts, although none of the above are pathognomonic for lead-induced anemia. ~~2~~3. Neurological Effects. Inorganic lead has been found to have toxic effects on both the central and peripheral nervous systems. The earliest stages of lead-induced central nervous system effects are ~~first~~ manifested by~~themselves in the form of~~ behavioral disturbances and central nervous system symptoms including irritability, restlessness, insomnia and other sleep disturbances, fatigue, vertigo, headache, poor memory, tremor, depression, and apathy. With more severe exposure, symptoms can progress to drowsiness, stupor, hallucinations, delirium, convulsions, and coma. The most severe and acute form of lead poisoning which usually follows ingestion or inhalation of large amounts of lead is acute encephalopathy which may arise precipitously with the onset of intractable seizures, coma, cardiopulmonary~~respiratory~~ arrest, and death within 48 hours. While there is disagreement about what exposure levels are needed to produce the earliest symptoms, most experts agree that	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	symptoms and neurocognitive deficits definitely can occur at ~~blood lead levels~~ BLLs of ~~60~~40 µg/dl ~~whole blood~~. Subclinical neurocognitive deficits are possible at lower levels, and therefore ~~recommend a~~ ~~40~~10 µg/dl maximum is recommended. The central nervous system effects frequently are not reversible following discontinued exposure or chelation therapy and when improvement does occur, it is almost always only partial. The peripheral neuropathy resulting from lead exposure characteristically involves only motor function with minimal sensory damage and has a marked predilection for the extensor muscles of the most active extremity. The peripheral neuropathy can occur with varying degrees of severity. The earliest and mildest form which can be detected in ~~workers~~employees with ~~blood lead levels~~BLLs as low as ~~50~~30 µg/dl is manifested by slowing of motor nerve conduction velocity often without clinical symptoms. With progression of the neuropathy there is development of painless extensor muscle weakness usually involving the extensor muscles of the fingers and hand in the most active upper extremity, followed in severe cases by wrist drop or, much less commonly, foot drop. In addition to slowing of nerve conduction, electromyographical studies in patients with ~~blood lead levels~~BLLs greater than 50 µg/dl	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	have demonstrated a decrease in the number of acting motor unit potentials, an increase in the duration of motor unit potentials, and spontaneous pathological activity including fibrillations and fasciculations. Essential tremor in some studies has been shown to occur at BLLs less than 10 µg/dl.~~Whether these effects occur at levels of 40 µg/dl is undetermined.~~ While the peripheral neuropathies can occasionally be reversed with therapy, again such recovery is not ~~assured~~ensured particularly in the more severe neuropathies and often improvement is only partial. The lack of reversibility is felt to be due in part to segmental demyelination. ~~3~~4. Gastrointestinal. Lead may also affect the gastrointestinal system producing abdominal colic or diffuse abdominal pain, constipation, obstipation, diarrhea, anorexia, nausea, and vomiting. Lead colic may develop at chronic BLLs of 40 µg/dl and greater, or at acutely elevated BLLs of 80 µg/dl or greater ~~rarely develops at blood lead levels below 80 µg/dl~~. ~~4~~5. Renal. Renal toxicity represents one of the most serious health effects of lead poisoning. Kidney dysfunction is thought to occur at chronic BLLs of 5-10 µg/dl or greater but also may arise after acute high-dose lead exposures. In the early stages of disease nuclear inclusion bodies can	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	frequently be identified in proximal renal tubular cells. Renal function remains normal and the changes in this stage are probably reversible. With more advanced disease there is progressive interstitial fibrosis and impaired renal function. Eventually extensive interstitial fibrosis ensues with sclerotic glomeruli and dilated and atrophied proximal tubules; all represent end stage kidney disease. Azotemia can be progressive, eventually resulting in frank uremia necessitating dialysis. There is occasionally associated hypertension and hyperuricemia with or without gout. Early kidney disease is difficult to detect. The urinalysis is normal in early lead nephropathy and the blood urea nitrogen and serum creatinine increase only when two-thirds of kidney function is lost. Measurement of creatinine clearance can often detect earlier disease as can other methods of measurement of glomerular filtration rate. An abnormal ~~Ca EDTA~~ chelation mobilization test has been used to differentiate between lead-induced and other nephropathies, but this procedure is not widely accepted. ~~A form of Fanconi syndrome with aminoaciduria, glycosuria, and hyperphosphaturia indicating severe injury to the proximal renal tubules is occasionally seen in children.~~ ~~5~~6. Reproductive ~~e~~Effects. Exposure to lead can have serious effects on reproductive	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	function in both males and females. In male ~~workers~~employees exposed to lead there can be a decrease in sexual drive, impotence, decreased ability to produce healthy sperm, and sterility. Malformed sperm (teratospermia), decreased number of sperm (hypospermia), and sperm with decreased motility (asthenospermia) can all occur. ~~Teratospermia has been noted at mean blood lead levels of 53 µg/dl and hypospermia and asthenospermia at 41 µg/dl.~~ These adverse effects may occur at BLLs of 20 µg/dl or greater. Furthermore, there appears to be a dose-response relationship for teratospermia in lead-exposed ~~workers~~employees. Women exposed to lead may experience menstrual disturbances including dysmenorrhea, menorrhagia, and amenorrhea. Following exposure to lead, women have a higher frequency of sterility, premature births, ~~spontaneous~~ miscarriages, and stillbirths. Germ cells can be affected by lead and lead can cause genetic damage in the egg or sperm cells before conception and result in failure to implant, miscarriage, stillbirth, or birth defects. Infants of mothers with lead poisoning have a higher mortality during the first year and suffer from lowered birth weights, slower growth, and nervous system disorders.	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	Lead can pass through the placental barrier and lead levels in the mother's blood are comparable to concentrations of lead in the umbilical cord at birth. Transplacental passage becomes detectable at 12-14 weeks of gestation and increases until birth. There is little direct data on damage to the fetus from exposure to lead but it is generally assumed that the fetus and newborn would be at least as susceptible to neurological damage as young children. Current evidence indicates that there is no known lower limit of toxicity at any age. ~~Blood lead levels of 50-60 µg/dl~~Lead exposure in children can cause significant neurobehavioral impairments including cognitive dysfunction and ~~there is evidence of~~ hyperactivity ~~at blood levels as low as 25 µg/dl. Given the overall body of literature concerning the adverse health effects of lead in children, Cal/OSHA feels that the blood lead level in children should be maintained below 30 µg/dl with a population mean of 15 µg/dl. Blood lead levels in the fetus and newborn likewise should not exceed 30 µg/dl.~~ Therefore, women planning to conceive should maintain BLLs less than 5 µg/dl. ~~Because of lead's ability to pass through the placental barrier and also because of the demonstrated adverse effects of lead on reproductive function in both the male and~~	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	~~female as well as the risk of genetic damage of lead on both the ovum and sperm, Cal/OSHA recommends a 30 µg/dl maximum permissible blood lead level in both males and females who wish to bear children.~~ ~~6~~7. Other ~~t~~Toxic ~~e~~Effects. Debate and research continue on the effects of lead on the human body. Lead may impair the immune and endocrine systems, including thyroid function and the pituitary-adrenal axis, but these effects have not been well defined. Also, although the epidemiologic data is limited and inconsistent, based on toxicologic data and animal studies, lead is considered a probable human carcinogen by several authoritative sources. ~~Hypertension has frequently been noted in occupationally exposed individuals although it is difficult to assess whether this is due to lead's adverse effects on the kidney or if some other mechanism is involved. Vascular and electrocardiographic changes have been detected but have not been well characterized. Lead is thought to impair thyroid function and interfere with the pituitary-adrenal axis, but again these effects have not been well defined.~~ III. Medical Evaluation The most important principle in evaluating an ~~worker~~employee for any occupational disease including lead poisoning is a high	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	index of suspicion on the part of the examining physician. As discussed in ~~S~~section ~~2~~II, lead can affect numerous organ systems and produce a wide array of signs and symptoms, most of which are non-specific and subtle in nature at least in the early stages of disease. Unless serious concern for lead toxicity is present, many of the early clues to diagnosis may easily be overlooked. The crucial initial step in the medical evaluation is recognizing that an ~~worker's~~employee's employment can result in exposure to lead. The ~~worker~~employee will frequently be able to define exposures to lead and lead containing materials but often will not volunteer this information unless specifically asked. In other situations the ~~worker~~employee may not know of any exposures to lead but the suspicion might be raised on the part of the physician because of the industry or occupation of the ~~worker~~employee. Potential occupational exposure to lead and its compounds occur in many occupations in the construction industry, including demolition and salvaging operations, painting, removal or encapsulation of materials containing lead, construction, alteration, repair or renovation of structures containing lead, transportation, disposal, storage or containment of lead or lead-containing materials on construction sites, and maintenance operations associated with construction activities.	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	Once the possibility for lead exposure is raised, the focus can then be directed toward eliciting information from the medical history, physical exam, and finally from laboratory data to evaluate the ~~worker~~employee for potential lead toxicity. A complete and detailed work history is important in the initial evaluation. A listing of all previous employment with information on job description, exposure to fumes or dust, known exposures to lead or other toxic substances, a description of any personal protective equipment used, and previous medical surveillance should all be included in the ~~worker's~~employee's record. Where exposure to lead is suspected, information concerning on-the-job personal hygiene, smoking, ~~or~~ eating and drinking habits in work areas, laundry procedures, and use of any protective clothing or respiratory protection equipment should be noted. A complete work history is essential in the medical evaluation of an ~~worker~~employee with suspected lead toxicity, especially when long term effects such as neurotoxicity and nephrotoxicity are considered. The medical history is also of fundamental importance and should include a listing of all past and current ~~medical~~health-related conditions, current medications including proprietary drug intake and ethnic remedies, previous surgeries and hospitalizations,	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	allergies, smoking history, alcohol consumption, and also non-occupational lead exposures such as hobbies (hunting, riflery). Also known childhood exposures should be elicited. Any previous history of cardiovascular, hematological, neurological, gastrointestinal, renal, psychological, gynecological, genetic, or reproductive problems should be specifically noted. A careful and complete review of systems must be performed to assess both recognized complaints and subtle or slowly acquired symptoms which the ~~worker~~employee might not appreciate as being significant. The review of symptoms should include the following: 1. General - weight loss, fatigue, decreased appetite. 2. Head, Eyes, Ears, Nose, Throat (HEENT) - headaches, visual disturbances or decreased visual acuity, hearing deficits or tinnitus, pigmentation of the oral mucosa, or metallic taste in mouth. 3. Cardio-pulmonary - shortness of breath, cough, chest pains, palpitations, or orthopnea. 4. Gastrointestinal - nausea, vomiting, heartburn, abdominal pain, constipation, or diarrhea.	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	5. Neurologic - irritability, insomnia, weakness (fatigue), dizziness, loss of memory, confusion, hallucinations, incoordination, ataxia, decreased strength in hands or feet, disturbances in gait, difficulty in climbing stairs, or seizures. 6. Hematologic - pallor, easy fatigability, abnormal blood loss, or melena. 7. Reproductive (male and female, and spouse where relevant) - history of infertility, impotence, loss of libido, abnormal menstrual periods, history of miscarriages, stillbirths, or children with birth defects. 8. Musculo-skeletal - muscle and joint pains. The physical examination should emphasize the neurological, gastrointestinal, and cardiovascular systems. The ~~worker's~~employee's weight and blood pressure should be recorded. Historically, ~~and~~ the oral mucosa was checked for pigmentation characteristic of a possible Burtonian or lead line on the gingiva. ~~It should be noted, however~~However, ~~that~~ the lead line may not be present even in severe lead poisoning if good oral hygiene is practiced. The presence of pallor on skin examination may indicate an anemia which, if severe, might also be associated with a tachycardia. If an anemia is suspected, an active search	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	for blood loss should be undertaken including potential blood loss through the gastrointestinal tract. A complete neurological examination should include an adequate mental status evaluation including a search for behavioral and psychological disturbances, memory testing, evaluation for irritability, insomnia, hallucinations, and mental clouding. Gait and coordination should be examined along with close observation for tremor. A detailed evaluation of peripheral nerve function including careful sensory and motor function testing is warranted. Strength testing particularly of extensor muscle groups of all extremities is of fundamental importance. Cranial nerve evaluation should also be included in the routine examination. The abdominal examination should include auscultation for bowel sounds and abdominal bruits and palpation for organomegaly, masses, and diffuse abdominal tenderness. Cardiovascular examination should evaluate possible early signs of ischemic heart disease and congestive heart failure. Pulmonary status should be addressed particularly if respiratory protection is contemplated. As part of the medical evaluation, the	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	~~interim~~ lead standard requires the following laboratory studies: 1. Blood lead level; 2. Hemoglobin and hematocrit determinations, red cell indices, and examination of the peripheral blood smear to evaluate red blood cell morphology; 3. Blood urea nitrogen; 4. Serum creatinine; 5. Routine urinalysis with microscopic examination; 6. A zinc protoporphyrin (ZPP) level for each employee whose last BLL was at or above 20 µg/dl. In addition~~al~~ to the above, the physician is authorized to order any further laboratory or other tests which he or she deems necessary in accordance with sound medical practice. The evaluation must also include pregnancy testing or laboratory evaluation of male fertility if requested by the employee. Additional tests which are probably not warranted on a routine basis but may be appropriate when blood lead and ZPP levels are equivocal include delta-~~-~~aminolevulinic acid and coproporphyrin concentrations in the urine, and dark-field illumination for detection of basophilic	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	stippling in red blood cells. If an anemia is detected further studies including a careful examination of the peripheral smear, reticulocyte count, stool for occult blood, serum iron, total iron binding capacity, bilirubin, and, if appropriate, vitamin B12 and folate may be of value in attempting to identify the cause of the anemia. If a peripheral neuropathy is suspected, nerve conduction studies are warranted both for diagnosis and as a basis to monitor any therapy. If renal disease is questioned, a 24-hour urine collection for creatinine clearance, protein, and electrolytes may be indicated. Elevated uric acid levels may result from lead-induced renal disease and a serum uric acid level might be performed. An electrocardiogram and chest x-ray may be obtained as deemed appropriate. Sophisticated and highly specialized testing should not be done routinely and where indicated should be under the direction of a specialist. IV. Laboratory Evaluation The ~~blood lead level~~BLL at present remains the single most important test to monitor	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	lead exposure and is the test used in the medical surveillance program under the lead standard to guide employee medical removal. ~~The ZPP has several advantages over the blood lead level. Because of its relatively recent development and the lack of extensive data concerning its interpretation, the~~The ZPP currently remains an ancillary test due to its lack of sensitivity. This section will discuss the ~~blood lead level~~BLL and ZPP in detail and will outline their relative advantages and disadvantages. Other blood tests currently available to evaluate lead exposure will also be reviewed. ~~The blood lead level is a good index of current or recent lead absorption when there is no anemia present and when the worker has not taken any chelating agents. However, blood lead levels along with urinary lead levels do not necessarily indicate the total body burden of lead and are not adequate measures of past exposure.~~ BLL, a measure of the amount of lead currently found in the blood, reflects both recent exogenous exposure as well as endogenous redistribution of lead stored in bone. BLL does not reflect the total body burden. One reason for this is that lead has a high affinity for bone and up to 90% of the body's total lead is deposited there. A very important component of the total lead body burden is lead in soft tissue (liver, kidney,	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	and brain). This fraction of the lead body burden, the biologically active lead, is not entirely reflected by ~~blood lead levels~~BLLs since it is a function of the dynamics of lead absorption, distribution, deposition in bone and excretion. Following discontinuation of exposure to lead, the excess body burden is only slowly mobilized from bone and other relatively stable body stores and excreted. When interpreting a person's BLL, three key questions to keep in mind are whether the exposure history has been acute or chronic; recent or remote; high or low. For instance,~~Consequently,~~ a high ~~blood lead level~~BLL may only represent recent heavy exposure to lead without a significant total body excess and likewise a low ~~blood lead level~~BLL does not exclude an elevated total body burden of lead. Also due to its correlation with recent exposures, the ~~blood lead level~~BLL may vary considerably over short time intervals. To minimize laboratory error and erroneous results due to contamination, blood specimens must be carefully collected after thorough cleaning of the skin with appropriate methods using lead-free blood containers and analyzed by a reliable laboratory. Under the standard, samples must be analyzed in laboratories that are CLIA-approved (under the federal Clinical Laboratory Improvement Amendments (CLIA) regulations).~~which are approved by~~	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	~~OSHA. Analysis is to be made using atomic absorption spectrophotometry, anodic stripping voltammetry or any method which meets the accuracy requirements set forth by the standard.~~ The determination of lead in urine is generally considered a less reliable monitoring technique than analysis of whole blood primarily due to individual variability in urinary excretion capacity as well as the technical difficulty of obtaining accurate 24-hour urine collections. In addition, ~~workers~~employees with renal insufficiency, whether due to lead or some other cause, may have decreased lead clearance and consequently urine lead levels may underestimate the true lead burden. Therefore, urine lead levels should not be used as a routine test. ~~The zinc protoporphyrin test, unlike the blood lead determination, measures an adverse metabolic effect of lead and as such is a better indicator of lead toxicity than the level of blood lead itself. The level of ZPP reflects lead absorption over the preceding 3 to 4 months, and therefore is a better indicator of lead body burden. The ZPP requires more time than the blood lead to read significantly elevated levels; the return to normal after discontinuing lead exposure is also slower. Furthermore, the ZPP test is simpler, faster, and less expensive to perform and no contamination~~	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	~~is possible. Many investigators believe it is the most reliable means of monitoring chronic lead absorption.~~ The ZPP test, unlike the blood lead determination, is an indirect and relatively insensitive biomarker of lead absorption. Zinc protoporphyrin results from the inhibition of the enzyme ferrochelatase which catalyzes the insertion of an iron molecule into the protoporphyrin molecule, which then becomes heme. If iron is not inserted into the molecule, then zinc, having a greater affinity for protoporphyrin, takes the place of the iron, forming ZPP. The level of circulating ZPP may not rise until a BLL of 20 µg/dl in some adults and is not greater than 90% sensitive until the BLL exceeds 50 µg/dl.~~An elevation in the level of circulating ZPP may occur at blood lead levels as low as 20-30 µg/dl in some workers. Once the blood lead level has reached 40 µg/dl there is more marked rise in the ZPP value from its normal range of less than 100 µg/dl100 ml.~~ Increases in ~~blood lead levels~~BLLs beyond 40 µg/dl~~/100 g~~ are associated with exponential increases in ZPP. The upper limit of normal for ZPP varies some between labs but is usually between 35 and 40 µg/dl. Whereas ~~blood lead levels~~BLLs fluctuate over short time spans, ZPP levels remain relatively stable. ZPP is measured directly in red blood cells and is present for the cell's entire 120 day life-span. Therefore, the ZPP	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	level in blood reflects the average ZPP production over the previous 3-4 months and consequently the average lead exposure during that time interval. The ZPP requires more time than the blood lead to reach significantly elevated levels; the return to normal after discontinuing lead exposure is also slower, lagging the BLL by about 2-6 weeks. Therefore, the ZPP may be useful to assess chronicity of exposure. For example, an elevated BLL and normal ZPP suggest recent exposure, while an elevated BLL and elevated ZPP suggest chronic/ongoing exposure. It is recommended that a hematocrit be determined whenever a confirmed ZPP of 50 µg/dl~~/100 ml whole blood~~ is obtained to rule out a significant underlying iron deficiency anemia. If the ZPP is in excess of 100 µg/dl~~/100 ml~~ and not associated with abnormal elevations in ~~blood lead levels~~BLLs, the laboratory should be checked to be sure that blood leads were determined using a laboratory that is CLIA-approved~~atomic absorption spectrophotometry anodic stripping voltammetry, or any method which meets the accuracy requirements set forth by the standard by an OSHA approved laboratory which is experienced in lead level determinations~~. Repeat periodic blood lead studies should be obtained in all individuals with elevated ZPP levels to be certain that an associated elevated ~~blood lead level~~BLL	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	has not been missed due to transient fluctuations in blood leads. ZPP has a characteristic fluorescence spectrum with a peak at 594 nanometers~~nm~~ which is detectable with a hematofluoro~~i~~meter. The hematofluoro~~i~~meter is accurate and portable and can provide on-site, instantaneous results for ~~workers~~employees who can be frequently tested via a finger prick. However, careful attention must be given to calibration and quality control procedures. Limited data on blood lead-ZPP correlations and the ZPP levels which are associated with the adverse health effects discussed in ~~S~~section ~~2~~II are the major limitations of the test. Also it is difficult to correlate ZPP levels with environmental exposure and there is some variation of response with age and sex. ~~Nevertheless, the ZPP promises to be an important diagnostic test for the early detection of lead toxicity and its value will increase as more data is collected regarding its relationship to other manifestations of lead poisoning.~~ Levels of delta-aminolevulinic acid (ALA) in the urine are also used as a measure of lead exposure. Increasing concentrations of ALA are believed to result from the inhibition of the enzyme delta-aminolevulinic acid dehydrata~~s~~e (ALA-D). Although the test is relatively easy to perform, inexpensive, and	

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	rapid, the disadvantages include variability in results, the necessity to collect a complete 24 hour urine sample which has a specific gravity greater than 1.010, and also the fact that ALA decomposes in the presence of light. The pattern of porphyrin excretion in the urine can also be helpful in identifying lead intoxication. With lead poisoning, the urine concentrations of coproporphyrins I and II, porphobilinogen and uroporphyrin I rise. The most important increase, however, is that of coproporphyrin III~~; levels may exceed 5,000 µg/l in the urine in lead poisoned individuals~~, but its correlations with ~~blood lead levels~~BLLs and ZPP are not as good as those of ALA. Increases in urinary porphyrins are not diagnostic of lead toxicity and may be seen in porphyria, some liver diseases, and in patients with high reticulocyte counts. V. Summary. The standard for inorganic lead in the construction industry places significant emphasis on the medical surveillance of all ~~workers~~employees exposed to levels of inorganic lead at or above the action level of 2 ~~30~~µg/m^3 TWA, and as interim protection for employees performing trigger tasks. The physician has a fundamental role in this surveillance program, and in the operation of the medical removal protection program.	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
	Even with adequate ~~worker~~employee education on the adverse health effects of lead and appropriate training in work practices, personal hygiene and other control measures, the physician has a primary responsibility for evaluating potential lead toxicity in the ~~worker~~employee. It is only through a careful and detailed medical and work history, a complete physical examination, and appropriate laboratory testing that an accurate assessment can be made. Many of the adverse health effects of lead toxicity are either irreversible or only partially reversible and therefore early detection of disease is very important. This document outlines the medical monitoring program as defined by the occupational safety and health standard for inorganic lead. It reviews the adverse health effects of lead poisoning and describes the important elements of the history and physical examinations as they relate to these adverse effects. Finally, the appropriate laboratory testing for evaluating lead exposure and toxicity is presented. It is hoped that this review and discussion will give ~~the~~ physicians a better understanding of the Cal/OSHA lead standard, with the ultimate goal of protecting the health and well-being of ~~the~~ ~~worker~~employees exposed to lead who are under ~~his or her~~their care.	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1926 - Construction

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1926.62 – Lead.	STATE: CSO - §1532.1. Lead.	RATIONALE
Appendix D	~~Appendix D to § 1532.1 – Qualitative and Quantitative Fit Test Protocols~~	
A note indicates that Appendix D - Qualitative and Quantitative Fit Test Protocols was removed 1/8/98.	~~[See Section 5144, Appendix A]~~	The State proposes to remove Appendix D - Qualitative and Quantitative Fit Test Protocols from the regulation. This change is necessary as the History notes for Section 1532.1 indicate that an amendment repealing appendix D and adding an editorial reference was filed 8-25-98; operative 11-23-98 (Register 98, No. 35).

SECTION 5155

SIDE BY SIDE COMPARISON

LEAD

CALIFORNIA STANDARDS COMPARISON

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR

SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: 1910

§1910.1000 Air contaminants.

* * * * *

TABLE Z-1 - LIMITS FOR AIR CONTAMINANTS

Substance CAS No.	ppm	mg/m³

* * * * *

There is no Federal PEL listed for Lead chromate

Lead, inorganic (as Pb); 7439-92-1 see 1910.1025

* * * * *

STATE: Title 8 CCR; General Industry Safety Orders

§5155. Airborne Contaminants.

* * * * *

Table AC-1
PERMISSIBLE EXPOSURE LIMITS FOR CHEMICAL CONTAMINANTS

Chemical Abstracts Registry Number[a]	*Skin*[b]	*Name*[c]	*PEL*[d] *ppm*[e]	*PEL*[d] *mg/M*³[f]	*Ceiling*[g]	*STEL*[o] *ppm*[e]	*STEL*[o] *mg/M*³[f]
		* * * * *					
7758976		Lead chromate, as Pb	--	~~0.02~~0.01			
		as Cr	--	0.005			
		(see also Sections 5198, 1532.1, 1532.2, 5206 & 8359)					
7439921		Lead (metallic) and inorganic compounds, dust and fume, as Pb (see also Sections 5198 & 1532.1)		~~0.05~~0.01			
		* * * * *					

RATIONALE

The Federal PEL for lead is specified in 1910.1025 as 50 µg/m³, which is equivalent to the current State PEL of 0.05 mg/m³. The State proposes to lower the PEL to 10 µg/m³, which is equivalent to 0.01 mg/m³. The proposed revision to the State PEL is based on new information about lead toxicity.

The proposed amendments would also add to Table AC-1 the Chemical Abstracts Service (CAS) Number, 7439921, for Lead (metallic) and inorganic compounds, dust and fume, as Pb.

This addition is necessary to clearly identify lead as a specific substance. The CAS Number for lead appears to have been omitted from Table AC-1 in error.

In addition, a reference to Section 1532.1 would be added to clarify that this PEL also applies to that section.

SECTION 5198

SIDE BY SIDE COMPARISON

LEAD

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1910 – General Industry SCOPE: Applicable throughout state unless otherwise noted.

FEDERAL: §1910.1025 – Lead.	**STATE: GISO - §5198 Lead**.	**RATIONALE**
1910.1025(a)(1)	(a)(1)	
This section applies to all occupational exposure to lead, except as provided in paragraph (a)(2).	This section applies to all occupational exposure to lead, except as provided in ~~paragraph~~subsection (a)(2).	The State proposes a minor editorial change here, substituting the word "subsection" for the word "paragraph." This change is necessary for consistency in how subsections are designated throughout the regulation.
(b) Definitions.	**(b) Definitions.**	
Action level means employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air (30 ug/m^3) averaged over an 8-hour period.	Action ~~L~~level. Employee exposure, without regard to the use of respirators, to an airborne concentration of lead ~~at an 8-hour time-weighted average concentration~~ of 2~~30~~ micrograms per cubic meter of air (2~~30~~ µg/~~M~~ m^3), calculated as an 8-hour time-weighted average (TWA).	The State proposes modifying the definition of action level, by lowering the action level from 30 µg/m^3 to 2 µg/m^3. As the action level is used in the regulation to trigger certain employee protections, this reduction in the action level is necessary to provide greater protection to employees who work in areas with airborne lead concentrations of 2 µg/m^3 or greater. This is in service of the overall goal of maintaining employee blood lead levels (BLLs) below 10 µg/dl. In addition, the State proposes to replace the phrase "at an 8-hour time-weighted average concentration" with "calculated as an 8-hour time-weighted average (TWA)." This change is necessary to provide consistency with both the existing definition of action level in section 1532.1, and with the proposed changes in the

		definition of the permissible exposure limit in subsection 5198(c).
(There is no corresponding federal definition.)	Altering or disturbing. Subjecting to a process that may result in the release of lead dust, lead mist, lead fume, or other lead particles. Such processes include, but are not limited to, welding, torch cutting, brazing, torch soldering, melting, pouring, spraying, cutting, shredding, crushing, baling, grinding, polishing, machining, drilling, scraping, sanding, abrading, sweeping, raking, and shoveling.	The State proposes defining 'altering or disturbing' as identifying activities that may result in the release of lead dust, lead mist, lead fume, or other lead particles. The definition provides employers with specific examples of activities that are "altering or disturbing." This definition is necessary to establish the type of activities employees perform that are included in the definition of "presumed hazardous lead work," which is defined below. This definition is also necessary to establish the type of activities that are referred to in subsection (k) Medical Removal Protection (MRP).
(There is no corresponding federal definition.)	Blood lead level. The concentration of lead measured in whole blood, expressed as micrograms per deciliter (µg/dl) of whole blood.	The State proposes defining 'blood lead level' to mean and identify the concentration of lead measured in whole blood, expressed as micrograms per deciliter (µg/dl) of whole blood. This definition is necessary to ensure that employers provide appropriate testing of the blood of employees when required by the regulation.
Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.	Chief. The Chief of the Division of Occupational Safety and Health, ~~P.O. Box 420603, San Francisco, California 94142~~or designee.	The State proposes to modify the current definition of 'chief,' by removing the mailing address, and adding "or designee."

		This change in definition is necessary to match the current definition in section 1532.1, and to allow for a more flexible definition.
(There is no corresponding federal definition.)	High-efficiency particulate air (HEPA) filter. A filter that is at least 99.97 percent efficient in removing particles 0.3 micrometers in diameter.	The State proposes defining 'high-efficiency particulate air (HEPA) filter' to clarify the meaning of the acronym HEPA, and to state the physical properties of a HEPA filter. This definition is necessary as the acronym HEPA is used in the existing language of the regulation in several subsections but is not defined.
(There is no corresponding federal definition.)	Presumed hazardous lead work (PHLW). (1) Altering or disturbing material that is: (A) known to contain lead at a concentration equal to or greater than 0.5% by weight, as a result of material testing or as content listed in a safety data sheet or similar specification sheet; or (B) reasonably anticipated to contain lead at a concentration equal to or greater than 0.5% by weight. Such materials include, but are not limited to, scrap lead, lead solder, lead bullet fragments and dust, lead sheeting, lead cable housing, and lead billets. (2) Torch cutting any scrap metal. EXCEPTION: Altering or disturbing material, as specified in this subsection, or torch cutting any	The State proposes to define 'presumed hazardous lead work (PHLW)' to specify work activities that trigger various employee protections provided by the regulation. This definition is necessary as the term (shown as the abbreviation PHLW) is used in changes proposed throughout the regulation. The State proposes to use a formal exception to specify when altering or disturbing material that is known or reasonably anticipated to contain lead at a concentration of 0.5% weight or greater, and torch cutting any scrap metal would not constitute PHLW.

	scrap metal, does not constitute PHLW when the total combined duration of lead exposure resulting from altering, disturbing, and torch cutting is less than 8 hours during any 30-day period.	This is necessary to make clear that, if the exception is claimed, it is the employer's duty to ensure and be able to demonstrate that the conditions of the exception are met.
(c)(1)	(c)(1)	
The employer shall assure that no employee is exposed to lead at concentrations greater than fifty micrograms per cubic meter of air (50 ug/m^3) averaged over an 8-hour period.	The employer shall ~~assure~~ensure that no employee is exposed to an airborne concentration of lead ~~at an 8-hour time-weighted average concentration~~ greater than 10~~50~~ micrograms per cubic meter of air (10~~50~~ µg/~~M~~m^3), calculated as an 8-hour time-weighted average (TWA). The 8-hour TWA shall be calculated in accordance with the appendix to section 5155.	The State proposes to lower the PEL for lead from 50 µg/m^3 to 10 µg/m^3. This change is necessary to ensure that employees are protected from airborne exposures to lead that can cause disease or other adverse health effects. The lower PEL is in service of the goal of maintaining employee BLLs below 10 µg/dl. The State proposes here, and throughout the regulation, to replace the word "assure" with the word "ensure." This change is proposed as the word "ensure" means to make certain or to confirm, while the word "assure" means to promise. The standard requires the employer to make certain that requirements are met. OSHA standards issued recently, including 1910.1053 (Silica), use the words "shall ensure" when referring to the employers' duties. The State proposes replacing the phrase "at an 8-hour time-weighted average concentration" with "an airborne

		concentration...calculated as an 8-hour time-weighted average (TWA).” In addition, the following sentence would be added in subsection (c)(1): “The 8-hour TWA shall be calculated in accordance with the appendix to section 5155.” These changes are necessary to provide consistency with the language used in Section 5155 (Airborne Contaminants) as well as all other Cal/OSHA substance-specific standards.
(c)(2)	(c)(2)	
If an employee is exposed to lead for more than 8 hours in any work day, the permissible exposure limit, as a time weighted average (TWA) for that day, shall be reduced according to the following formula: Maximum permissible limit (in ug/m^3) = 400 divided by hours worked in the day. 1910.1025(c)(3)	~~If an employee is exposed to lead for more than 8 hours in any work day, the permissible exposure limit for that day, as a time-weighted average concentration (TWA), shall be reduced according to the following formula:~~ ~~Maximum permissible limit (in µg/M^3) = 400 / hours worked in the day.~~	The State proposes deleting the formula to calculate an allowable exposure level when an employee is exposed to lead for more than 8 hours in any work day, and the accompanying language. This change is without regulatory effect and is necessary because calculating the allowable exposure in this way is confusing and departs from the way exposures greater than 8 hours are regulated by Cal/OSHA in all other substance specific regulations, as well as in Section 5155 (Airborne Contaminants) and its appendix.
(c)(3)	(c)(2) continued	
When respirators are used to supplement engineering and work practice controls to comply with the	~~(3)~~ When respirators are used to supplement engineering and work practice controls to comply with the PEL, and all the requirements of	The State proposes moving the language currently found in subsection (c)(3) into subsection (c)(2). In addition, the State

PEL and all the requirements of paragraph (f) have been met, employee exposure, for the purpose of determining whether the employer has complied with the PEL, may be considered to be at the level provided by the protection factor of the respirator for those periods the respirator is worn. Those periods may be averaged with exposure levels during periods when respirators are not worn to determine the employee's daily TWA exposure.	subsections (e)(1) and (f) have been met, employee exposure, for the purpose of determining whether the employer has complied with the PEL, may be considered to be at the level provided by the protection factor of the respirator for those periods the respirator is worn. Those periods may be averaged with exposure levels during periods when respirators are not worn to determine the employee's daily TWA exposure.	proposes to add the phrase "and all requirements of subsections (e)(1) and (f) have been met." This addition is necessary for consistency with the requirements currently given in Section 1532.1(c)(2). The addition of the phrase provides greater health protection for employees, as the use of respirators to reduce employee exposure to lead would be subject to meeting all the requirements for engineering and work practice controls in subsection (e)(1), along with all the requirements for respiratory protection in subsection (f).
(d) Exposure Monitoring.	**(d) Exposure Monitoring.**	
(d)(1)(ii)	(d)(1)(B)	
With the exception of monitoring under paragraph (d)(3), the employer shall collect full shift (for at least 7 continuous hours) personal samples including at least one sample for each shift for each job classification in each work area.	With the exception of monitoring under subsection (d)(~~3~~4), the employer shall collect full shift ~~(for at least 7 continuous hours)~~ personal samples including at least one sample for each shift for each job classification in each work area.	The State proposes removing the time requirement of "at least 7 continuous hours." This change is necessary to clarify that samples must be collected for a full shift, as opposed to a certain number of hours.
	(d)(2)	
(There is no corresponding federal requirement.)	Protection of Employees Prior to Assessment of Exposure. Until the employer performs an employee exposure assessment as required under subsection (d) and determines actual employee	The State proposes establishing new language to specify that employers would be required to provide a number of interim protections to employees performing PHLW, as defined in subsection (b), until

	exposure, the employer shall provide employees performing PHLW with interim protection as follows:	the employer performs an exposure assessment. These changes are necessary to provide essential protections to exposed employees until the employer has assessed actual employee exposures.
	(d)(2)(A)	
(There is no corresponding federal requirement.)	Appropriate respiratory protection consisting of, at a minimum, a half-mask respirator with N-100, R-100, or P-100 filters, in accordance with subsection (f). Employers shall not select or use filtering facepiece respirators. NOTE: A respirator that provides greater protection, such as a full-face respirator, may be appropriate when employees perform tasks such as welding, grinding, torch burning, torch cutting, and cleaning or emptying bullet traps.	The State proposes that these interim protections include the use of appropriate respiratory protection. The State proposes adding an explanatory note pointing out that a respirator providing more protection than a half-mask may be necessary for employees performing high exposure tasks. This change is necessary to provide greater health protection to exposed employees, where an exposure assessment has not been conducted, by requiring a minimum level of respiratory protection. The explanatory note is intended to alert the employer to the fact that a half-mask respirator may not be adequate to protect employees conducting certain high exposure tasks.
	(d)(2)(B)	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1910 – General Industry SCOPE: Applicable throughout state unless otherwise noted.

(There is no corresponding federal requirement.)	Appropriate protective work clothing and equipment, in a clean and dry condition at least weekly, in accordance with subsection (g).	The State proposes new language which requires that these interim protections include the provision of protective work clothing and equipment, in a clean and dry condition, at least weekly, in accordance with subsection (g). This change is necessary to provide greater health protection to exposed employees, where an exposure assessment has not been conducted, by providing a minimum level of protection against lead contamination of body and clothing.
	(d)(2)(C)	
(There is no corresponding federal requirement.)	Medical surveillance in accordance with subsection (j).	The State proposes new language to require that these interim protections include the provision of medical surveillance in accordance with subsection (j). This change is necessary to provide greater health protection to exposed employees, where an exposure assessment has not been conducted, by providing blood lead testing, and in some cases, medical exams and consultations. This will help ensure that an employee's lead exposure and health are assessed, and that the efficacy of the other interim protections is evaluated.
	(d)(2)(D)	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1910 – General Industry

SCOPE: Applicable throughout state unless otherwise noted.

(There is no corresponding federal requirement.)	Training in accordance with subsection (*l*).	The State proposes new language to require that these interim protections include the same training required for employees exposed at or above the action level. This change is needed to provide greater health protection to exposed employees, where an exposure assessment has not been conducted, by providing them with comprehensive information about lead, how to prevent exposure, their rights under the standard, and the importance of medical surveillance.
	(d)(2)(E)	
(There is no corresponding federal requirement.)	Posted signs in accordance with subsection (m)(2).	The State proposes to require that these interim protections include the requirement that employers post signs, in accordance with subsection (m)(2), in areas where employees perform PHLW. This change is needed to provide greater health protection to exposed employees, where an exposure assessment has not been conducted, by communicating to them the hazards of lead and basic hygiene precautions.
1910.1025(d)(3)(iii)	(d)(~~3~~4)(C)	
Measurements of airborne lead made in the preceding 12 months may be used to satisfy the requirement to monitor under paragraph (d)(3)(i) if the sampling	Measurements of airborne lead made in the preceding 12 months may be used to satisfy the requirement to monitor under subsection (d)(~~3~~4)(A) if sampling and analytical methods	The State proposes to redesignate subsection (d)(3)(C) to (d)(4)(C), and to change references to two subsections that are referenced in this subsection.

and analytical methods used meet the accuracy and confidence levels of paragraph (d)(9) of this section.	used meet the accuracy and confidence levels of subsection (d)(~~9~~10).	These changes are necessary as additional requirements have been added in subsection (d)(2) and to accurately refer to the subsections that have been redesignated.
1910.1025(d)(4)(i)	(d)(4~~5~~)(A)	
Where a determination conducted under paragraphs (d)(2) and (3) of this section shows the possibility of any employee exposure at or above the action level, the employer shall conduct monitoring which is representative of the exposure for each employee in the workplace who is exposed to lead.	Where a determination conducted under subsections (d)(~~2~~3) and (d)(~~3~~4) shows the possibility of any employee exposure at or above the action level, the employer shall conduct monitoring which is representative of the exposure for each employee in the workplace who is exposed to lead.	The State proposes to redesignate subsection (d)(4)(A) to (d)(5)(A), and to change references to two subsections that are referenced in this subsection. These changes are necessary as additional requirements have been added in subsection (d)(2) and to accurately refer to the subsections that have been redesignated.
1910.1025(d)(4)(ii)	(d)(4~~5~~)(B)	
Measurements of airborne lead made in the preceding 12 months may be used to satisfy this requirement if the sampling and analytical methods used meet the accuracy and confidence levels of paragraph (d)(9) of this section.	Measurements of airborne lead made in the preceding 12 months may be used to satisfy this requirement if the sampling and analytical methods used meet the accuracy and confidence levels of subsection (d)(~~9~~10).	The State proposes to redesignate subsection (d)(4)(B) to (d)(5)(B), and to change a reference to the subsection that is referenced in this subsection. These changes are necessary as additional requirements have been added in subsection (d)(2) and to accurately refer to the subsection that has been redesignated.
(d)(5)	(d)(~~5~~6)	
Negative initial determination. Where a determination, conducted under paragraphs (d)(2) and (3) of this section is made that no employee is exposed to airborne concentrations of lead at or above the action level,	Negative Initial Determination. Where a determination conducted under subsections (d)(~~2~~3) and (d)(~~3~~4) is made that no employee is exposed to concentrations of airborne lead at or above the action level, the employer shall make a written record of such determination. The record	The State proposes to require a unique identifier (such as date of birth or employee identification number) to be used in place of a social security number (SSN) in written records for each employee monitored.

the employer shall make a written record of such determination. The record shall include at least the information specified in paragraph (d)(3) of this section and shall also include the date of determination, location within the worksite, and the name and social security number of each employee monitored.	shall include at least the information specified in subsection (d)(~~3~~4) and shall also include the date of determination, location within the worksite, and the name and another unique employee identifier (such as date of birth or employee identification number~~social security number~~) of each employee monitored.	This change is necessary to comply with a Cal/OSHA directive to remove all requirements in its standards to include employee SSNs on exposure monitoring, medical surveillance, or other records, in order to facilitate employers' efforts to safeguard employee privacy. This directive is in response to federal OSHA's Standards Improvement Project proposal to remove requirements for including employee SSNs in its regulations.
	[**Note:** The material in proposed section 5198(d)(7) corresponds to the federal language in 1910.1025(d)(6). However, the individual requirements within proposed section 5198(d)(7) are not listed in the same order. For proposed section 5198(d)(7), this Standards Comparison follows the order in the federal standard; the corresponding State requirements are therefore not presented in the order in which they appear in proposed section 5198(d)(7).]	
	(d)(~~6~~7)(C)	
(There is no corresponding federal requirement.)	If monitoring reveals employee exposure to be at or above the action level but below 30 µg/m^3 as an 8-hour TWA, the employer shall repeat monitoring at least every 12 months. The employer shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are below the action level, at which time the employer may discontinue monitoring except as otherwise provided by subsection (d)(8).	The State proposes to add new language which would establish requirements when initial or subsequent monitoring shows employee exposure to be at or above 2 µg/m^3 but below 30 µg/m^3. At this level of exposure, monitoring would be required every 12 months. This addition is necessary to ensure that at least a minimal amount of repeated air

		monitoring is conducted when an employee's exposure is at or above the proposed action level of 2 µg/m^3. In addition, this change would encourage employers to strive to reduce employee exposures to below 2 µg/m^3.
(d)(6)(i)	(d)(~~6~~7)(D~~C~~)	
If the initial monitoring reveals employee exposure to be below the action level the measurements need not be repeated except as otherwise provided in paragraph (d)(7) of this section.	Whenever initial monitoring ~~or monitoring conducted in accordance with subsection (d)(6)(A)~~ reveals ~~an~~ employee~~'s~~ exposure to be below the action level, further measurements are not required except as otherwise provided by subsection (d)(~~7~~8).	The State proposes to remove existing language such that the requirements would apply only to initial monitoring. This change is necessary for consistency with the existing language used in Section 1532.1(d)(6)(A). The change is also appropriate, as the language that would be removed no longer makes sense, given the other changes proposed in subsection (d)(7) as outlined above.
(d)(6)(ii)	(d)(~~6~~7)(B)	
If the initial determination or subsequent monitoring reveals employee exposure to be at or above the action level but below the permissible exposure limit the employer shall repeat monitoring in accordance with this paragraph at least every 6 months. The employer shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are below the action level at which time the	If ~~initial~~ monitoring ~~or monitoring conducted in accordance with subsection (d)(6)(A)~~ reveals ~~an~~ employee~~'s~~ exposure to be at or above 30 µg/m^3 as an 8-hour TWA ~~the action level~~ but no greater than 50 µg/m^3 as an 8-hour TWA~~the permissible exposure limit~~, the employer shall repeat monitoring at least every 6 months. The employer shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are below 30 µg/m^3 as an 8-hour TWA.~~the action level at which time~~ Subsequent monitoring shall conform with the applicable provisions of	The State proposes that language referring to "initial" monitoring or "monitoring conducted in accordance with subsection (d)(6)(A)" would be removed. This change is necessary to require repeat monitoring every 6 months when an employee's exposure is at or above 30 µg/m^3, but no greater than 50 µg/m^3, regardless of whether this was determined through initial or subsequent monitoring.

employer may discontinue monitoring for that employee except as otherwise provided in paragraph (d)(7) of this section.	subsection (d)(7)(C) ~~the employer may discontinue monitoring for that employee except as otherwise provided by subsection (d)(7)~~.	The State proposes replacing the reference to "the permissible exposure limit" with "50 µg/m^3," and replacing the reference to "the action level" with "30 µg/m^3." These changes are necessary to correctly notify employers of the monitoring requirements at specified exposure levels, given that these proposals would change the meaning of the terms "permissible exposure limit" and "action level." The State also proposes adding language stating, "subsequent monitoring shall conform with the applicable provisions of subsection (d)(7)(C)." In addition, a phrase stating that the employer may discontinue monitoring (when the results are below the current action level of 30 µg/m^3) would be removed. These changes are necessary to reflect the new monitoring requirements proposed for subsection (d)(7)(C).
(d)(6)(iii)	(d)(~~6~~7)(A)	
If the initial monitoring reveals that employee exposure is above the permissible exposure limit the employer shall repeat monitoring quarterly. The employer shall continue monitoring at the required frequency until at least two consecutive measurements, taken at	If ~~initial~~ monitoring reveals ~~an~~ employee~~'s~~ exposure to be above 50 µg/m^3 as an 8-hour TWA ~~the permissible exposure limit~~, the employer shall repeat monitoring quarterly until at least two consecutive measurements, taken at least 7 days apart, are at or below 50 µg/m^3 as an 8-hour TWA~~the permissible exposure limit~~. Subsequent monitoring ~~for that employee~~ shall conform with	The State proposes that the word "initial" be removed. This change is necessary to require repeat monitoring quarterly when an employee's exposure is above a given level, regardless of whether this was

least 7 days apart, are below the PEL but at or above the action level at which time the employer shall repeat monitoring for that employee at the frequency specified in paragraph (d)(6)(ii), except as otherwise provided in paragraph (d)(7) of this section.	the applicable provisions of subsections (d)(~~6~~7)(B) or (C), as appropriate, based on the monitoring results.	determined through initial or subsequent monitoring. The State proposes that references to "the permissible exposure limit" be replaced with "50 µg/m^3." This change is necessary to correctly notify employers of the monitoring requirements at specified exposure levels, given that these proposals would change the meaning of the terms "permissible exposure limit" and "action level." The State proposes that references to "an employee's exposure" be changed to "employee exposure." Similarly, the phrase "for that employee" would be removed. These changes are necessary for consistency with the existing language used in Section 1532.1(d)(6). The changes are also appropriate, as the purpose of monitoring is to determine employee exposure, where "employee" could refer to a group of employees rather than to a particular employee's exposure. Also the State proposes modifying language so that the frequency of subsequent monitoring would follow (d)(7)(B) or (C), as appropriate, based on the monitoring results.

		This change is necessary to reflect the new monitoring requirements proposed for subsection (d)(7)(C).
(d)(9)	(d)(~~9~~10)	
Accuracy of measurement. The employer shall use a method of monitoring and analysis which has an accuracy (to a confidence level of 95%) of not less than plus or minus 20 percent for airborne concentrations of lead equal to or greater than 30 ug/m^3.	Accuracy of Measurement. The employer shall use a method of monitoring and analysis which has an accuracy (to a confidence level of 95%) within plus or minus 20 percent at concentrations of airborne lead equal to or greater than 2 ~~30~~µg/~~M~~m^3.	The State proposes to change the concentration of airborne lead at which this accuracy must be met to equal to or greater than 2 µg/m^3 from the existing 30 µg/m^3. This change is necessary to ensure that accuracy requirements for sampling and analytical methods are met when monitoring for airborne lead at the proposed, lowered action level of 2 µg/m^3.
(e) Methods of compliance -	**(e) Compliance.**	
(e)(1)(i)	(e)(1)(A)	
Where any employee is exposed to lead above the permissible exposure limit for more than 30 days per year, the employer shall implement engineering and work practice controls (including administrative controls) to reduce and maintain employee exposure to lead in accordance with the implementation schedule in Table I below, except to the extent that the employer can demonstrate that such controls are not feasible. Wherever the engineering and work practice	Except as specified in subsection (e)(1)(B), w~~W~~here any employee is exposed to lead above the permissible exposure limit (PEL) ~~for more than 30 days per year~~, the employer shall implement engineering~~,~~ and work practice controls, including~~, and~~ administrative controls, to reduce and maintain employee exposure to lead at or below the PEL, except to the extent that the employer can demonstrate that such controls are not feasible. ~~Where engineering, work practice, and administrative controls which can be instituted are not sufficient to reduce employee exposure to or below the permissible exposure limit, they shall nonetheless be used by the~~	The State proposes to add to subsection (e)(1)(A) a reference to subsection (e)(1)(B). This addition is necessary, as subsection (e)(1)(B) would allow an exception for specified processes from meeting the requirements of subsection (e)(1)(A). In addition, the phrase “for more than 30 days per year” would be removed, so as to require an employer to implement specified control measures where any

controls which can be instituted are not sufficient to reduce employee exposure to or below the permissible exposure limit, the employer shall nonetheless use them to reduce exposures to the lowest feasible level and shall supplement them by the use of respiratory protection which complies with the requirements of paragraph (f) of this section.	~~employer to reduce exposures to the lowest feasible level. Small non-ferrous foundries (fewer than 20 employees), however, are only required to achieve 75 ug/M^3 by such controls.~~	employee is exposed above the PEL, regardless of the number of days. This change is necessary to provide greater health protection for employees who work with lead for 30 days per year or less. The change would also provide consistency with the requirements given in Section 1532.1(e)(1). Also, language would be amended so as to include administrative controls within work practice controls. This change is necessary for consistency with other sections, including Section 1532.1 and Section 5207 (Cadmium). In addition, the phrase “at or below the PEL” would be added. This addition is necessary to clarify that the employer must implement controls to reduce and maintain employee exposure to lead at or below the PEL. Also, language that requires employers to institute controls even when they are not sufficient to reduce employee exposure to or below the PEL would be removed from subsection (e)(1)(A) and placed under proposed subsection (e)(1)(C). This change is necessary to address the controls required by subsection (e)(1)(B).

<table>
<tr><td></td><td></td><td>Additionally, language would be removed which requires small non-ferrous foundries to achieve an airborne level of 75 µg/m^3, rather than the PEL, using specified control measures.

This change is needed to provide added health protection for employees working in small non-ferrous foundries.</td></tr>
<tr><td></td><td>(e)(1)(B)</td><td></td></tr>
<tr><td>(There is no corresponding federal requirement).</td><td>Where a separate engineering control air limit (SECAL) has been specified for particular processes (see Table 1), the employer shall implement engineering and work practice controls to reduce and maintain employee exposure at or below the SECAL, except to the extent that the employer can demonstrate that such controls are not feasible.

Table 1 -- Separate Engineering Control Airborne Limits (SECALs) for Selected Processes; Implementation Schedule

<table><tr><th>Industry</th><th>Process</th><th>SECAL** and Implementation Dates</th></tr><tr><td>Lead acid battery manufacturing*</td><td>Oxide production; paste mixing; grid pasting and parting;</td><td>50 µg/m^3 on [OAL insert effective date here], then 40 µg/m^3 on [OAL insert five years from the</td></tr></table></td><td>The State proposes to add new language in proposed subsection (e)(1)(B), followed by a new table, Table 1. Separate engineering control air limits (SECALs) would be specified for particular processes. Where a SECAL is specified, the employer would be required to implement engineering and work practice controls to reduce and maintain employee exposure to lead at or below the SECAL, except to the extent that the employer can demonstrate that such controls are not feasible. Employers would be required to protect employees from exposures above the PEL by any mix of compliance methods, including engineering and work practice controls, and respiratory protection. There is a precedent for the establishment of SECALs, in both the Federal Occupational Safety and Health Administration (OSHA) and Cal/OSHA standards for cadmium (29 CFR 1910.1027 and Section 5207, respectively). Table 1 would establish</td></tr>
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	<table><tr><td></td><td>and battery assembly.</td><td>effective date here].</td></tr><tr><td></td><td>Grid production and small parts casting; and plate formation.</td><td>50 µg/m^3 on [OAL insert effective date here], then 30 µg/m^3 on [OAL insert five years from the effective date here].</td></tr></table> * Processes in this industry that are not specified in this table must achieve the PEL as specified in subsection (e)(1)(A). **A SECAL is an airborne concentration of lead calculated as an 8-hour TWA.	SECALs for selected processes, which are all within the lead acid battery manufacturing industry, along with implementation dates. The establishment of SECALs for these processes is necessary because the lead acid battery manufacturing industry demonstrated that for certain processes, it would be unable to comply with the proposed PEL using only feasible engineering and work practice controls. The Battery Council International provided Cal/OSHA with confidential business information that estimated the industry-wide annualized compliance costs of implementing the proposed PEL for the areas where SECALs are proposed would represent 45.2% of the most recently reported annual profits, if SECALs were not adopted. Furthermore, the 5 year phase-in period for more stringent SECALs would allow the lead acid battery manufacturing industry time to institute more effective engineering and work practice controls in its facilities.
(e)(1)(i) and (e)(2)	(e)(1)(C~~B~~)	
Where any employee is exposed to lead above the permissible exposure limit for more than 30 days per year, the employer shall implement engineering and work practice controls (including administrative controls) to reduce and maintain	Where engineering and work practice controls ~~Where controls which can be instituted in accordance with subsection (e)(1)(A)~~ are not sufficient to reduce and maintain employee exposure to or below the ~~permissible exposure limit~~PEL or, where applicable, the SECAL, the employer shall implement such controls to reduce	The State proposes to add language in proposed subsection (e)(1)(C) to specify that where engineering and work practice controls are not sufficient to achieve the PEL or where applicable, the SECAL, the employer must implement such controls

employee exposure to lead in accordance with the implementation schedule in Table I below, except to the extent that the employer can demonstrate that such controls are not feasible. Wherever the engineering and work practice controls which can be instituted are not sufficient to reduce employee exposure to or below the permissible exposure limit, the employer shall nonetheless use them to reduce exposures to the lowest feasible level and shall supplement them by the use of respiratory protection which complies with the requirements of paragraph (f) of this section. (e)(2) Respiratory protection. Where engineering and work practice controls do not reduce employee exposure to or below the 50 ug/m^3 permissible exposure limit, the employer shall supplement these controls with respirators in accordance with paragraph (f).	exposure to the lowest level feasible. The employer shall supplement these controls with respiratory protection, in conformance with subsection (f), to control employee exposure ~~within~~to or below the ~~permissible exposure limit~~PEL.	to reduce exposures to the lowest levels feasible. This change is necessary to clarify that employers must reduce exposure to the lowest level feasible using engineering and work practice controls and may only use respiratory protection to achieve the PEL as a supplement to these controls. This provides additional health protection for employees, as engineering and work practice controls provide more consistent employee protection than respiratory protection.
(e)(1)(ii)	~~(e)(1)(C)~~	
Where any employee is exposed to lead above the permissible exposure limit, but for 30 days or less per year, the employer shall implement engineering controls to reduce exposures to 200 ug/m^3, but	~~(C) Where any employee is exposed to lead above the permissible exposure limit, but for 30 days or less per year, the employer shall implement feasible engineering controls to reduce exposure to 150 ug/M^3, but thereafter may implement any combination of engineering,~~	The State proposes to remove existing subsection (e)(1)(C), which applies to situations where an employee is exposed above the PEL for 30 days or less per year.

thereafter may implement any combination of engineering, work practice (including administrative controls), and respiratory controls to reduce and maintain employee exposure to lead to or below 50 ug/m^3	~~work practice, administrative and respiratory controls to reduce and maintain exposure to lead to or below the permissible exposure limit.~~	This change is necessary to provide added health protection to employees who are exposed above the PEL for 30 days or less per year. The change would also provide consistency with the requirements given in Section 1532.1(e)(1).
(e)(3)(i)	(e)(2)(A)	
Each employer shall establish and implement a written compliance program to reduce exposures to or below the permissible exposure limit, and interim levels if applicable, solely by means of engineering and work practice controls in accordance with the implementation schedule in paragraph (e)(1).	~~Where applicable,~~ Eeach employer shall establish and implement a written compliance program to reduce exposures to or below the ~~permissible exposure limit~~PEL or, where applicable, the SECAL, ~~and interim levels~~ solely by means of engineering and work practice controls in accordance with subsection (e)(1)(C)~~in accordance with the implementation schedule in subsection (e)(1)~~.	The State proposes to remove from subsection (e)(2)(A) the words “where applicable” and add a reference to SECALs. These changes are necessary for clarity, as the requirements for a written compliance program apply to all employers who must reduce exposures to comply with the PEL or SECAL. The State also proposes to add a reference to subsection (e)(1)(C). This is necessary to include a provision for feasibility regarding engineering and work practice controls. The State proposes to remove a reference in subsection (e)(2)(A) to an implementation schedule. This change is necessary, as the current regulation has no implementation schedule in subsection (e)(1). This appears to be a reference to an implementation schedule in federal OSHA

		regulation 1910.1025, dating back to 1996, which is no longer applicable.
(e)(3)(ii)(C)	(e)(2)(B)3.	
A report of the technology considered in meeting the permissible exposure limit;	A report of ~~the~~any engineering and work practice controls considered in meeting the PEL but not implemented due to infeasibility, that includes an explanation of how each was determined to be infeasible~~technology considered in meeting the permissible exposure limit~~;	The State proposes to add to subsection (e)(2)(B)3. a requirement that the written compliance program include a report of the engineering and work practice controls that were considered by the employer but not implemented, and how these controls were determined not to be feasible. This is necessary to ensure that employers document the rationale behind their determination that certain control measures would not be feasible. Also, a reference to the permissible exposure limit would be removed. This change is necessary for clarity, as by definition, a compliance program is meant to achieve compliance with the PEL. The State also proposes to remove existing subsection (e)(2)(B)(3) [Reserved], which contains no text.
(e)(3)(ii)(G)	(e)(2)(B)7.	
An administrative control schedule required by paragraph (e)(5) of this section, if applicable;	An administrative control schedule required by subsection (e)(~~4~~5), if applicable; and	The State proposes to change a reference to subsection (e)(5) to subsection (e)(4).

		This change is necessary to correctly identify the subsection that addresses administrative controls.
(e)(3)(iv)	(e)(2)(D)	
Written programs must be revised and updated at least annually to reflect the current status of the program.	Written programs shall be revised and updated at least every 6 months to reflect the current status of the program. The revisions and updates shall be documented in writing, in accordance with subsection (n)(2).	The State proposes to add language requiring written documentation of revisions and updates to the compliance program. This change is necessary to ensure that these revisions and updates are made in a formalized manner that can be reviewed at a future time.
1910.1025(e)(4)(ii)	(e)(34)(B)	
Recirculation of air. If air from exhaust ventilation is recirculated into the workplace, the employer shall assure that	Recirculation of Air. If air from exhaust ventilation is recirculated into the workplace, the employer shall ~~assure~~ensure that:	The State proposes to redesignate subsection (e)(4)(A) to (e)(3)(A). This change is necessary as subsection (e)(3) has been deleted because it is serving no purpose. In addition, The State proposes here, and throughout the regulation, to replace the word “assure” with the word “ensure.” This change is proposed as the word “ensure” means to make certain or to confirm, while the word “assure” means to promise. The standard requires the employer to make certain that requirements are met. OSHA standards issued recently, including 1926.1153 (Silica), use the words “shall ensure” when referring to the employers’ duties.
(e)(5)	(e)(4~~5~~)	

Administrative controls. If administrative controls are used as a means of reducing employees TWA exposure to lead, the employer shall establish and implement a job rotation schedule which includes:	Administrative Controls. If administrative controls are used as a means of reducing employees' TWA exposure to lead, the employer shall establish and implement a written job rotation schedule thatwhich includes:	The State proposes to add language requiring written documentation of any job rotation schedule. This change is necessary to ensure that these schedules are made in a formalized manner that can be reviewed at a future time.
(e)(5)(i)	(e)(45)(A)	
Name or identification number of each affected employee;	The nName and another unique identifier (such as date of birth or employeeor identification number) of each affected employee;	The State proposes to add language to subsection (e)(4)(A) to require that an employee's name and another unique identifier be used when job rotation schedules are established and implemented. This change is necessary for consistency with language proposed for recording requirements proposed for subsection (d)(6) and elsewhere in the regulation.
(f) Respiratory protection.	**(f) Respiratory Protection.**	
1910.1025(f)(1)(ii)	(f)(1)(A)	
Work operations for which engineering and work-practice controls are not sufficient to reduce employee exposures to or below the permissible exposure limit.	Work operations for which engineering and work practice controls are not sufficient to reduce exposures to or below the permissible exposure limitPEL;	The State proposes to use the acronym PEL is place of the term permissible exposure limit. This change is necessary as the acronym PEL has appeared previously in this section, in subsection (c).
1910.1025(f)(1)(iii)	(f)(1)(C)	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1910 – General Industry SCOPE: Applicable throughout state unless otherwise noted.

Periods when an employee requests a respirator.	Periods when an employee requests a respirator~~.~~; and	The State proposes a minor editorial change in this subsection.
	(f)(1)(D)	
(There is no corresponding federal requirement.)	Periods when an employee performs PHLW, as interim protection in accordance with subsection (d)(2).	The State proposes to add a new subsection, (f)(1)(D), containing language requiring that respirators be provided and used, as interim protection for an employee when they perform PHLW. This addition is necessary to provide greater health protection to exposed employees, where an exposure assessment has not been conducted, by requiring a minimum level of respiratory protection, in accordance with subsection (d)(2).
(f)(2)(i)	(f)(2)(A)	
The employer must implement a respiratory protection program in accordance with §1910.134(b) through (d) (except (d)(1)(iii)), and (f) through (m), which covers each employee required by this section to use a respirator.	The employer must implement a respiratory protection program in accordance with section 5144(b~~c~~) ~~(except (d)(1)(C))~~ through (m) (except subsection (d)(1)(C)).	The State proposes to change the language of subsection (f)(2)(A) to replace a reference to Section 5144(c) with one to Section 5144(b). This change is necessary to include in the requirements for respiratory protection provisions that are given in the definitions found in Section 5144(b).
(f)(3)(i) and (f)(3)(i)(A)	(f)(3)(A)	
Employers must:	The employer shall select, and provide to employees, the appropriate respirators specified in s~~S~~ection 5144(d)(3)(A)1. Employers shall not	The State proposes to add a requirement that would prohibit employers from selecting or using filtering facepiece

Select, and provide to employees, the appropriate respirators specified in paragraph (d)(3)(i)(A) of 29 CFR 1910.134.	select or use filtering facepiece respirators for protection against lead.	respirators to protect their employees against lead when respirator use is required. This amendment is necessary, because filtering facepiece respirators, also known as disposable dust masks, are unlikely to provide adequate protection to employees, due to the difficulty in achieving and maintaining a satisfactory seal on the employee's face. This requirement is also consistent with the requirements in the Asbestos standards, 29 CFR 1910.1001(g)(3)(i) and Section 5208(g)(3)(A), that prohibit the selection or use of filtering facepiece respirators.
(f)(3)(i)(C)	(f)(3)(D)	
Provide HEPA filters for powered and non-powered air-purifying respirators.	The employer shall provide HEPA filters for powered air-purifying respirators and N-100, R-100, or P-100 filters for non-powered air-purifying respirators.	The State proposes to add specifications for the type of filters that an employer would be required to provide for non-powered air-purifying respirators, and modify text to clarify that HEPA filters are to be provided for powered air-purifying respirators. These changes are necessary to reflect NIOSH rules for respirators that were updated in 1995.
(g) Protective work clothing and equipment -	**(g) Protective Work Clothing and Equipment.**	

(g)(1)	(g)(1)(A)	
Provision and use. If an employee is exposed to lead above the PEL, without regard to the use of respirators or where the possibility of skin or eye irritation exists, the employer shall provide at no cost to the employee and assure that the employee uses appropriate protective work clothing and equipment such as, but not limited to: (There is no corresponding federal requirement.)	~~If an employee is exposed to lead above the PEL, without regard to the use of respirators, or where the possibility of skin or eye irritation exists, t~~The employer shall, in accordance with Article 10, provide~~at no cost to the employee and assure that the employee uses~~ appropriate protective work clothing and equipment ~~such as, but not limited to~~: 1. To employees exposed to lead above the PEL without regard to the use of respirators; 2. As interim protection, in accordance with subsection (d)(2), to employees who perform PHLW; and 3. To employees for whom the possibility exists of skin or eye irritation from exposure to lead (e.g. lead arsenate, lead azide).	The State proposes to amend the language of subsection (g)(1) by moving existing requirements in subsection (g)(1) into proposed subsections (g)(1)(A), (g)(1)(B), and (g)(1)(C). In addition, a reference to Article 10 would be moved from its current location in subsection (g)(1)(C) to proposed subsection (g)(1)(A). This change is necessary to ensure that all protective clothing and equipment is selected and used in accordance with Article 10 requirements for personal safety devices and safeguards. Also, language would be added in proposed subsection (g)(1)(A)2. requiring that appropriate protective work clothing and equipment be provided, as interim protection to employees who perform PHLW. This addition is necessary to provide greater health protection to exposed employees, where an exposure assessment has not been conducted, by providing a minimum level of protection against lead contamination of body and clothing, in accordance with proposed subsection (d)(2).
(g)(1)	(g)(1)(B)	

Provision and use. If an employee is exposed to lead above the PEL, without regard to the use of respirators or where the possibility of skin or eye irritation exists, the employer shall provide at no cost to the employee and assure that the employee uses appropriate protective work clothing and equipment such as, but not limited to:	The employer shall provide protective work clothing and equipment at no cost to the employee, and shall ensure its use.	The State proposes to move this requirement from its current location in subsection (g)(1) to proposed subsection (g)(1)(B).
(g)(1)	(g)(1)(C)	
Provision and use. If an employee is exposed to lead above the PEL, without regard to the use of respirators or where the possibility of skin or eye irritation exists, the employer shall provide at no cost to the employee and assure that the employee uses appropriate protective work clothing and equipment such as, but not limited to:	Appropriate protective work clothing and equipment includes, but is not limited to:	The State proposes to move this phrase from subsection (g)(1) to proposed subsection (g)(1)(C).
(g)(1)(iii)	(g)(1)~~(C~~3.~~)~~	
Face shields, vented goggles, or other appropriate protective equipment which complies with 1910.133 of this Part.	Face shields, vented goggles, or other appropriate protective equipment ~~which complies with Article 10~~.	The State proposes to move this reference to Article 10 to proposed subsection (g)(1)(A).
(g)(2)(i)	(g)(2)(A)	
The employer shall provide the protective clothing required in	The employer shall provide the protective clothing required in subsection (g)(1), in a clean	The State proposes to modify the exposure level at which an employer

paragraph (g)(1) of this section in a clean and dry condition at least weekly, and daily to employees whose exposure levels without regard to a respirator are over 200 ug/m^3 of lead as an 8-hour TWA.	and dry condition at least weekly, and daily to employees whose exposure levels without regard to respirator use are over 30 ~~150~~µg/m~~M~~^{3} of lead ~~on~~as an 8-hour ~~time-weighted average basis~~TWA.	would be required to provide, at least daily, clean and dry protective clothing to employees, from 150 µg/m^3 to 30 µg/m^3. This change is necessary to reflect the lower proposed PEL of 10 µg/m^3, and to support the overall goal of reducing and maintaining employees' BLLs below 10 µg/dl.
1910.1025(g)(2)(iv)	(g)(2)(D)	
The employer shall assure that all protective clothing is removed at the completion of a work shift only in change rooms provided for that purpose as prescribed in paragraph (i)(2) of this section.	The employer shall ~~assure~~ensure that all protective clothing is removed at the completion of a work shift and only in change rooms provided for that purpose as prescribed in subsection (i)(2).	The State proposes here, and throughout the regulation, to replace the word "assure" with the word "ensure." This change is proposed as the word "ensure" means to make certain or to confirm, while the word "assure" means to promise. The standard requires the employer to make certain that requirements are met. OSHA standards issued recently, including 1926.1153 (Silica), use the words "shall ensure" when referring to the employers' duties.
1910.1025(g)(2)(v)	(g)(2)(E)	
The employer shall assure that contaminated protective clothing which is to be cleaned, laundered, or disposed of, is placed in a closed container in the change-room which prevents dispersion of lead outside the container.	The employer shall ~~assure~~ensure that contaminated protective clothing which is to be cleaned, laundered, or disposed of, is placed in a closed container in the change room which prevents dispersion of lead outside the container.	The State proposes here, and throughout the regulation, to replace the word "assure" with the word "ensure." This change is proposed as the word "ensure" means to make certain or to confirm, while the word "assure" means to promise. The standard requires the employer to make certain that requirements are met. OSHA standards issued recently, including 1926.1153

		(Silica), use the words “shall ensure” when referring to the employers’ duties.
(g)(2)(vii)(A)	(g)(2)(G)~~1.~~	
The employer shall ensure that labels of bags or containers of contaminated protective clothing and equipment include the following information: DANGER: CLOTHING AND EQUIPMENT CONTAMINATED WITH LEAD. MAY DAMAGE FERTILITY OR THE UNBORN CHILD. CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM. DO NOT EAT, DRINK OR SMOKE WHEN HANDLING. DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF LEAD CONTAMINATED WASH WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, OR FEDERAL REGULATIONS.	The employer shall ensure that labels of bags or containers of contaminated protective clothing and equipment include the following information: DANGER: CLOTHING AND EQUIPMENT CONTAMINATED WITH LEAD. MAY DAMAGE FERTILITY OR THE UNBORN CHILD. CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM. DO NOT EAT, DRINK OR SMOKE WHEN HANDLING. DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF LEAD CONTAMINATED WASH WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, OR FEDERAL REGULATIONS.	The State proposes to redesignate subsection (g)(2)(G)1. to (g)(2)(G). This change is necessary as subsection (g)(2)(G)2. has been removed.
(g)(2)(vii)(B)	(g)(2)(G)~~2.~~	
Prior to June 1, 2015, employers may include the following information on bags or containers of contaminated protective clothing and equipment in lieu of the labeling requirements in paragraphs (g)(2)(vii)(A) of this section: CAUTION: CLOTHING CONTAMINATED WITH LEAD. DO NOT REMOVE DUST BY BLOWING	~~Prior to June 1, 2015, employers may include the following information on bags or containers of contaminated protective clothing and equipment in lieu of the labeling requirements in subsections (g)(2)(G)1. of this section:~~ ~~CAUTION: CLOTHING CONTAMINATED WITH LEAD. DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF LEAD CONTAMINATED WASH WATER IN~~	The State proposes to remove subsection (g)(2)(G)2. This change is necessary as the requirements of (g)(2)(G)2. only applied prior to June 1, 2015.

OR SHAKING. DISPOSE OF LEAD CONTAMINATED WASH WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, OR FEDERAL REGULATIONS.	~~ACCORDANCE WITH APPLICABLE LOCAL, STATE OR FEDERAL REGULATIONS.~~	
(h) Housekeeping -	**(h) Housekeeping.**	
(h)(2)	(h)(2)	
Cleaning floors.	Cleaning Methods~~Floors~~.	The State proposes to change the heading of subsection (h)(2) from "Cleaning Floors" to "Cleaning Methods." This change is necessary as the requirements of subsection (h)(2) apply to floors and surfaces other than floors.
(h)(2)(i)	(h)(2)(A)	
Floors and other surfaces where lead accumulates may not be cleaned by the use of compressed air.	Floors and other surfaces where lead accumulates ~~may~~shall not be cleaned by the use of compressed air.	The State proposes to replace the word "may" with "shall." This change is necessary as "may" is not enforceable.
	(h)(2)(B)	
(There is no corresponding federal requirement.)	Floors and other surfaces where lead accumulates shall be cleaned, wherever possible, by vacuuming or by other methods that minimize the likelihood of lead becoming airborne.	The State proposes to add new subsection (h)(2)(B), which requires, wherever possible, floors and other surfaces to be cleaned of lead by vacuuming or other methods that minimize the likelihood that lead will become airborne.

		This change is necessary to notify employers that cleaning, wherever possible, must be done using methods that are not likely to cause lead to become airborne. This proposed language is also consistent with existing language in Section 1532.1(h)(2).
(h)(2)(ii)	(h)(2)(C~~B~~)	
Shoveling, dry or wet sweeping, and brushing may be used only where vacuuming or other equally effective methods have been tried and found not to be effective.	Shoveling, dry or wet sweeping, and brushing shall~~may~~ not be used ~~only where~~unless the employer can demonstrate that vacuuming or other equally effective methods have been tried and found not to be effective.	The State proposes that existing subsection (h)(2)(B) would be redesignated as subsection (h)(2)(C), and language there would be amended to require an employer to demonstrate that vacuuming or other equally effective methods have been tried and found not to be effective, before they would be permitted to clean using shoveling, dry or wet sweeping or brushing. This amendment is necessary to place the burden of proof on an employer to demonstrate that these cleaning methods, normally considered safe and effective, have been tried and found not to be effective, before they would be permitted to clean using methods which are considered less safe, such as shoveling, dry or wet sweeping or brushing.
(h)(3)	(h)(3)	
Vacuuming. Where vacuuming methods are selected, the vacuums shall be used and emptied in a	Vacuuming. Where vacuuming methods are selected, the vacuums shall be used and emptied in a manner which minimizes the re-entry of lead	The State proposes that in subsection (h)(3), the term “HEPA filter” would be used, while the term “high efficiency

manner which minimizes the reentry of lead into the workplace.	into the workplace. Those vacuum systems which exhaust air into the workplace shall be equipped with air filters at least as effective as ~~high efficiency particulate air~~HEPA filters. ~~High efficiency particulate air filter means 99.97% efficient against 0.3 micrometer size particles.~~	particulate air filter" and its definition would be removed. These changes are necessary, as the term and its definition have been moved to subsection (b).
(i) Hygiene facilities and practices.	**(i) Hygiene Facilities and Practices.**	
	(i)(1)	
(There is no corresponding heading in the federal regulation.)	General Hygiene.	The State proposes that in subsection (i)(1), a heading, "General Hygiene," would be added. This amendment is necessary to indicate that the requirements of subsection (i)(1) are general in nature.
(i)(1)	(i)(1)(A)	
The employer shall assure that in areas where employees are exposed to lead above the PEL, without regard to the use of respirators, food or beverage is not present or consumed, tobacco products are not present or used, and cosmetics are not applied, except in change rooms, lunchrooms, and showers required under paragraphs (i)(2) - through (i)(4) of this section.	The employer shall ~~assure~~ensure that in areas where employees are exposed to lead ~~above the PEL, without regard to the use of respirators~~, food or beverage is not present or consumed, tobacco products are not present or used, and cosmetics are not applied~~, except in change rooms, lunchrooms, and showers required under subsections (i)(2) (i)(4)~~.	The State proposes that in new subsection (i)(1)(A), the existing requirements for employers to prohibit food, beverages, tobacco products and cosmetics would be expanded to include all areas where employees are exposed to lead, rather than only to areas where the PEL is exceeded. This change is necessary to provide greater health protection to employees from the hazard of lead ingestion, which may occur in areas where the hands of employees can become contaminated

		with lead, even when airborne levels of lead are below the PEL.
(i)(5)	(i)(1)(B)	
Lavatories. The employer shall provide an adequate number of lavatory facilities which comply with 1910.141(d)(1) and (2) of this part.	The employer shall provide an adequate number of washing facilities, or lavatories, in compliance with the provisions of section 3366.	The State proposes that new subsection (i)(1)(B) would include language currently found in subsection (i)(5). This change is necessary as requirements for lavatories are most appropriately placed under General Hygiene in subsection (i)(1).
	(i)(1)(C)	
(There is no corresponding federal requirement.)	Where necessary to effect lead removal, the employer shall make available special cleansing compounds designed specifically for the removal of lead from skin surfaces.	The State proposes that in new subsection (i)(1)(C), language would require employers to make special cleansing compounds available, where necessary to remove lead from employees' skin. This addition is necessary, as simple soap and water may not be adequate to remove lead from employees' skin. Lead contamination on the skin of employees increases the possibility of lead ingestion. Existing language in Section 1527 of the Construction Safety Orders has a similar requirement for the provision of special compounds when necessary to remove hazardous substances from the skin.
(i)(4)(iii)	(i)(1)(D)	

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1910 – General Industry

SCOPE: Applicable throughout state unless otherwise noted.

The employer shall assure that employees who work in areas where their airborne exposure to lead is above the PEL without regard to the use of a respirator wash their hands and face prior to eating, drinking, smoking or applying cosmetics.	The employer shall ensure that employees exposed to lead wash their hands, exposed arms, and face prior to entering eating areas, eating, drinking, smoking or applying cosmetics, and at the end of their shift.	The State proposes that new subsection (i)(1)(D) would include a requirement, currently found in subsection (i)(4)(C), that employers ensure that employees wash before eating, drinking, smoking or applying cosmetics. In subsection (i)(1)(D), this requirement would be expanded such that employees exposed to lead, even if below the PEL, would be included. Also, the washing requirements would be expanded, to include washing exposed arms. In addition to requirements for washing before eating, drinking, smoking or applying cosmetics, employers would be required to ensure that employees exposed to lead wash prior to entering eating areas, and at the end of their shift. These amendments are necessary to provide greater health protection to employees from the hazard of lead ingestion due to lead that may be on their exposed arms, in addition to their hands and face. These body parts can become contaminated with lead, even when airborne levels of lead are below the PEL.
1910.1025(i)(2)(ii)	(i)(2)(B)	
The employer shall assure that change rooms are equipped with separate storage facilities for protective work clothing and equipment and for street clothes which prevent cross-contamination.	The employer shall ~~assure~~ensure that change rooms are equipped with separate storage facilities for protective work clothing and equipment and for street clothes which prevent cross contamination.	The State proposes here, and throughout the regulation, to replace the word “assure” with the word “ensure.” This change is proposed as the word “ensure” means to make certain or to confirm, while the word “assure” means to

		promise. The standard requires the employer to make certain that requirements are met. OSHA standards issued recently, including 1926.1153 (Silica), use the words "shall ensure" when referring to the employers' duties.
1910.1025(i)(3)(i)	(i)(3)(A)	
The employer shall assure that employees who work in areas where their airborne exposure to lead is above the PEL, without regard to the use of respirators, shower at the end of the work shift.	The employer shall ~~assure~~ensure that employees who work in areas where their exposure to airborne lead is above the PEL, without regard to the use of respirators, shower at the end of the work shift.	The State proposes here, and throughout the regulation, to replace the word "assure" with the word "ensure." This change is proposed as the word "ensure" means to make certain or to confirm, while the word "assure" means to promise. The standard requires the employer to make certain that requirements are met. OSHA standards issued recently, including 1926.1153 (Silica), use the words "shall ensure" when referring to the employers' duties.
1910.1025(i)(3)(ii)	(i)(3)(B)	
The employer shall provide shower facilities in accordance with 1910.141 (d)(3) of this part.	The employer shall ~~provide~~ensure that required shower facilities ~~in accordance~~comply with s~~S~~ection 3366(f).	The State proposes editorial changes here to clarify existing requirements.
1910.1025(i)(3)(iii)	(i)(3)(C)	
The employer shall assure that employees who are required to shower pursuant to paragraph (i)(3)(i) do not leave the workplace wearing any clothing or equipment worn during the work shift.	The employer shall ~~assure~~ensure that employees who are required to shower pursuant to subsection (i)(3)(A) do not leave the work place wearing any clothing or equipment worn during the work shift.	The State proposes here, and throughout the regulation, to replace the word "assure" with the word "ensure." This change is proposed as the word "ensure" means to make certain or to confirm, while the word "assure" means to promise. The standard requires the employer to make certain that

		requirements are met. OSHA standards issued recently, including 1926.1153 (Silica), use the words “shall ensure” when referring to the employers’ duties.
(i)(4)(ii)	(i)(4)(B)	
The employer shall assure that lunchroom facilities have a temperature controlled, positive pressure, filtered air supply, and are readily accessible to employees.	Lunchroom facilities shall have a temperature controlled, positive pressure, filtered air supply except that such facilities need not be under positive pressure if workplace operations produce no contamination by airborne lead. ~~(Title 24, Part 2-1724(c)(1)(D)(2).)~~	The State proposes to remove a reference to Title 24, as it is an obsolete reference to the California Building Code.
(i)(4)(iii)	(i)(4)~~(C)~~	
The employer shall assure that employees who work in areas where their airborne exposure to lead is above the PEL without regard to the use of a respirator wash their hands and face prior to eating, drinking, smoking or applying cosmetics.	~~The employer shall assure that employees who work in areas where their exposure to airborne lead is above the PEL, without regard to respirator use, wash their hands and face prior to eating, drinking, smoking or applying cosmetics.~~	The State proposes to remove the existing language in subsection (i)(4)(C), as its requirements would be moved to subsection (i)(1)(D).
1910.1025(i)(4)(iv)	(i)(4)(C~~D~~)	
The employer shall assure that employees do not enter lunchroom facilities with protective work clothing or equipment unless surface lead dust has been removed by vacuuming, down draft booth, or other cleaning method.	The employer shall ~~assure~~ensure that employees do not enter lunchroom facilities with protective work clothing or equipment unless surface lead dust has been removed by vacuuming, downdraft booth, or other cleaning method.	The State proposes here, and throughout the regulation, to replace the word “assure” with the word “ensure.” This change is proposed as the word “ensure” means to make certain or to confirm, while the word “assure” means to promise. The standard requires the employer to make certain that requirements are met. OSHA standards issued recently, including 1926.1153

		(Silica), use the words “shall ensure” when referring to the employers’ duties.
(i)(5)	(i)(5)	
Lavatories. The employer shall provide an adequate number of lavatory facilities which comply with 1910.141(d)(1) and (2) of this part. (There is no corresponding federal requirement.)	~~Lavatories. The employer shall provide an adequate number of lavatory facilities which comply with Section 3366.~~ Cleaning of Hygiene Facilities. The employer shall establish, implement, and maintain written methods and schedules to maintain the cleanliness of drinking and washing facilities, change rooms, showers, and lunchrooms required by this subsection.	The State proposes to remove existing language in subsection (i)(5), as the requirements in existing subsection (i)(5) would be moved to subsection (i)(1)(B). The State also proposes to change the heading of subsection (i)(5) from “Lavatories” to “Cleaning of Hygiene Facilities.” In addition, language would be added that requires employers to develop and implement written methods and schedules to maintain the cleanliness of the hygiene facilities required by subsection (i). These changes are necessary to require employers to have a documented system in place to ensure that required hygiene facilities are maintained in a clean condition, so that the likelihood of ingestion of lead is reduced.
(j) Medical surveillance -	**(j) Medical Surveillance.**	
(j)(1)(i)	(j)(1)(A)	
The employer shall institute a medical surveillance program for all employees who are or may be exposed at or above the action level for more than 30 days per year.	The employer shall institute a medical surveillance program ~~for all employees~~: 1. For all employees who are or may be exposed at or above the action level ~~for more than 30 days per year~~; and	The State proposes to expand the scope of subsection (j)(1)(A) by reducing the amount of lead exposure allowed before a medical surveillance program must be made available to an employee.

(There is no corresponding federal requirement for the requirement proposed by the State in subsection (j)(1)(A)2.)	2. As interim protection, in accordance with subsection (d)(2), for all employees who perform PHLW. EXCEPTION: Medical surveillance is not required for an employee who is not exposed to lead at or above the action level for 10 or more days in any 12 consecutive months, and who is not exposed on any day at or above 100 µg/m^3 as an 8-hour TWA, without regard to respirator use.	In proposed subsection (j)(1)(A)1., employers would be required to institute a medical surveillance program for employees who are or may be exposed to lead at or above the action level. An exception would be given if an employee is not exposed at or above the action level for 10 or more days in any 12 consecutive months, and is not exposed on any day at or above 100 µg/m^3 as an 8-hour TWA, without regard to respirator use. This is a change from the existing threshold for a medical surveillance program of exposure for more than 30 days per year at or above the action level. This amendment is necessary to support the overall goal of maintaining employee BLLs below 10 µg/dl. Employees exposed to lead for up to 30 days a year, as is currently allowed, may well develop BLLs above 10 µg/dl, and yet not be covered by medical surveillance. Likewise, employees who are exposed to lead at or above 100 µg/m^3 on any day may develop elevated blood lead levels, even though these exposures may be infrequent. Significantly, blood lead testing detects elevated BLLs that occur due to ingestion of lead, as well as due to inhalation of airborne lead. Expanded medical surveillance means that increasing BLLs would be detected earlier, and lead-related adverse health effects would be detected at an earlier stage, thus

		preventing more severe employee health damage. These proposals would use a formal exception to specify when medical surveillance is not required for employees covered by subsection (j)(1)(A)1. This is necessary to make clear that, if the exception is claimed, it is the employer's duty to ensure and be able to demonstrate that the conditions of the exception are met. In proposed subsection (j)(1)(A)2., employers would be required to institute a medical surveillance program, as interim protection, for all employees who perform PHLW. Requiring medical surveillance, as interim protection for employees who perform PHLW, as a default ensures these exposed employees are covered, irrespective of the timing of an employer's compliance with exposure monitoring requirements. This amendment is necessary to ensure that rising BLLs and lead-related adverse health effects are detected early, and supports the overall goal of maintaining employee BLLs below 10 µg/dl.
1910.1025(j)(1)(ii)	(j)(1)(B)	
The employer shall assure that all medical examinations and procedures are performed by or	The employer shall ~~assure~~ensure that all medical examinations and procedures are performed by or under the supervision of a licensed physician.	The State proposes here, and throughout the regulation, to replace the word "assure" with the word "ensure."

under the supervision of a licensed physician.		This change is proposed as the word "ensure" means to make certain or to confirm, while the word "assure" means to promise. The standard requires the employer to make certain that requirements are met. OSHA standards issued recently, including 1926.1153 (Silica), use the words "shall ensure" when referring to the employers' duties.
	(j)(1)(D)	
(There is no corresponding federal requirement.)	The employer shall provide complete employee identification information to the licensed healthcare provider who performs any services covered under subsections (j)(2) and (j)(3). The employer shall instruct the healthcare provider ordering blood lead tests to provide the analyzing laboratory with the employee identification information. Identification information includes: 1. Employee name, date of birth, address, and phone number; and 2. Employer name, address, and phone number.	The State proposes to add a new subsection (j)(1)(D) which would establish requirements for employers to provide complete employee demographic information to healthcare providers who perform medical surveillance under subsection (j)(2) or (j)(3) of this standard, and also require employers to instruct these healthcare providers to provide laboratories that analyze blood lead tests with the employee demographic information. This addition is necessary so that more complete demographic information would be provided to the California Occupational Blood Lead Registry, as required by the California Health and Safety Code 124130.
(j)(2)	(j)(2)	
Biological monitoring -	Blood Lead Testing~~Biological Monitoring~~.	The State proposes to change the heading of subsection (j)(2) from

		"Biological Monitoring" to "Blood Lead Testing." This change is necessary as existing requirements for zinc protoporphyrin (ZPP) sampling and analysis would be removed from subsection (j)(2); subsection (j)(2) would establish requirements related only to blood lead testing and analysis. This change is necessary because the ZPP test would no longer be a routine part of medical surveillance. Kosnett et al. (2007) reported that routine measurement of zinc protoporphyrin is not recommended because it is an insensitive biomarker of lead exposures in individuals with blood lead concentrations below 25 µg/dl. Therefore, ZPP testing would only be required as part of a medical examination, pursuant to subsection (j)(3), for employees with blood lead levels at or above 20 µg/dl.
(j)(2)(i)	(j)(2)(A)	
Blood lead and ZPP level sampling and analysis. The employer shall make available biological monitoring in the form of blood sampling and analysis for lead and zinc protoporphyrin levels to each employee covered under paragraph (j)(1)(i) of this section on the following schedule:	Blood Lead Testing Schedule~~and Zinc Protoporphyrin Sampling and Analysis~~. The employer shall make available ~~biological monitoring in the form of~~ blood lead testing~~sampling and analysis for lead and zinc protoporphyrin (ZPP) levels~~ to each employee covered under subsection (j)(1)(A) on the following schedule:	The State proposes to change the heading of subsection (j)(2)(A) from "Blood Lead and Zinc Protoporphyrin Sampling and Analysis" to "Blood Lead Testing Schedule" to reflect the removal of ZPP testing requirements from this paragraph. Also in subsection (j)(2)(A), a reference to biological monitoring would be removed, along with references to ZPP, and the phrase "sampling and

		analysis for lead and ZPP levels" would be replaced by "lead testing." The changes are necessary as subsection (j)(2)(A) would apply only to blood lead testing (see discussion of ZPP in subsection (j)(2) above).
	(j)(2)(A)1.	
(There is no corresponding federal requirement.)	~~At least every 6 months to each employee~~Prior to assignment for work covered ~~under~~by subsection (j)(1)(A)~~;~~ or as soon as possible when work is first determined to be covered by subsection (j)(1)(A);	The State proposes to modify the language in subsection (j)(2)(A)1. such that prior to assignment of an employee to work covered by subsection (j)(1)(A), or as soon as possible when this is determined, employers would be required to make blood lead testing available. This change is necessary to establish baseline BLLs of employees before they begin work that involves significant, or presumed significant, airborne levels of lead. In this way, employees would have a baseline BLL against which to measure the results of subsequent tests. Also, any pre-existing elevation in an employee's BLL, whether occupational or non-occupational, could be identified, and employees with pre-existing elevated BLLs could be protected from further exposure to lead.
(j)(2)(i)(A)	(j)(2)(A)2.	

At least every 6 months to each employee covered under paragraph (j)(1)(i) of this section;	At least every 2 months for the first 6 months and every 6 months thereafter;	The State proposes to add new language under the designation subsection (j)(2)(A)2., which would require that blood lead testing be made available to employees covered under subsection (j)(1)(A) at least every 2 months for the first 6 months, and every 6 months thereafter. This represents a change from the current requirement, given in existing subsection (j)(2)(A)1., that blood lead testing be made available at least every 6 months to employees covered by subsection (j)(1)(A). This addition is necessary as it is important to frequently monitor an employee's BLL during the first six months of exposure as their BLL may rise as a result of increased exposure. Frequent testing means that any rise in BLL will be detected early. In addition, this change is consistent with the current requirements given in existing Section 1532.1(j)(2)(A)1.
	(j)(2)(A)3.	
(There is no corresponding federal requirement.)	At least every 2 months for the first 6 months and every 6 months thereafter, following a change in work task or process resulting in or likely to result in higher exposure to lead;	The State proposes to add new language under the designation subsection (j)(2)(A)3., which would require blood lead tests to be provided at least every 2 months for the first 6 months after a change in task resulting in, or likely to result in, higher exposure to lead, and then every 6 months thereafter.

		This addition is necessary as it is important to more frequently monitor an employee's BLL when their exposure to lead is increased. Increased exposure may lead to a sudden rise in an employee's BLL, which must be detected early.
(j)(2)(i)(B)	(j)(2)(A)~~2~~4.	
At least every two months for each employee whose last blood sampling and analysis indicated a blood lead level at or above 40 ug/100 g of whole blood. This frequency shall continue until two consecutive blood samples and analyses indicate a blood lead level below 40 ug/100 g of whole blood; and	At least every two months for each employee whose last ~~blood sampling and analysis indicated a~~ blood lead level was at or above 10~~40~~ µg/dl~~100 g~~ but below 20 µg/dl ~~of whole blood~~. This frequency shall continue until two consecutive blood lead levels ~~samples and analysis~~, taken at least 30 days apart, are~~indicate a blood lead level~~ below 10~~40~~ µg/dl~~100 g of whole blood~~; and	The State proposes in subsection (j)(2)(A)4., to modify language currently found under the designation subsection (j)(2)(A)2. The phrase "blood sampling and analysis indicated a" would be removed. This change is necessary to reflect the removal of ZPP testing requirements from this subsection (see discussion of ZPP in subsection (j)(2) above). In addition, blood lead testing would be required to be made available at least every two months for an employee whose last BLL was at or above 10 µg/dl but below 20 µg/dl of whole blood, rather than the existing requirement for blood testing to be made available every two months when an employee's blood lead level is at or above 40 µg/dl. Providing testing every 2 months would be required to continue until two consecutive BLLs, taken at least 30 days apart, are below 10 µg/dl, rather than the existing requirement of two consecutive BLLs of 40 µg/dl.

		These amendments are necessary to ensure that any BLL at or above 10 µg/dl is closely monitored until it is reduced to below 10 µg/dl. This supports the overall goal of maintaining employee BLLs below 10 µg/dl. The State also proposes that blood lead levels in subsection (j)(2)(A)4., and throughout the regulation would be referred to in units of "µg/dl" of whole blood rather than the equivalent but outdated unit "µg/100 g." This change is necessary to update the language of this section. In addition, µg/dl is the unit used in Section 1532.1, which was adopted in 1993.
(j)(2)(i)(C)	(j)(2)(A)~~3~~5.	
At least monthly during the removal period of each employee removed from exposure to lead due to an elevated blood lead level.	At least monthly for each employee whose last blood lead level was at or above 20 µg/dl, and during the removal period of each employee removed from exposure to lead due to an elevated blood lead level.	The State proposes in subsection (j)(2)(A)5. to modify language currently found under the designation subsection (j)(2)(A)3. In subsection (j)(2)(A)5., a requirement for making blood lead testing available at least monthly for employees whose last BLL was at or above 20 µg/dl would be added. This addition is necessary, because by requiring the provision of periodic and repeated blood lead testing on a more frequent basis and at lower BLLs, elevations in an employee's blood lead

		level would be discovered earlier, enabling an employer to take actions to reduce the employee's exposure to lead. In this way, employees' BLLs would be reduced and the prevalence of adverse health effects from exposure to lead would be reduced.
	(j)(2)(A)~~4.~~	
(There is no corresponding federal requirement.)	~~ZPP determinations shall be made available as soon as possible but no later than the first biological monitoring scheduled for an employee.~~	The State proposes to remove the existing language in subsection (j)(2)(A)~~4~~. This change is necessary, as ZPP testing would no longer be required on a routine basis (see discussion of ZPP in subsection (j)(2) above).
(j)(2)(ii)	(j)(2)~~(B)~~	
Follow-up blood sampling tests. Whenever the results of a blood lead level test indicate that an employee's blood lead level is at or above the numerical criterion for medical removal under paragraph (k)(1)(i)(A) of this section, the employer shall provide a second (follow-up) blood sampling test within two weeks after the employer receives the results of the first blood sampling test.	~~Follow-Up Blood Sampling Tests. Whenever the results of a blood lead level test indicate that an employee's blood lead level is at or above the numerical criterion for medical removal under subsection (k)(1), the employer shall provide a second (follow-up) blood sampling test within two weeks after the employer receives the results of the first blood sampling test.~~	The State proposes to remove the existing language in subsection (j)(2)(B). This language requires a second, confirmatory blood lead test to be conducted whenever an employee's BLL is at or above the criterion for medical removal protection, before the employee is removed from on-going exposure. This change is necessary to provide greater protection of employee health. It is more protective of an employee's health to not be required to wait for confirmatory results from a mandated follow-up blood lead test before removing an employee from exposure to lead. This change is

		facilitated by the increased reliability of blood lead testing and analysis since the time the regulation was promulgated in 1978.
(j)(2)(iii)	(j)(2)(~~C~~B)	
Accuracy of blood lead level sampling and analysis. Blood lead level sampling and analysis provided pursuant to this section shall have an accuracy (to a confidence level of 95 percent) within plus or minus 15 percent or 6 ug/100 ml, whichever is greater, and shall be conducted by a laboratory licensed by the Center for Disease Control, United States Department of Health, Education and Welfare (CDC) or which has received a satisfactory grade in blood lead proficiency testing from CDC in the prior twelve months.	Accuracy of Blood Lead Testing~~Level Sampling and Analysis~~. Blood lead testing~~level sampling and analysis~~ provided pursuant to this section shall include analysis by a Clinical Laboratory Improvement Amendments (CLIA)-approved laboratory (under the federal CLIA regulations, 42 CFR Part 493). ~~have an accuracy (to a confidence level of 95 percent) within plus or minus 15 percent or 6 µg/100ml, whichever is greater, and shall be conducted by a laboratory licensed by the Center for Disease Control (CDC), U.S. Department of Health and Human Services, or which has received a satisfactory grade in blood lead proficiency testing from CDC in the prior 12 months.~~	The State proposes to replace the existing language in subsection (j)(2)(B), which was removed, with language previously found under the designation subsection (j)(2)(C). Proposed subsection (j)(2)(B) establishes requirements for the accuracy of blood lead testing. References to “blood lead level sampling and analysis” would be replaced with “blood lead testing.” This change is necessary for consistency with the language that is proposed throughout this subsection. The State also proposes to remove the requirement that blood lead testing meet a stated accuracy, and be conducted by a laboratory licensed by OSHA, and replace it with a requirement that blood lead testing include analysis by a CLIA-approved laboratory (under the federal Clinical Laboratory Improvement Amendments (CLIA) regulations). This change is necessary because OSHA no longer directly approves blood lead testing laboratories; OSHA recognizes that the CLIA criteria for blood lead

		proficiency testing constitute the federal government's legal requirements for laboratories performing human blood lead testing.
(j)(2)(iv)	(j)(2)(~~D~~C)	
Employee notification. Within five working days after the receipt of biological monitoring results, the employer shall notify in writing each employee whose blood lead level is at or above 40 [mu]g/100 g:	Employer Notification to the Employee ~~Notification~~. Within five working days after the receipt of blood lead test ~~biological monitoring~~ results, the employer shall notify in writing each employee~~ whose blood lead level is at or above 40 µg/100 g~~:	The State proposes to move, and modify, language currently found under the designation subsection (j)(2)(D) to subsection (j)(2)(C). In proposed subsection (j)(2)(C), the term "biological monitoring" would be replaced by "blood lead test." This change is necessary because the requirements in this subsection would pertain to blood lead testing only. Also in proposed subsection (j)(2)(C), the requirement for employers to notify employees in writing of specified information, including blood lead test results, would be modified, removing the condition that the employer is only required to notify an employee if their blood lead level is at or above 40 µg/100 g. This change is necessary to provide information and thus greater health protection to all employees who have had blood lead testing, by ensuring that they are notified of their blood lead test results and other relevant information.

	(j)(2)(~~D~~C)2.	
(There is no corresponding federal requirement.)	That the standard requires the employer to make medical examinations and consultations available to employees exposed at or above the action level, and as interim protection, to employees performing PHLW, unless an employee's exposure or work is covered by the exception in subsection (j)(1)(A). When they are required, the employer must make medical examinations and consultations available as soon as possible, upon notification by an employee either that the employee has developed signs or symptoms commonly associated with lead intoxication, 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, or that the employee has demonstrated difficulty breathing during a respirator fit test or during use; and	The State proposes to replace the current language in subsection (j)(2)(D)2. with new language in proposed subsection (j)(2)(C)2. These proposals would add, to a currently-required written notification to employees, a requirement that employers notify employees about medical examinations and consultations that employers must make available. The requirement to make these examinations and consultations available is located in subsection (j)(3)(A). This addition is necessary to provide information, and thus greater health protection, to employees about the medical examinations and consultations that are available to them under subsection (j)(3)(A).
(j)(2)(iv)(B)	(j)(2)(~~D~~C)3~~2~~.	
That the standard requires temporary medical removal with Medical Removal Protection benefits when an employee's blood lead level is at or above the numerical criterion for medical removal under paragraph (k)(1)(i) of this section.	That the standard requires temporary medical removal with Medical Removal Protection benefits when an employee's blood lead level is at or above 30 µg/dl, the last two monthly blood lead levels are at or above 20 µg/dl, or the average of the results of all blood lead tests conducted in the last 6 months is at or above 20 µg/dl, as provided for in ~~at or above the numerical criterion for medical removal under~~ subsection (k)(1).	The State proposes to modify language currently found under the designation subsection (j)(2)(D)2. and move it to new subsection (j)(2)(C)3. Proposed subsection (j)(2)(C)3. establishes the requirements for employee notification about temporary medical removal with MRP benefits. The language would be modified to require employers to notify all employees, regardless of their BLL, about MRP and its benefits when they are notified of their BLL. In addition,

		employers would be required to notify employees of the specific BLL criteria for medical removal under subsection (k)(1)(A). These modifications are necessary to provide information, and thus greater health protection, by ensuring that all employees who have their BLL tested are made aware of temporary medical removal, the criteria for removal, and MRP benefits. This would also help ensure continued employee participation in future BLL testing.
	(j)(2)(D)	
(There is no corresponding federal requirement.)	Physician's Notification to the Employee. The employer shall ensure that the physician who orders the blood test explains the findings of the blood lead test and notifies the employee of the following: 1. The results of the blood lead test; 2. Any recommended follow-up blood lead testing in accordance with subsection (j)(2)(A) and the timing of that recommended blood lead testing; and 3. If the employee's blood lead level is 20 µg/dl or greater, the recommendation that the employee undergo a medical examination by a physician if the employee has not had a lead-specific medical exam in the preceding 12 months.	The State proposes to establish a new subsection (j)(2)(D), with the heading "Physician's Notification to the Employee." Subsection (j)(2)(D) would require the employer to ensure that the physician who orders a blood test for an employee explains the findings of the blood lead test, and notifies the employee of specified information. This addition is necessary to ensure that employees receive information directly from the physicians who order their blood lead tests, about any recommended follow-up blood lead tests or medical exams, so that employees gain a better understanding of the significance of their blood lead test results.

	(j)(2)(E)	
(There is no corresponding federal requirement.)	Elevated Blood Lead Level Response. 1. Whenever an employee has a blood lead level at or above 10 µg/dl, the employer shall establish and implement a written elevated blood lead level response plan for that employee which describes specific means that will be used to reduce and maintain the employee's blood lead level below 10 µg/dl. 2. Training and instruction shall be provided as needed for an employee who has a blood lead level at or above 10 µg/dl, to correct any employee work practices identified in the elevated blood lead level response plan established for that employee under subsection (j)(2)(E)1.	The State proposes to establish a new subsection (j)(2)(E), which would require a response by employers when an employee has a BLL at or above 10 µg/dl. In that event, the employer would be required to establish and implement a written elevated blood lead level response plan with a description of means that would be used to reduce and maintain that employee's BLL below 10 µg/dl. This plan would be accompanied by any needed training and instruction to correct employee work practices, as identified by the plan. This addition is necessary to provide greater health protection to employees in that employers would be required to take steps to reduce elevated employee BLLs, even though they may not reach a level at which temporary medical removal is required. This supports the overall goal of maintaining all employee BLLs below 10 µg/dl.
(j)(3)(i)	(j)(3)(A)	
Frequency. The employer shall make available medical examinations and consultations to each employee covered under paragraph (j)(1)(i) of this section on the following schedule:	Frequency. The employer shall make available medical examinations and consultations to each employee covered under subs~~S~~ection ~~5198~~(j)(1)(A) on the following schedule:	The State proposes a minor editorial change here, substituting the word "subsection" for the word "section." This change is necessary for consistency in how subsections are referred to throughout the regulation.
(j)(3)(i)(A)	(j)(3)(A)1.	

At least annually for each employee for whom a blood sampling test conducted at any time during the preceding 12 months indicated a blood lead level at or above 40 ug/100 g;	As soon as possible for each employee for whom a blood lead test result of 20 µg/dl or greater is received, if no lead-specific medical examination was done for that employee in the preceding 12 months, and ~~A~~at least annually thereafter, until the employee's blood lead level is below ~~for each employee for whom a blood sampling test conducted at any time during the preceding 12 months indicated a blood lead level at or above 100 g~~ 20~~40~~ µg/dl;	The State proposes to replace a reference to "blood sampling test" with "blood lead test." This amendment is necessary to provide consistency with the language proposed for use throughout this standard. The State also proposes that the BLL at which medical exams and consultations would be required to be made available to employees would be lowered from at or above 40 µg/dl to at or above 20 µg/dl. This amendment is necessary to provide greater health protection to employees exposed to lead, in that an examination conducted when an employee's BLL is 20 µg/dl would detect lead-related adverse health effects at an earlier stage than an examination conducted when an employee's BLL reaches 40 µg/dl. In addition, these proposals would amend the existing language in subsection (j)(3)(A)1. to require that the subject medical examinations be made available as soon as possible, if no lead-specific medical examination was done for that employee in the preceding 12 months. This amendment is necessary to provide greater health protection to employees by ensuring that these employees are provided with medical examinations and

		consultations in a timely manner when an elevated BLL has been identified, while allowing that such an examination need only be performed once in a 12 month period.
(j)(3)(i)(B)	(j)(3)(A)2.	
Prior to assignment for each employee being assigned for the first time to an area in which airborne concentrations of lead are at or above the action level;	Prior to assignment for each employee being assigned for the first time to an area in which 8-hour time-weighted average concentrations of airborne lead are at or above the action level;	The State proposes, in subsection (j)(3)(A)2., to modify the existing language by adding, after the words “8-hour time-weighted,” the word “average.” This change is necessary to ensure consistent nomenclature within the standard.
(j)(3)(i)(C)	(j)(3)(A)3.	
As soon as possible, upon notification by an employee either that the employee has developed signs or symptoms commonly associated with lead intoxication, 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, or that the employee has demonstrated difficulty in breathing during a respirator fitting test or during use; and	As soon as possible, upon notification by an employee either that the employee has developed signs or symptoms commonly associated with lead intoxication, 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, or that the employee has demonstrated difficulty in breathing during a respirator fit~~ting~~ test or during use; and	The State proposes a minor editorial change here, substituting the word “fit” for the word “fitting.” This change is necessary for consistency in how the test is referred to throughout the regulation.
(j)(3)(i)(D)	(j)(3)(A)4.	
As medically appropriate for each employee either removed from exposure to lead due to a risk of	As soon as possible, and then as medically appropriate for each employee removed from exposure to lead due to elevated blood lead	The State proposes to modify, in subsection (j)(3)(A)4., the language to specify that the medical exams and

SOURCE OF FEDERAL OSHA STANDARD(S): 29 CFR 1910 – General Industry

SCOPE: Applicable throughout state unless otherwise noted.

sustaining material impairment to health, or otherwise limited pursuant to a final medical determination.	levels in compliance with the provisions of subsection (k)(1), ~~a risk of sustaining material impairment to health,~~ or whose exposure to lead is otherwise limited pursuant to a final medical determination in compliance with the provisions of subsection (k)(2).	consultations employers are required to make available to employees removed from exposure to lead are to be made available as soon as possible. This amendment is necessary to provide greater health protection to employees by ensuring that these employees are provided with medical exams and consultations in a timely manner, and also for consistency with subsection (j)(3)(A)3. In addition, the State proposes to amend the language in subsection (j)(3)(A)4. to include the requirement that medical examinations and consultations are to be provided to employees removed from exposure to lead due to elevated BLLs, per the provisions of subsection (k)(1)(A). Although this requirement is also found in subsection (j)(3)(A)1., it is necessary to amend subsection (j)(3)(A)4. to state the requirement explicitly, because subsection (j)(3)(A)4. specifically addresses employees who are removed from exposure to lead, while subsection (j)(3)(A)1. does not. Also, the language in subsection (j)(3)(A)4. would be amended to delete the term “a risk of sustaining material impairment to health” and add language to specify that medical examinations and consultations are to be made available to each employee whose exposure to lead is

		otherwise limited pursuant to a final medical determination in compliance with the provisions of subsection (k)(2). This amendment is necessary to more clearly state the requirement, because the term “a risk of sustaining material impairment to health” is vague and ambiguous.
(j)(3)(ii)	(j)(3)(B)	
Content. Medical examinations made available pursuant to paragraph (j)(3)(i)(A)-(B) of this section shall include the following elements:	Content. Medical examinations made available pursuant to subsection~~s~~ (j)(3)(A)~~1–2~~ shall include the following elements:	The State proposes to expand the scope of the medical examinations subject to the content requirements of subsection (j)(3)(B) to include all those made available pursuant to subsections (j)(3)(A). Subsection (j)(3)(B) would refer to subsection (j)(3)(A), rather than subsections (j)(3)(A)1-2. This amendment is necessary to provide greater health protection to employees by ensuring that all medical examinations made available pursuant to subsection (j)(3)(A) include the elements necessary to diagnose adverse health effects related to an employee’s exposure to lead, as well as pre-existing health-related conditions that could be exacerbated by exposure to lead. Also, these proposals would move a requirement currently located in subsection (j)(3)(B)6., which requires that medical exams made available pursuant

		to subsections (j)(3)(A) 3 – 4 include pregnancy testing or laboratory evaluation of male fertility when requested by an employee, to subsection (j)(3)(B)2. The language moved to subsection (j)(3)(B)2. would refer to all medical examinations made available pursuant to subsection (j)(3)(A). These changes are necessary, as in this proposal, the requirement would apply to the required content for all medical examinations made available pursuant to subsection (j)(3)(A), and thus provide greater health protection to employees. This requirement, which evaluates the reproductive system, is appropriate to include in subsection (j)(3)(B)2., which lists the bodily systems that are to be included in a thorough physical examination.
(j)(3)(ii)(B)	(j)(3)(B)2.	
A thorough physical examination, with particular attention to teeth, gums, hematologic, gastrointestinal, renal, cardiovascular, and neurological systems. Pulmonary status should be evaluated if respiratory protection will be used;	A thorough physical examination, with particular attention to teeth, gums, hematologic, gastrointestinal, renal, cardiovascular, and neurological systems. <u>If requested by an employee, pregnancy testing or laboratory evaluation of male fertility shall be included.</u> Pulmonary status should be evaluated if respiratory protection will be used;	The State proposes to move a requirement currently located in subsection (j)(3)(B)6., which requires that medical exams made available pursuant to subsections (j)(3)(A) 3 – 4 include pregnancy testing or laboratory evaluation of male fertility when requested by an employee, to subsection (j)(3)(B)2. The language moved to subsection (j)(3)(B)2. would refer to all medical examinations made available pursuant to subsection (j)(3)(A).

		These changes are necessary, as in this proposal, the requirement would apply to the required content for all medical examinations made available pursuant to subsection (j)(3)(A), and thus provide greater health protection to employees. This requirement, which evaluates the reproductive system, is appropriate to include in subsection (j)(3)(B)2., which lists the bodily systems that are to be included in a thorough physical examination.
(j)(3)(ii)(D)(3)	(j)(3)(B)4.c.	
Zinc protoporphyrin;	Zinc protoporphyrin for each employee whose last blood lead level was at or above 20 µg/dl;	The State proposes to amend, in subsection (j)(3)(B)4.c., the requirement for ZPP testing in that it would be required only for those employees whose last BLL was at or above 20 µg/dl. This amendment is necessary because zinc protoporphyrin is an insensitive biomarker of lead exposures in individuals with blood lead concentrations below 25 µg/dl, and is not recommended for routine measurement (Kosnett et al., 2007).
(j)(3)(ii)(F)	(j)(3)(B)6.	
Any laboratory or other test which the examining physician deems necessary by sound medical practice. The content of medical examinations made available	Any laboratory or other test relevant to lead exposure ~~which~~that the examining physician deems necessary by sound medical practice. ~~The content of medical examinations made available pursuant to subsections (j)(3)(A)3-4~~	The State proposes, in subsection (j)(3)(B)6., to add the words “relevant to lead exposure.”

pursuant to paragraph (j)(3)(i)(C) - (D) of this section shall be determined by an examining physician and, if requested by an employee, shall include pregnancy testing or laboratory evaluation of male fertility.	~~shall be determined by an examining physician and, if requested by an employee, shall include pregnancy testing or laboratory evaluation of male fertility.~~	This addition is necessary for consistency with the requirements of Section 1532.1(j)(3)(B)6. The State also proposes to move the requirement that medical examinations include pregnancy testing or evaluation of male fertility if requested by an employee to the beginning of subsection (j)(3)(B).
(j)(3)(iii)(B)	(j)(3)(C)2.	
The employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial physician conducts a medical examination or consultation pursuant to this section. The employer may condition its participation in, and payment for, the multiple physician review mechanism upon the employee doing the following within fifteen (15) days after receipt of the foregoing notification, or receipt of the initial physician's written opinion, whichever is later: (j)(3)(iii)(B)(1) The employee informing the employer that he or she intends to seek a second medical opinion, and (j)(3)(iii)(B)(2)	The employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial physician conducts a medical examination or consultation pursuant to this section. The employer may condition participation in, and payment for, the multiple physician review mechanism upon~~by requiring~~ the employee ~~(within 15 days from the date of the foregoing notice or receipt of the initial physician's written opinion, whichever is later)~~ informing~~to inform~~ the employer that the employee intends to seek a second medical opinion and initiating~~to initiate~~ steps to make an appointment with a second physician within 15 days after receipt of the foregoing notification or receipt of the initial physician’s written medical opinion, whichever is later.	The State proposes to make nonsubstantive, grammatical changes to subsection (j)(3)(C)2. These changes are necessary to add clarity to the meaning of this subsection.

The employee initiating steps to make an appointment with a second physician.		
(j)(3)(iv)(A)(5)	(j)(4)(A)5.	
Prior blood lead determinations; and	Prior blood lead test results~~determinations~~; and	The State proposes to replace the word "determinations" with the words "test results." This amendment is necessary for greater clarity and to avoid confusion with other uses of the word "determination" in this standard.
	(j)(4)(A)7.	
(There is no corresponding federal requirement.)	A copy of the written elevated blood lead level response plan for that employee as required by subsection (j)(2)(E)1.	The State proposes to add a new subsection, (j)(4)(A)7., which would require that employers provide to an initial physician conducting a medical examination or consultation under this section a copy of the employer's written elevated blood lead level response plan as required by subsection (j)(2)(E)1. This addition is necessary to ensure that the physician has accurate information about the means the employer will use to reduce and maintain the employee's BLL below 10 µg/dl.
	~~(j)(5)~~	
	~~Written Medical Opinions.~~	The State proposes to move the requirements currently located in

		subsection (j)(5) to proposed subsection (j)(6).
	~~(A) The employer shall obtain and furnish the employee with a copy of a written medical report from each examining or consulting physician which contains the following information:~~	as above
	~~1. The physician's opinion as to whether the employee has any detected medical condition which would place the employee at increased risk of material impairment of the employee's health from exposure to lead.~~	The State proposes to move the requirements currently located in subsection (j)(5) to proposed subsection (j)(6).
	~~2. Any recommended special protective measures to be provided to the employee, or limitations to be placed upon the employee's exposure to lead.~~	as above
	~~3. Any recommended limitation upon the employee's use of respirators, including a determination of whether the employee can wear a powered air-purifying respirator if the physician determines that the employee cannot wear a negative pressure respirator; and~~	The State proposes to move the requirements currently located in subsection (j)(5) to proposed subsection (j)(6).
	~~4. The results of the blood lead determinations.~~	as above
	~~(B) The employer shall instruct the examining physician to:~~	as above
	~~1. Not reveal either in the written opinion, or in any other means of communication with the employer, findings, including laboratory results, or diagnoses unrelated to the employee's occupational exposure to lead; and~~	The State proposes to move the requirements currently located in subsection (j)(5) to proposed subsection (j)(6).

	~~2. Advise the employee of any medical condition, occupational or non-occupational, which dictates further medical examination or treatment.~~	as above
	(j)(5)	
(There is no corresponding federal requirement.)	Physician's Written Medical Report for the Employee. The employer shall ensure that the examining physician explains to the employee the results of the medical examination and provides each employee with a written medical report within 30 days of each medical examination performed. The written report shall contain: (A) The physician's opinion as to whether the employee has any detected health-related condition that would place the employee's health, including the ability to procreate a healthy child, at increased risk of material impairment from exposure to lead; (B) Any recommended special protective measures to be provided to the employee, or recommended limitations to be placed upon the employee's exposure to lead; (C) Any recommended limitations upon the employee's use of respirators, including a determination of whether the employee should wear a powered air-purifying respirator instead of a non-powered air-purifying respirator; (D) The employee's blood lead test results;	The State proposes to change the title of subsection (j)(5) to "Physician's written medical report for the employee." In addition, these proposals would add new language to establish a requirement for the employer to ensure that an explanation and written report is provided directly from the physician to the employee following a medical examination. The new language in subsection (j)(5) is adapted from the medical surveillance language in the General Industry Safety Orders, Section 5204(i)(5) (Occupational Exposures to Respirable Crystalline Silica), as well as 29 CFR 1910.1053(i)(5) (Respirable Crystalline Silica). These sections set a precedence for the employer being required to ensure the physician communicates results and next steps to the employee directly. This amendment is necessary to ensure that employees receive information directly from the physician who performs a medical examination for them about any recommended follow-up blood lead testing and medical examinations. Thus, any gap in medical care related to lead

(j)(3)(v)(B)(2) Advise the employee of any medical condition, occupational or nonoccupational, which dictates further medical examination or treatment.	(E) Any recommended follow-up blood lead testing and medical examinations and the timing of each; and (F) The physician's opinion as to whether the employee has any health-related condition, occupational or non-occupational, that dictates further medical examination or treatment.	medical surveillance that may result due to indirect communication of medical information to the employee can be avoided. The State proposes to replace the term "medical condition" (which is used in text currently designated as subsection (j)(3)(A)1.) with "health-related condition." This change is necessary to avoid, by implication, calling pregnancy a "medical condition," and to make clear that an employee's reproductive health, including pregnancy, is protected as part of the employee's overall health.
(j)(3)(v)	(j)(6)	
Written medical opinions.	Physician's Written Medical Opinion for the Employer.	The State proposes to amend the heading for subsection (j)(6) to "Physician's Written Medical Opinion for the Employer." This change is necessary to distinguish the "Physician's Written Medical Opinion for the Employer," which would be required by subsection (j)(6), from the "Physician's Written Medical Report for the Employee," which would be required by subsection (j)(5). The requirements in revised subsection (j)(6) would include the requirements given in existing subsection (j)(5), with a few modifications as detailed below.

(j)(3)(v)(A)	(j)(6)(A)	
The employer shall obtain and furnish the employee with a copy of a written medical opinion from each examining or consulting physician which contains the following information:	The employer shall obtain a written medical opinion from the examining physician within 30 days of the medical examination. The written opinion shall contain the following information:	The State proposes to move the requirement for the employer to furnish the employee with a copy of a written medical opinion to subsection (j)(6)(C).
(j)(3)(v)(A)(1)	(j)(6)(A)1.	
The physician's opinion as to whether the employee has any detected medical condition which would place the employee at increased risk of material impairment of the employee's health from exposure to lead;	The physician's opinion as to whether the employee has any detected health-related condition that would place the employee's health, including the ability to procreate a healthy child, at increased risk of material impairment from exposure to lead;	The State proposes to modify the language redesignated as subsection (j)(6)(A)1. to add a requirement that each written medical report from an examining or consulting physician include an opinion as to whether an employee has any detected condition that would place the employee's ability to procreate a healthy child at risk due to exposure to lead. In addition, the word "medical" would be replaced by the term "health-related." These changes would make references to "the ability to procreate a healthy child" in language that is not gender-specific, and without using the word "pregnancy." The wording "ability to procreate a healthy child" is used in the existing language of subsection (j)(3)(A). These changes are necessary to avoid, by implication, calling pregnancy a "medical condition," and to make clear that an employee's reproductive health, including pregnancy, is protected as part of the employee's overall health.

(j)(3)(v)(A)(2)	(j)(6)(A)2.	
Any recommended special protective measures to be provided to the employee, or limitations to be placed upon the employee's exposure to lead;	Any recommended special protective measures to be provided to the employee, or limitations to be placed upon the employee's exposure to lead;	No changes are proposed from the existing requirements of subsection (j)(5)(A)2.
(j)(3)(v)(A)(3)	(j)(6)(A)3.	
Any recommended limitation upon the employee's use of respirators, including a determination of whether the employee can wear a powered air purifying respirator if a physician determines that the employee cannot wear a negative pressure respirator; and	Any recommended limitation upon the employee's use of respirators, including a determination of whether the employee can wear a powered air-purifying respirator if the physician determines that the employee cannot wear a negative pressure respirator; and	No changes are proposed from the existing requirements of subsection (j)(5)(A)3.
(j)(3)(v)(A)(4)	(j)(6)(A)4.	
The results of the blood lead determinations.	The employee’s blood lead test results.	The State proposes, in the language redesignated as subsection (j)(6)(A)4., to replace the phrase “results of the blood lead determinations” with “employee’s blood lead test results.” This change is necessary to clarify that the written medical opinion must include blood lead test results for the employee who had the examination. The change is also necessary to avoid confusion with other uses of the word “determination” in this standard.

(j)(3)(v)(B)	(j)(6)(B)	
The employer shall instruct each examining and consulting physician to: (j)(3)(v)(B)(1) Not reveal either in the written opinion, or in any other means of communication with the employer, findings, including laboratory results, or diagnoses unrelated to an employee's occupational exposure to lead; and	The employer shall instruct the examining physician to not reveal either in the written opinion to the employer, or in any other means of communication with the employer, findings, including laboratory results, or diagnoses unrelated to the employee's occupational exposure to lead.	No changes are proposed from the existing requirements of subsections (j)(5)(B) and (j)(5)(B)1.
(j)(3)(v)(A)	(j)(6)(C)	
The employer shall obtain and furnish the employee with a copy of a written medical opinion from each examining or consulting physician which contains the following information:	The employer shall ensure that the employee receives a copy of the physician's written medical opinion described in subsection (j)(6)(A) within 30 days of each medical examination performed.	The State proposes to add a 30-day time limit for the employer to ensure that the employee receives a copy of the physician's written medical opinion. This addition is necessary to ensure that the employee receives the medical opinion in a timely manner. This requirement is adapted from the medical surveillance language in the General Industry Safety Orders, Section 5204(i)(6)(C) (Occupational Exposures to Respirable Crystalline Silica), as well as 29 CFR 1910.1053(i)(6)(iii) (Respirable Crystalline Silica).
(j)(4)(i)	(j)(~~6~~7)(A)	

The employer shall assure that any person whom he retains, employs, supervises or controls does not engage in prophylactic chelation of any employee at any time.	(A) The employer shall ~~assure~~ensure that any person whom the employer ~~he~~ retains, employs, supervises, or controls does not engage in prophylactic chelation of any employee at any time.	The State proposes to redesignate subsection (j)(6) and its current requirements as subsection (j)(7). In addition, in subsection (j)(7)(A), the word “he” would be replaced with “the employer.” This change is necessary for greater clarity, as well as to avoid assigning a gender to employers.
(j)(4)(ii)	(j)(~~6~~7)(B)	
If therapeutic or diagnostic chelation is to be performed by any person in paragraph (j)(4)(i), the employer shall assure that it be done under the supervision of a licensed physician in a clinical setting with thorough and appropriate medical monitoring and that the employee is notified in writing prior to its occurrence.	If therapeutic or diagnostic chelation is to be performed by any person in subsection (j)(~~6~~7)(A), the employer shall ~~assure~~ensure that it be done under the supervision of a licensed physician in a clinical setting with thorough and appropriate medical monitoring and that the employee is notified in writing prior to its occurrence.	The State proposes that a reference to subsection (j)(6)(A) would be changed to subsection (j)(7)(A). This change is necessary to correctly identify the subsection that addresses chelation, which was redesignated as subsection (j)(7).
(k) Medical Removal Protection -	**(k) Medical Removal Protection.**	
(k)(1)(i)(A)	(k)(1)	
The employer shall remove an employee from work having an exposure to lead at or above the action level on each occasion that a periodic and a follow-up blood sampling test conducted pursuant to this section indicate that the employee's blood lead level is at or above 60 ug/100 g of whole blood; and,	Temporary Removal Due to Elevated Blood Lead Levels. The employer shall remove an employee from work having an exposure to lead at or above the action level, altering or disturbing any material containing lead at a concentration equal to or greater than 0.5% by weight, or torch cutting any scrap metal, on each occasion that: ~~the average of the last three~~	The State proposes to add to subsection (k)(1) the requirements that employers remove employees placed on MRP from altering or disturbing any material containing lead at a concentration equal to or greater than 0.5% by weight and from torch cutting any scrap metal. These additions are necessary to prevent all significant lead exposure to employees

		who are placed on MRP. Under the current requirements, employees placed on MRP could be exposed to significant amounts of lead while altering or disturbing material containing lead, or torch cutting any scrap metal, even if the airborne concentration of lead is below the action level. The inclusion of torch cutting any scrap metal is necessary because torch cutting is often used to reduce the size of large-sized structural steel scrap that can contain coatings containing lead at 0.5% by weight or greater. It is often the case that these coatings are untested and the presence of lead unidentified.
(k)(1)(i)(B)	(k)(1)(A)	
The employer shall remove an employee from work having an exposure to lead at or above the action level on each occasion that the average of the last three blood sampling tests conducted pursuant to this section (or the average of all blood sampling tests conducted over the previous six (6) months, whichever is longer) indicates that the employee's blood lead level is at or above 50 [mu]g/100 g of whole blood; provided, however, that an employee need not be removed if the last blood sampling test indicates a blood lead level below 40 [mu]g/100 g of whole blood.	The last blood lead test~~sampling tests conducted pursuant to this section (or the average of all blood sampling tests conducted over the previous six (6) months, whichever is longer)~~ indicates that the employee's blood lead level is at or above 30~~50~~ µg/dl~~100 g of whole blood~~; ~~provided, however, that an employee need not be removed if the last blood sampling test indicates a blood lead level below 40 ug/100 g of whole blood~~.	The State proposes that new subsection (k)(1)(A) would establish the requirement that an employee be removed from work with lead as described in subsection (k)(1) when their last BLL is at or above 30 µg/dl. This change is necessary to provide added health protection to employees whose BLLs are elevated, such that they are at risk of experiencing or developing adverse health effects as the result of their exposure to lead, and are based on the recommendations of Kosnett et al. (2007).

	(k)(1)(B)	
(There is no corresponding federal requirement.)	Effective [OAL insert 1 year from effective date here], the employee's last two blood lead test results are at or above 20 µg/dl; or	The State proposes that new subsection (k)(1)(B) would establish the requirement that an employee be removed from work with lead as described in subsection (k)(1) when their last two BLLs are at or above 20 µg/dl. This change is necessary to provide added health protection to employees whose BLLs are elevated, such that they are at risk of experiencing or developing adverse health effects as the result of their exposure to lead, and are based on the recommendations of Kosnett et al. (2007).
(k)(1)(i)(B)	(k)(1)(C)	
The employer shall remove an employee from work having an exposure to lead at or above the action level on each occasion that the average of the last three blood sampling tests conducted pursuant to this section (or the average of all blood sampling tests conducted over the previous six (6) months, whichever is longer) indicates that the employee's blood lead level is at or above 50 [mu]g/100 g of whole blood; provided, however, that an employee need not be removed if the last blood sampling test indicates a	Effective [OAL insert 1 year from effective date here], the average of the results of all blood lead tests conducted for the employee in the last 6 months is at or above 20 µg/dl.	The State proposes that new subsection (k)(1)(C) would establish the requirement that an employee be removed from work with lead as described in subsection (k)(1) when the average of all of their BLLs in the prior six months is at or above 20 µg/dl. This change is necessary to provide added health protection to employees whose BLLs are elevated, such that they are at risk of experiencing or developing adverse health effects as the result of their exposure to lead, and are based on

blood lead level below 40 [mu]g/100 g of whole blood.		the recommendations of Kosnett et al. (2007).
(k)(1)(ii)(A)	(k)(2)(A)	
The employer shall remove an employee from work having an exposure to lead at or above the action level on each occasion that a final medical determination results in a medical finding, determination, or opinion that the employee has a detected medical condition which places the employee at increased risk of material impairment to health from exposure to lead.	The employer shall remove an employee from work having an exposure to lead at or above the action level, altering or disturbing any material containing lead at a concentration equal to or greater than 0.5% by weight, or torch cutting any scrap metal, on each occasion that a final medical determination results in a medical finding, determination, or opinion that the employee has a detected health-related~~medical~~ condition which places the employee's health, including the ability to procreate a healthy child, at increased risk of material impairment ~~to health~~ from exposure to lead.	The State proposes to add the requirement that employers remove employees placed on MRP from altering or disturbing any material containing lead at a concentration equal to or greater than 0.5% by weight and from torch cutting any scrap metal. These additions are necessary to prevent all significant lead exposure to employees who are placed on MRP. In addition, the State proposes to modify the language in subsection (k)(2)(A) to expand the conditions under which employers would be required to remove an employee from work with lead as described in subsection (k)(2)(A), to include each occasion that a final medical determination results in a medical finding, determination, or opinion that such an employee has a detected condition that would place the employee's ability to procreate a healthy child at risk due to exposure to lead. In addition, the word "medical" would be replaced by the term "health-related." These changes would make references to "the ability to procreate a healthy child" in language that is not gender-specific, and without using the word "pregnancy." The wording "ability

		to procreate a healthy child" is used in the existing language of subsection (j)(3)(A). These changes are necessary to avoid, by implication, calling pregnancy a "medical condition," and to make clear that an employee's reproductive health, including pregnancy, is protected as part of the employee's overall health.
(k)(1)(ii)(B)	(k)(2)(B)	
For the purposes of this section, the phrase "final medical determination" shall mean the outcome of the multiple physician review mechanism or alternate medical determination mechanism used pursuant to the medical surveillance provisions of this section.	~~Note: For the purposes of this section, t~~The phrase "final medical determination" ~~shall~~ means the written medical opinion on the employee's health status by the examining physician or, where relevant, the outcome of the multiple physician review mechanism or alternate physician determination mechanism used pursuant to the medical surveillance provisions of this section.	The State proposes to amend the language of proposed subsection (k)(2)(B) such that it is consistent with the language in Section 1532.1(k)(1)(B)2.
(k)(1)(iii)(A)(1)	(k)(3)(A)1.	
For an employee removed due to a blood lead level at or above 60 [mu]g/100 g, or due to an average blood lead level at or above 50 [mu]g/100 g, when two consecutive blood sampling tests indicate that the employee's blood lead level is below 40 [mu]g/100 g of whole blood;	For an employee removed under subsection (k)(1), ~~due to a blood lead level at or above 50 µg/100 g~~ when two consecutive blood lead~~sampling~~ tests, taken at least 30 days apart, both indicate that the employee's blood lead level is below 15~~40~~ µg/dl~~100 g~~ of whole blood; and	The State proposes to modify the language of subsection (k)(3)(A)1. to clarify that this subsection applies to employees removed under the provisions of subsection (k)(1). A reference to "blood sampling tests" would be changed to "blood lead tests." These modifications are necessary for clarity and consistency with proposed language throughout this standard.

		In addition, the language in (k)(3)(A)1. would be changed, such that the BLL that must be achieved for an employer to return an employee to his or her former job status would be changed from below 40 µg/dl to below 15 µg/dl. This change is necessary to provide added protection to employees who have elevated BLLs by preventing additional exposure to lead until their BLLs decline to significantly below the level at which MRP is required. Also, language would be added to require that when an employee has been medically removed under the provisions of subsection (k)(1), the employer shall return the employee to his or her former job status when two consecutive tests, taken at least 30 days apart, both indicate that the employee's BLL is below 15 µg/dl. This change is necessary to ensure that a decline in an employee's BLL is persistent over a 30 day period rather than being a short-lived condition.
(k)(1)(iii)(A)(2)	(k)(3)(A)2.	
For an employee removed due to a final medical determination, when a subsequent final medical determination results in a medical finding, determination, or opinion that	For an employee removed due to a final medical determination, when a subsequent final medical determination results in a medical finding, determination, or opinion that the employee no longer has a detected health-related~~medical~~	The State proposes to add language in subsection (k)(3)(A)2. to establish that when an employee is removed from work with lead due to a final medical determination, the employee's return to

the employee no longer has a detected medical condition which places the employee at increased risk of material impairment to health from exposure to lead.	condition which places the employee's health, including the ability to procreate a healthy child, at increased risk of material impairment ~~to health~~ from exposure to lead.	his or her former job status would be dependent on a subsequent final medical determination that the employee no longer has a detected condition that would place the employee's ability to procreate a healthy child at risk due to exposure to lead. In addition, the word "medical" would be replaced by the term "health-related." These changes would make references to "the ability to procreate a healthy child" in language that is not gender-specific, and without using the word "pregnancy." The wording "ability to procreate a healthy child" is used in the existing language of subsection (j)(3)(A). These changes are necessary to avoid, by implication, calling pregnancy a "medical condition," and to make clear that an employee's reproductive health, including pregnancy, is protected as part of the employee's overall health.
(k)(1)(v)	(k)(5)	
Employer options pending a final medical determination. Where the multiple physician review mechanism, or alternate medical determination mechanism used pursuant to the medical surveillance provisions of this section, has not yet resulted in a final medical determination with respect to an employee, the employer shall act as follows:	Employer Options Pending a Final Medical Determination. Where the multiple physician review mechanism, or alternate physician~~medical~~ determination mechanism used pursuant to the medical surveillance provisions of this section, has not yet resulted in a final medical determination with respect to an employee, the employer shall act as follows:	The State proposes to modify the language in subsection (k)(5) such that the term "alternate medical determination mechanism" would be changed to "alternate physician determination mechanism." This change is necessary to provide consistency with the language used in subsection (j)(3)(D).

(k)(2)(ii)	(k)(6)(B)	
Definition of medical removal protection benefits. For the purposes of this section, the requirement that an employer provide medical removal protection benefits means that the employer shall maintain the earnings, seniority and other employment rights and benefits of an employee as though the employee had not been removed from normal exposure to lead or otherwise limited.	Definition of Medical Removal Protection Benefits. For the purposes of this section, the requirement that an employer provide medical removal protection benefits means that the employer shall maintain the earnings, seniority and other employment rights and benefits of an employee, including the employee's right to their former job status, as though the employee had not been medically removed from the employee's job ~~normal exposure to lead~~ or otherwise medically limited.	The State proposes to amend the language in subsections (k)(6)(B) and (C) to add to the meaning of MRP benefits the employee's right to their former job status, and to make several other minor changes. These changes are necessary for consistency with the language of Section 1532.1(k)(2)(B) and (C).
(k)(2)(iii)	(k)(6)(C)	
Follow-up medical surveillance during the period of employee removal or limitation. During the period of time that an employee is removed from normal exposure to lead or otherwise limited, the employer may condition the provision of medical removal protection benefits upon the employee's participation in follow-up medical surveillance made available pursuant to this section.	Follow-Up Medical Surveillance During the Period of Employee Removal or Limitation. During the period of time that an employee is medically removed from the employee's job~~normal exposure to lead~~ or otherwise medically limited, the employer may condition the provision of medical removal protection benefits upon the employee's participation in follow-up medical surveillance made available pursuant to this section.	The State proposes to amend the language in subsections (k)(6)(B) and (C) to add to the meaning of MRP benefits the employee's right to their former job status, and to make several other minor changes. These changes are necessary for consistency with the language of Section 1532.1(k)(2)(B) and (C).
(k)(2)(vii)	(k)(6)(G)	
Voluntary Removal or Restriction of An Employee. Where an employer, although not required by this section to do so, removes an employee from	Voluntary Removal or Restriction of an Employee. Where an employer, although not required by this section to do so, removes an employee from exposure to lead or otherwise	The State proposes that in subsection (k)(6)(G), a reference to subsection (k)(5)(A) would be changed to subsection (k)(6)(A) and (B).

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exposure to lead or otherwise places limitations on an employee due to the effects of lead exposure on the employee's medical condition, the employer shall provide medical removal protection benefits to the employee equal to that required by paragraph (k)(2)(i) of this section.	places limitations on an employee due to the effects of lead exposure on the employee's ~~medical~~health-related condition, the employer shall provide medical removal protection benefits to the employee equal to ~~that~~those required by subsection (k)(6~~5~~)(A) and (B).	This change is necessary to correctly identify the subsections that specify MRP benefits.
(l) Employee information and training -	**(*l*) Employee Information and Training.**	
(l)(1)(i)	(*l*)(1)(A)	
Each employer who has a workplace in which there is a potential exposure to airborne lead at any level shall inform employees of the content of Appendices A and B of this regulation.	Each employer who has a workplace which falls within the scope of this section ~~in which there is a potential exposure to airborne lead at any level~~ shall inform employees with occupational exposure to lead of the content of Appendices A and B of this regulation.	The State proposes to expand the scope of workplaces subject to the requirements of subsection (l)(1)(A). The language in subsection (l)(1)(A) would be modified such that employers would be required to provide specified information to all employees with occupational lead exposure. This change is necessary as employees could have significant occupational exposure to lead, through ingestion, even in the absence of airborne lead exposure.
(l)(1)(ii)	(*l*)(1)(B)	
The employer shall train each employee who is subject to exposure to lead at or above the action level, or for whom the possibility of skin or eye irritation exists, in accordance with the requirements of this section.	The employer shall institute a training program ~~for and assure the participation of: all employees who are subject to exposure to lead at or above the action level or for whom the possibility exists of skin or eye irritation from exposure to lead.~~	The State proposes to expand the requirements in subsection (l)(1)(B) and add three new subsections, (l)(1)(B)1.-3. Existing requirements in subsection (l)(1)(B) would be moved to subsections (l)(1)(B)1. and (l)(1)(B)2.

The employer shall institute a training program and ensure employee participation in the program.		
(l)(1)(ii)	(*l*)(1)(B)1.	
The employer shall train each employee who is subject to exposure to lead at or above the action level, or for whom the possibility of skin or eye irritation exists, in accordance with the requirements of this section. The employer shall institute a training program and ensure employee participation in the program.	For employees who are exposed to lead at or above the action level on any day;	The State proposes that in new subsection (l)(1)(B)1., a training program would be required for employees exposed to lead above the action level on any day. This change is necessary to clarify that employees with exposure to lead above the action level on any day must be included in a lead training program, and is consistent with the existing language used in Section 1532.1(l)(1)(B).
(l)(1)(ii)	(*l*)(1)(B)2.	
The employer shall train each employee who is subject to exposure to lead at or above the action level, or for whom the possibility of skin or eye irritation exists, in accordance with the requirements of this section. The employer shall institute a training program and ensure employee participation in the program.	For employees for whom the possibility exists of skin or eye irritation from exposure to lead (e.g. lead arsenate, lead azide); and	The State proposes that in new subsection (l)(1)(B)2., lead arsenate and lead azide would be given as examples of compounds that may cause skin or eye irritation. This change is necessary for clarity and is consistent with the language used in Section 1532.1(l)(1)(B).
	(*l*)(1)(B)3.	
(There is no corresponding federal requirement.)	As interim protection, in accordance with subsection (d)(2), for employees who perform PHLW.	The State proposes that new subsection (l)(1)(B)3. would require a lead training program, as interim protection for employees who perform PHLW.

		This change is needed to provide greater health protection to exposed employees, where an exposure assessment has not been conducted, by providing them with comprehensive information about lead, how to prevent exposure, their rights under the standard, and the importance of medical surveillance.
(l)(1)(ii)	(*l*)(1)(C)	
The employer shall train each employee who is subject to exposure to lead at or above the action level, or for whom the possibility of skin or eye irritation exists, in accordance with the requirements of this section. The employer shall institute a training program and ensure employee participation in the program.	The employer shall ensure that all employees covered under subsection (*l*)(1)(B) participate in the training program, and that the training, and any training materials used, are appropriate to the educational level, literacy level, and language of these employees.	The State proposes to add a new requirement in proposed subsection (l)(1)(C), requiring that employers ensure that training and training materials are appropriate to the educational level, literacy level and language of employees. This addition is necessary for added protection to employees by ensuring that they understand the information in the training that is provided to them, and is consistent with language used in other sections, including Section 5199 (Aerosol Transmissible Diseases).
(l)(1)(iii)	(*l*)(1)~~(C)~~(D)	
The employer shall provide initial training by 180 days from the effective date for those employees covered by paragraph (l)(1)(ii) on the standard's effective date and prior to the time of initial job assignment for	For each employee covered by subsection (*l*)(1)(B), t~~T~~he employer shall provide initial training covering all content in subsection (*l*)(1)(E) prior to the time of initial job assignment, ~~for those employees subsequently covered by this paragraph~~and at least annually thereafter.	The State proposes to incorporate the requirements of existing subsections (l)(1)(C) and (l)(1)(D) into proposed subsection (l)(1)(D). Also in proposed subsection (l)(1)(D), language would be added to clarify which employees the requirements would apply to, as well as

those employees subsequently covered by this paragraph.		the training content that would be required. These additions are necessary for added clarity.
(l)(1)(iv)	~~(*l*)(1)(D)~~	
The training program shall be repeated at least annually for each employee.	~~The training program shall be repeated at least annually for each employee covered by subsection (*l*)(1)(C).~~	The State proposes to include the requirement for annual training in proposed subsection (l)(1)(D).
(l)(1)(v)	(*l*)(1)(E)	
The employer shall assure that each employee is informed of the following:	The employer shall ~~assure~~ensure that effective training on the following topics is provided for each employee covered by subsection (*l*)(1)(B~~C~~) ~~is informed of the following~~:	The State proposes to modify the requirements of subsection (l)(1)(E) by adding language to require effective training. This addition is necessary to provide added protection to employees by ensuring that training provided to them fulfills its purpose.
(l)(1)(v)(B)	(*l*)(1)(E)2.	
The specific nature of the operations which could result in exposure to lead above the action level;	The specific nature of the operations ~~which~~that could result in exposure to lead at or above the action level, or that constitute PHLW;	The State proposes that in subsection (l)(1)(E)2., information on the nature of operations that constitute PHLW would be added to the required training topics. This addition is necessary because significant exposures to lead can occur when an employee performs PHLW, even if the action level is not exceeded.

		In addition, the words “at or” would be inserted before “above the action level.” This change is necessary because the relevant requirements of this section are contingent on exposures at or above the action level.
	(*l*)(1)(E)3.	
(There is no corresponding federal requirement.)	The importance of effective hygiene practices, including hand washing, and when required, showering, and how to effectively remove lead contamination from skin surfaces with the proper use of special cleansing compounds designed specifically for this purpose, in accordance with subsection (i)(1)(C);	The State proposes that new language be added, to require that training includes information on the importance of hygiene and how to remove lead contamination from skin. This addition is necessary because proper hygiene is required to prevent significant exposures to lead that can occur through ingestion via lead contamination on the hands and skin.
(l)(1)(v)(D)	(*l*)(1)(E)6.	
The purpose and a description of the medical surveillance program, and the medical removal protection program 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);	The ~~including information concerning the adverse~~ health effects of ~~associated with excessive~~ exposure to lead (with particular attention to ~~the adverse reproduction~~cardiovascular effects ~~on both males and females~~), including low-level chronic exposure;	The State proposes that information on the cardiovascular health effects of exposure to lead, as well as information on low-level chronic exposure to lead, be added to the required training topics. Also, a reference to “excessive” exposure to lead would be removed. These additions are necessary to ensure that employees receive important information on health effects, including

		cardiovascular effects, which can occur at even low levels of lead exposure.
(l)(1)(v)(D)	(*l*)(1)(E)7.	
The purpose and a description of the medical surveillance program, and the medical removal protection program 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);	The damage caused to both male and female reproductive health by low-level lead exposure, including damage associated with blood lead levels under 5 µg/dl;	The State proposes that language would be added to require that training on damage to both male and female reproductive health includes information that this health damage can be caused by low-level lead exposure, including damage associated with BLLs under 5 µg/dl. These additions are necessary to ensure that employees receive important information that reproductive health effects can occur at even low levels of lead exposure.
	(*l*)(1)(E)8.	
(There is no corresponding federal requirement.)	The employer's duty, as required by subsection (j)(3)(A), to make medical examinations and consultations available to each employee who notifies the employer that they desire medical advice concerning their ability to procreate a healthy child, when the employee is exposed at or above the action level, and as interim protection, to an employee who performs PHLW, unless the employee's exposure or work is covered by the exception in subsection (j)(1)(A);	The State proposes to add new language, to require that training includes information on the employer's duty to provide medical examinations and consultations upon request to specified employees who desire medical advice about their ability to procreate a healthy child. This addition is necessary to ensure that employees receive information on their rights to medical examinations and consultations when they notify their employer that they desire medical advice

		concerning their ability to have a healthy child. Providing this information to employees could result in more employees with lead exposure having examinations and consultations, thus preventing adverse reproductive health outcomes.
	(*l*)(1)(E)9.	
(There is no corresponding federal requirement.)	The routes of exposure to lead, including inhalation of airborne lead and ingestion of lead from contaminated hands and other surfaces;	The State proposes that new language be added, to require that training includes information on the routes of exposure to lead. This addition is necessary to ensure that employees are informed that lead exposure can result from lead in the air they breathe, as well as from lead that they ingest from contaminated hands or other surfaces. Better informed employees will be more likely to use required respiratory protection, and follow hygiene procedures, such as hand washing, thus limiting their exposure to lead.
	(*l*)(1)(E)10.	
(There is no corresponding federal requirement.)	The possibility that lead contamination brought into personal vehicles or the home on an employee's clothes, shoes, and body will endanger the health of household members, especially that of young children and pregnant women;	The State proposes that new language be added to require that training includes information on the harm to household members that can be caused by lead contamination on an employee's clothing,

		shoes and body, as well as in their vehicles. These additions are necessary to ensure that employees are informed that lead can be transported on their contaminated clothes, shoes and body, and cause harm to their household members, especially to young children and pregnant women. Better informed employees will be more likely to follow proper procedures regarding contaminated PPE and clothing, and hygiene, including showering.
	(*l*)(1)(E)11.	
(There is no corresponding federal requirement.)	The recommendation to shower immediately upon returning home from work to minimize take-home lead exposure; NOTE: When employees are exposed above the PEL, the employer must provide shower facilities and ensure that employees shower at the end of the work shift, in accordance with subsection (i)(3).	The State proposes that in new subsection (l)(1)(E)11., new language would be added, to require that training includes the recommendation to shower to minimize take-home lead exposure. In addition, a note would be added, clarifying the conditions under which an employer must provide shower facilities and ensure their use. These additions are necessary to ensure that employees are informed that showering immediately upon returning home from work is recommended. Better informed employees will be more likely to shower, thus reducing lead exposure to employees and their household members.
1910.1025(l)(1)(v)(G)	(*l*)(1)(E)14.	

Instructions to employees that chelating agents should not routinely be used to remove lead from their bodies and should not be used at all except under the direction of a licensed physician;	Instructions ~~to employees~~ that chelating agents should not routinely be used to remove lead from ~~their bodies~~the body and should not be used at all except under the direction of a licensed physician; and~~.~~	The State proposes to redesignate subsection (*l*)(1)(E)7. to subsection (*l*)(1)(E)14., and to make minor wording changes. These changes are necessary because new requirements have been added, and to increase clarity of the existing requirements.
	(*l*)(1)(E)15.	
(There is no corresponding federal requirement.)	The employee's right of access to their exposure and medical records under section 3204.	The State proposes to add new subsection (l)(1)(E)15., with new language which would require training to include information about the employee's right of access to their exposure and medical records under Section 3204. This addition is necessary to provide consistency with the training requirements of Section 1532.1(l)(2)(O).
(m) Communication of hazards—	**(m) Communication of Hazards.**	
(m)(1)(ii)	(m)(1)(B)	
In classifying the hazards of lead at least the following hazards are to be addressed: Reproductive/developmental toxicity; central nervous system effects; kidney effects; blood effects; and acute toxicity effects.	In classifying the hazards of lead at least the following hazards are to be addressed: cardiovascular effects; r~~R~~eproductive/developmental toxicity; central nervous system effects; kidney effects; blood effects; and acute toxicity effects.	The State proposes to add to subsection (m)(1)(B) the requirement that in classifying the hazards of lead under Section 5194, cardiovascular health effects are to be addressed. This addition is necessary as it is now known that cardiovascular effects are one

		of the health effects that can develop from exposure to even low levels of lead.
(m)(2)(i)	(m)(2)(A)	
The employer shall post the following warning signs in each work area where the PEL is exceeded: DANGER LEAD MAY DAMAGE FERTILITY OR THE UNBORN CHILD CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM DO NOT EAT, DRINK OR SMOKE IN THIS AREA	The employer shall post ~~the following~~a warning sign~~s in each work area where~~: DANGER LEAD MAY DAMAGE FERTILITY OR THE UNBORN CHILD CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM DO NOT EAT, DRINK OR SMOKE IN THIS AREA	The State proposes to add two new subsections, (m)(2)(A)1. and (m)(2)(A)2. These new subsections would contain requirements currently found in subsection (m)(2)(A).
(m)(2)(i)	(m)(2)(A)1.	
The employer shall post the following warning signs in each work area where the PEL is exceeded: DANGER LEAD MAY DAMAGE FERTILITY OR THE UNBORN CHILD CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM DO NOT EAT, DRINK OR SMOKE IN THIS AREA	in each work area where employee exposures are at or above the action level ~~PEL is exceeded:~~; and DANGER LEAD MAY DAMAGE FERTILITY OR THE UNBORN CHILD CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM DO NOT EAT, DRINK OR SMOKE IN THIS AREA	The State proposes that in subsection (m)(2)(A)1., the existing language in (m)(2)(A) would be modified such that the requirement to post warning signs about the danger of lead would apply in work areas where employee exposures are at or above the action level. This change is necessary to support the overall goal of maintaining employee BLLs below 10 µg/dl. Significant exposure to airborne lead can occur when airborne levels are at or above the action level. In addition, these areas could have significant levels of lead contamination on surfaces. Provided with these warnings,

		employees could take appropriate steps to limit their exposure to lead.
	(m)(2)(A)2.	
(There is no corresponding federal requirement.)	as interim protection, in accordance with subsection (d)(2), in each work area where PHLW is performed.	The State proposes that in subsection (m)(2)(A)2., new language would add the requirement that employers post warning signs about the danger of lead, as interim protection, in work areas where PHLW is performed. This addition is necessary to provide greater health protection to employees who perform PHLW and an exposure assessment has not been conducted, by communicating to them the hazards of lead and basic hygiene precautions. This requirement also provides a warning to employees who may enter these work areas. Provided with these warnings, employees could take appropriate steps to limit their exposure to lead.
(m)(2)(i)	(m)(2)(B)	
The employer shall post the following warning signs in each work area where the PEL is exceeded: DANGER LEAD MAY DAMAGE FERTILITY OR THE UNBORN CHILD CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM	The sign shall bear the following legend: DANGER LEAD WORK AREA MAY DAMAGE FERTILITY OR THE UNBORN CHILD CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM DO NOT EAT, DRINK OR SMOKE IN THIS AREA	The State proposes to amend the language of existing subsection (m)(2)(A) by moving the requirements for wording that must be included in a warning sign to proposed subsection (m)(2)(B). Also in proposed subsection (m)(2)(B), the required wording on warning signs would be amended, to state “LEAD WORK AREA”, rather than “LEAD.”

DO NOT EAT, DRINK OR SMOKE IN THIS AREA		These changes are necessary for consistency with the requirements in Section 1532.1(m)(1)(A).
(m)(2)(v)	~~(m)(2)(E)~~	
Prior to June 1, 2016, employers may use the following legend in lieu of that specified in paragraph (m)(2)(ii) of this section: WARNING LEAD WORK AREA POISON NO SMOKING OR EATING	~~Prior to June 1, 2016, employers may use the following legend in lieu of that specified in subsection (m)(2)(B) of this section:~~ ~~WARNING~~ ~~LEAD WORK AREA~~ ~~POISON~~ ~~NO SMOKING OR EATING~~	The State proposes to remove subsection (m)(2)(E). This change is necessary as its requirements only applied prior to June 1, 2016.
(n) Recordkeeping -	**(n) Recordkeeping.**	
(n)(1)(ii)D)	(n)(1)(B)4.	
Name, social security number, and job classification of the employee monitored and of all other employees whose exposure the measurement is intended to represent; and	The ~~N~~name, another unique identifier (such as date of birth or employee identification number~~social security number~~), and job classification of the employee monitored and of all other employees whose exposure the measurement is intended to represent; and	The State proposes to modify the language in subsection (n)(1)(B)4. to require a unique identifier (such as date of birth or employee identification number) to be used in lieu of a SSN to identify employees in records of exposure monitoring. This change is necessary to comply with a Cal/OSHA directive to remove all requirements in its standards to include employee SSNs on exposure monitoring, medical surveillance, or other records, in order to facilitate employers' efforts to safeguard employee privacy. This directive is in response to federal OSHA's

		Standards Improvement Project proposal to remove requirements for including employee SSNs in its regulations.
(n)(1)(ii)(E)	(n)(1)(B)5.	
The environmental variables that could affect the measurement of employee exposure.	The work operations performed by the monitored employees and the workplace conditions under which they were performed, including the processes, types of material, control methods, and work practices used, as well as the environmental conditions prevailing during the monitored operations ~~environmental variables that could affect the measurement of employee exposure~~.	The State proposes to modify the language in subsection (n)(1)(B)5., to require that information be recorded about the work operations conducted by individuals who are monitored and the conditions prevailing in employers' operations. This change is necessary to ensure that sufficient information is recorded to demonstrate the applicability of exposure data to satisfy the requirements of subsections (d)(4), (d)(5), (d)(6), and (d)(7).
	(n)(2)	
(There is no corresponding federal requirement.)	Written Compliance Program Review. Records of the semi-annual revision and update of the employer's written compliance program, required under subsection (e)(2)(A), shall include the name of the person(s) who reviewed the program, the date the review was completed, and a summary of the revisions and updates to the program. The records shall be retained for three years.	The State proposes that in subsection (n)(2), a new heading, "Written Compliance Program Review," would be added. In addition, new language would be added to this subsection, to require that records of revisions and updates to the employer's written compliance program be retained for three years. These additions are necessary to ensure that records of revisions and updates to the written compliance programs required by subsection (e)(2)(A) are retained and

		thus available to serve as documentation of the current status of the employer's lead compliance program as it evolves over time.
(n)(2)	(n)(~~2~~3)	
Medical surveillance.	Medical Surveillance.	The State proposes to redesignate subsection (n)(2) to subsection (n)(3). This change is necessary due to the new heading proposed in subsection (n)(2).
(n)(2)(ii)(A)	(n)(~~2~~3)(B)1.	
The name, social security number, and description of the duties of the employee;	The name, another unique identifier (such as date of birth or employee identification number~~social security number~~), and description of the duties of the employee;	The State proposes to modify the language in subsection (n)(3)(B)1. to require a unique identifier (such as date of birth or employee identification number) to be used in lieu of a social security number to identify employees in records of medical surveillance. This change is necessary to comply with a Cal/OSHA directive regarding SSNs (see subsection (n)(1)(B)4. above).
(n)(2)(iii)(C)	(n)(~~2~~3)(C)3.	
A copy of the results of biological monitoring.	A copy of the results of blood lead testing~~biological monitoring~~.	The State proposes that in subsection (n)(3)(C)3., the phrase "biological monitoring" would be replaced with "blood lead testing." This change is necessary as the requirement to conduct routine ZPP

		testing would be removed and thus "blood lead testing" more accurately describes the record which must be kept pursuant to this subsection.
	(n)(4)	
(There is no corresponding federal requirement.)	Written Elevated Blood Lead Level Response Plans. Written elevated blood lead level response plans, required under subsection (j)(2)(E), shall be retained for three years.	The State proposes to replace existing language with entirely new language in subsection (n)(4). It would be given the new heading "Written Elevated Blood Lead Level Response Plans." The new language in this subsection would require that these plans be retained for three years. This addition is necessary to ensure that written elevated BLL response plans are retained. The plans would then be available for review, so that implementation of the means of reducing and maintaining an employee's blood lead level below 10 µg/dl could be evaluated over time.
(n)(3)(ii)(A)	(n)(~~3~~5)(B)1.	
The name and social security number of the employee;	The name and another unique identifier (such as date of birth or employee identification number ~~social security number~~) of the employee;	The State proposes to modify the language in subsection (n)(5)(B)1. to require a unique identifier (such as date of birth or employee identification number) to be used in lieu of a SSN to identify employees in records of medical removals.

		This change is necessary to comply with a Cal/OSHA directive regarding SSNs (see subsection (n)(1)(B)4. above).
	(n)(6)	
(There is no corresponding requirement in the federal regulation).	Training. (A) After conducting any training required by this section, the employer shall prepare a record that indicates the name and job classification of each employee trained, the date of the training, the name of the person(s) who conducted the training, and the topic(s) of the training. (B) Training records shall be maintained for three years.	The State proposes to add new subsection (n)(6), with the heading "Training." New language in this subsection would specify the information required in training records, and require that the records be maintained for three years. This addition is necessary to demonstrate that employees have received the initial, annual, or supplemental training (provided in accordance with subsection (j)(2)(E)) required by this section.
Appendices A, B, C and D	**Appendices A, B, C and D**	
		There are four appendices to Section 5198: A, B, C and D. Per Section 5198(p) Appendices: "The information contained in the appendices to this section is not intended to create any additional obligations not otherwise imposed by this standard nor detract from any existing obligation." This statement is also found in 29 CFR 110.1025(p) Appendices. The State proposes to make numerous changes to the appendices. A brief description of these changes is given below. Because the appendices are

		purely informational, and do not by themselves create any additional obligations not otherwise imposed by Section 5198 nor detract from any existing obligation, individual changes proposed for the appendices, and a rationale for each, are not included in this Standards Comparison.
Appendix A	Appendix A to Section 5198 – Substance Data Sheet for Occupational Exposure to Lead	
	~~Substance Data Sheet for Occupational Exposure to Lead~~ This appendix is a substance data sheet for occupational exposure to lead. It includes information about how exposure to lead can affect your health. I. Substance Identification A. Substance: Pure lead (Pb) is a heavy metal at room temperature and pressure and is a basic chemical element. It can combine with various other substances to form numerous lead compounds. B. Compounds Covered by the Standard: The word “lead” when used in this standard means elemental lead, all inorganic lead compounds and a class of organic lead compounds called lead soaps. This standard does not apply to other organic lead compounds. C. Uses: Exposure to lead occurs in at least 120 different occupations, including primary and	The State proposes to modify the language in Appendix A – Substance Data Sheet for Occupational Exposure to Lead to reflect current knowledge about the adverse health effects of exposure to lead, as well as changes that are proposed for Section 5198.

	secondary lead smelting, lead storage battery manufacturing, lead pigment manufacturing and use, solder manufacturing and use, shipbuilding and ship repairing, auto manufacturing and repair, painting, ~~and~~ printing, working with scrap metal, and working with firearms or ammunition. D. Permissible Exposure: The Permissible Exposure Limit (PEL) set by the standard is ~~50~~10 micrograms of lead per cubic meter of air (~~50~~10 µg/~~M~~m^3), ~~averaged over~~calculated as an 8-hour ~~workday~~time-weighted average (TWA). E. Action Level: The standard establishes an action level of ~~30~~2 micrograms per cubic meter of air (~~30~~2 µg/~~M~~m^3), calculated as an 8-hour TWA~~time-weighted average, based on an 8-hour workday~~. The action level refers to employee exposure, without regard to the use of respirators. The action level initiates several requirements of the standard, such as exposure monitoring, medical surveillance, ~~and~~ training and education, and signs. II. Health Hazard Data A. Ways in which lead enters your body. When absorbed into your body ~~in certain doses~~, lead is a toxic substance. The object of the lead standard is to prevent absorption of harmful quantities of lead. The standard is intended to protect you not only from the immediate toxic effects of lead but also from the serious toxic effects that may not become apparent until years of exposure have passed. Lead can be absorbed into your body by inhalation (breathing) and ingestion (eating).	

	Lead (except for certain organic lead compounds not covered by the standard, such as tetraethyl lead) is not significantly absorbed through your skin. When lead is scattered in the air as a dust, fume or mist it can be inhaled and absorbed through your lungs and upper respiratory tract. Inhalation of airborne lead is generally the most important source of occupational lead absorption. You can also absorb lead through your digestive system if lead gets into your mouth and is swallowed. If you handle food, beverages, cigarettes, chewing tobacco, or make-up which have lead on them or handle them with hands contaminated with lead, this will contribute to ingestion. A significant portion of the lead that you inhale or ingest gets into your blood-stream. Once in your blood ~~system~~stream, lead is circulated throughout your body and stored in various organs and body tissues. Some of this lead is quickly filtered out of your body and excreted, but some remains in the blood and other tissues. As exposure to lead continues, the amount stored in your body will increase if you are absorbing more lead than your body is excreting. Even though you may not be aware of any immediate symptoms of disease, this lead stored in your tissues can be slowly causing irreversible damage, first to individual cells, then to your organs and whole body systems. B. Effects of overexposure to lead~~–~~. (1) Short-term (acute) overexposure. Lead is a potent, systemic poison that serves no known useful function once absorbed by your body. Taken in large enough doses, lead can kill you in a matter of days. A condition affecting the brain	

	called acute encephalopathy may arise which develops quickly to seizures, coma, and death from cardiopulmonary~~respiratory~~ arrest. A very high, short-term dose of lead can lead to acute encephalopathy. Short-term occupational exposures of this magnitude are highly unusual, but not impossible. Similar forms of encephalopathy may, however, arise from extended, chronic exposure to lower doses of lead. The most severe, often fatal, form of encephalopathy may be preceded by vomiting, a feeling of dullness progressing to drowsiness and stupor, poor memory, restlessness, irritability, tremor, and convulsions. There is no sharp dividing line between rapidly developing acute effects of lead and chronic effects which take longer to ~~acquire~~develop. Lead adversely affects numerous body systems and causes forms of health impairment and disease which arise after periods of exposure as short as days or as long as several years. For example, short-term reproductive effects may include miscarriage and reduced birth weight of children exposed to lead during pregnancy. Both high and lower level lead exposures have been associated with these outcomes. Sperm abnormalities may develop at relatively high blood lead levels (at or above 20 micrograms of lead per deciliter of whole blood (µg/dl)). (2) Long-term (chronic) overexposure. Chronic overexposure to lead may result in severe damage to your cardiovascular, blood-forming, nervous, urinary and reproductive systems. Damage to multiple organs may occur at blood lead levels previously thought to be without recognized harm. At higher lead levels, ~~S~~some ~~common~~ symptoms of chronic overexposure	

	include loss of appetite, metallic taste in the mouth, anxiety, constipation, nausea, pallor, excessive tiredness, weakness, insomnia, headache, nervous irritability, muscle and joint pain or soreness, fine tremors, numbness, dizziness, hyperactivity and lead colic. In lead colic there may be severe abdominal pain. Some people may not experience any symptoms even though lead is causing toxic effects in their bodies. It is important to note that permanent damage may occur even in the absence of symptoms. *Cardiovascular system (heart and blood circulation).* Long-term, low dose lead exposures may result in high blood pressure. Since high blood pressure is a significant risk factor for heart disease, stroke, and kidney (renal) disease, lead exposure may exert an important influence on death related to the effects on the heart, brain, and kidneys. *Neurologic system (brain and nervous system).* Nervous system dysfunction, including declines in brain (cognitive) function and slowing of nerve conduction velocity, likewise may occur at chronic, low blood lead levels. High-dose exposures may ~~D~~damage ~~to~~ the central nervous system in general and the brain (encephalopathy) in particular ~~is~~in one of the most severe forms of lead poisoning.~~The most severe, often fatal, form of encephalopathy may be preceded by vomiting, a feeling of dullness progressing to drowsiness and stupor, poor memory, restlessness, irritability, tremor, and convulsions. It may arise suddenly with the onset of seizures, followed by coma, and death.~~ There is a tendency for muscular weakness to develop	

	at the same time. This weakness may progress to paralysis often observed as a characteristic "wrist drop" or "foot drop" and is a manifestation of a disease to the nervous system called peripheral neuropathy. *Renal system (kidneys)*. Decreases in kidney function can start at low levels of exposure to lead. With higher levels of lead exposure, ~~Chronic overexposure to lead also results in~~ kidney disease may progress with few, if any, symptoms appearing until extensive and most likely permanent kidney damage has occurred. Routine laboratory tests reveal the presence of this kidney disease only after about two-thirds of kidney function is lost. When overt symptoms of urinary dysfunction arise, it is often too late to correct or prevent worsening conditions, and progression to kidney dialysis or death is possible. *Reproductive system*. Chronic overexposure to lead impairs the reproductive systems of both women~~men~~ and men~~women~~. ~~Overexposure to lead may result in decreased sex drive, impotence and sterility in men. Lead can alter the structure of sperm cells raising the risk of birth defects. There is evidence of miscarriage and stillbirth in women whose husbands were exposed to lead or who were exposed to lead themselves. Lead exposure also may result in decreased fertility and abnormal menstrual cycles in women.~~ The course of pregnancy may be adversely affected by exposure to lead since lead crosses the placental barrier and poses risks to developing fetuses. Reduced birth weight of children exposed to lead during pregnancy has been documented with low-level chronic lead exposures. Children born of parents either one of	

	whom were exposed to excess lead levels are more likely to have birth defects, mental retardation, or behavioral disorders or to die during the first year of childhood. Lead exposure also may result in decreased fertility and abnormal menstrual cycles in women. Overexposure to lead may result in decreased sex drive, impotence, and sterility in men. Lead can alter the structure of sperm cells raising the risk of birth defects. There is evidence of miscarriage and stillbirth in women whose husbands were exposed to lead or who were exposed to lead themselves. *Blood-forming system.* Overexposure to lead also disrupts the blood-forming system resulting in decreased hemoglobin (the substance in the blood that carries oxygen to the cells) and ultimately anemia. Anemia is characterized by weakness, pallor and fatigue as a result of decreased oxygen-carrying capacity in the blood. (3) Health protection goals of the standard. Prevention of ~~adverse~~ health ~~effects~~damage for most ~~workers~~employees from exposure to lead throughout a working lifetime requires that ~~worker~~employee blood lead levels (~~Pb~~BLL) be maintained ~~at or below forty micrograms per one hundred grams of whole blood (40µg/100g)~~ as low as possible. The ~~blood lead levels~~BLLs of female ~~workers~~employees ~~(both male and female workers)~~ who intend to have children should be maintained below 5 ~~30~~µg/dl~~100g~~ to minimize adverse reproductive health effects to the mother~~parents~~ and the developing fetus. The measurement of your BLL~~blood lead level~~ is the most useful indicator of the amount of lead	

	being absorbed by your body. Your BLL is a measure of the amount of lead in your blood. This reflects both recent exposure as well as how much lead is stored in your bones.~~Blood lead levels (PbB) are most often reported in units of milligrams (mg) or micrograms (µg) of lead (1 mg = 1000 µg) per 100 grams (100g), 100 milliliters (100ml) or deciliter (dl) of blood. These three units are essentially the same. Sometime PbB's are expressed in form of mg% or µg%. This is a shorthand notation for 100g, 100ml, or dl. PbB measurements show the amount of lead circulating in your blood stream but do not give any information about the amount of lead stored in your various tissues. PbB measurements merely show current absorption of lead, not the effect that lead is having on your body or the effects that past lead exposure may have already caused.~~ Past research into lead-related diseases~~,~~ ~~however,~~ has focused heavily on associations between ~~PbB~~BLLs and various diseases. As a result, ~~the relative level of your PbB is an important indicator of the probability of your acquiring~~your BLLs over time provide an important indicator of the likelihood that you will gradually develop a lead-related health impairment or disease. ~~Once~~ As your ~~blood lead level~~BLL increases ~~climbs above 40 µg/100g~~, your risk of disease increases. There is a wide variability of individual response to lead~~,~~; thus, it is difficult to say that a particular ~~PbB~~ BLL in a given person will cause a particular effect. Health damage has been found at chronic BLLs of 5 µg/dl and greater, including high blood pressure, reduced birth weight, essential tremor, and kidney dysfunction. At the other extreme, ~~S~~studies have associated fatal encephalopathy with ~~PbB~~BLLs ~~as low as~~of 150	

	µg/dl~~100g~~, but encephalopathy may occur at BLLs of 80 µg/dl.~~Other studies have shown other forms of disease in some workers with PbBs well below 80 µg/100g~~. Your ~~PbB~~BLL is a crucial indicator of the risks to your health, but one other factor is also extremely important. This factor is the length of time you have had elevated ~~PbB~~BLLs. The longer you have an elevated ~~PbB~~BLL, the greater the risk that large quantities of lead are being gradually stored in your organs and tissues (body burden). The greater your overall body burden, the greater the chances of substantial permanent damage. The best way to prevent all forms of lead-related health impairments and diseases (both short~~-~~-term and long~~-~~-term) is to maintain your ~~PbB~~BLL ~~below 40 µg/100g~~as low as possible. The ~~provisions of the~~ standard ~~are~~is designed ~~with this end in mind~~to detect BLL increases early and take action to control exposures. Your employer has prime responsibility to ~~assure~~ensure that the provisions of the standard are complied with both by the company and by individual ~~workers~~employees. You as an ~~worker~~employee, however, also have a responsibility to assist your employer in complying with the standard. You can play a key role in protecting your own health by learning about the lead hazards and their control, learning what the standard requires, following the standard where it governs your own actions, and seeing that your employer complies with provisions governing ~~his~~their actions. (4) Reporting signs and symptoms of health problems. You should immediately notify your employer if you develop signs or symptoms	

	associated with lead poisoning or if you desire medical advice concerning the effects of current or past exposure to lead on your ability to have a healthy child. You should also notify your employer if you have difficulty breathing during a respirator fit test or while wearing a respirator. In each of these cases your employer must make available to you appropriate medical examinations or consultations. These must be provided at no cost to you and at a reasonable time and place. The standard contains a procedure whereby you can obtain a second opinion by a physician of your choice if the employer selected the initial physician.	
Appendix B	Appendix B to Section 5198 – Employee Standard Summary	
	~~Section 5198 Summary~~ This appendix summarizes key provisions of the standard that you as an ~~worker~~employee should become familiar with. I. Permissible Exposure Limit (PEL) - subsection (c) The standard sets a permissible exposure limit (PEL) of 10~~fifty~~ micrograms of lead per cubic meter of air (10~~50~~ µg/~~M~~m^3), ~~averaged over~~calculated as an 8-hour ~~workday~~time-weighted average (TWA). ~~This is the highest level of lead in air to which you may be permissibly exposed over an 8-hour workday~~Your lead exposure over your entire workday, when calculated as an 8-hour TWA, cannot be higher than the PEL. However, ~~S~~since ~~it~~the PEL is an 8-hour ~~average~~TWA, ~~it permits~~ short exposures	The State proposes to modify the language in Appendix B – Employee Standard Summary to reflect changes that are proposed for Section 5198, as well as to reflect current information about the most common chelating agents. In addition, the title of Appendix B would be changed from “Summary” to “Employee Standard Summary” for consistency with the title of Appendix B to Section 1532.1.

	above the PEL are permitted so long as for each ~~8-hour~~ workday your average exposure does not exceed the PEL. ~~This standard recognizes that your daily exposure to lead can extend beyond a typical 8-hour workday as the result of overtime or other alterations in your work schedule. To deal with this, the standard contains a formula which reduces your permissible exposure when you are exposed more than 8 hours. For example, if you are exposed to lead for 10 hours a day, the maximum permitted average exposure would be 40µg/M^3.~~ II. Exposure Monitoring - subsection (d) If lead is present in any quantity in the workplace where you work, your employer is required to make an initial determination of whether the action level (2 µg/m^3 calculated as an 8-hour TWA) is exceeded for any employee. This initial determination must include instrument monitoring of the air for the presence of lead and must cover the exposure of a representative number of employees who are reasonably believed to have the highest exposure levels. If your employer has conducted appropriate air sampling for lead in the past year, ~~he~~they may use these results. If there have been any employee complaints of symptoms which may be attributable to exposure to lead or if there is any other information or observations which would indicate employee exposure to lead, this must also be considered as part of the initial determination. ~~This determination must have been completed within~~	

	~~30 days of the effective date of the standard.~~ If this initial determination shows that a reasonable possibility exists that any employee may be exposed, without regard to the use of respirators, over the action level ~~(30 µg/M^3)~~, your employer must set up an air monitoring program to determine the exposure level of every employee exposed to lead at your workplace. In carrying out this air monitoring program, your employer is not required to monitor the exposure of every employee but must monitor a representative number of employees and job types. Enough sampling must be done to enable each employee's exposure level to be reasonably represented by at least one full-shift ~~(at least 7 hours)~~ air sample. In addition, these air samples must be taken under conditions which represent each employee's regular, daily exposure to lead. ~~All initial exposure monitoring must have been completed within 90 days of the effective date of the standard.~~ <u>The standard includes a classification for work with lead that may result in significant employee exposure to airborne lead. In the standard, this work is referred to as presumed hazardous lead work (PHLW). PHLW includes altering or disturbing material that contains or is likely to contain at least 0.5% lead by weight; and torch cutting any scrap metal. In the standard, “altering or disturbing” means “subjecting to a process that may result in the release of lead dust, lead mist, lead fume, or other lead particles. Such processes include, but are not limited to, welding, torch cutting, brazing, torch soldering, melting,</u>	

	pouring, spraying, cutting, shredding, crushing, baling, grinding, polishing, machining, drilling, scraping, sanding, abrading, sweeping, raking, and shoveling." Examples of materials that are likely to contain at least 0.5% lead include scrap lead, lead solder, lead bullet fragments and dust, lead sheeting, lead cable housing, and lead billets. Because scrap metal is likely to contain lead, and it is not easy to tell if there is lead in a piece of scrap metal, all torch cutting of scrap metal is classified as PHLW. There is an exception to what counts as PHLW. Altering or disturbing material, or torch cutting any scrap metal, is not PHLW when the total combined duration of lead exposure resulting from altering, disturbing, and torch cutting is less than 8 hours during any 30-day period. If you are performing PHLW, your employer must provide you, as interim protection, with appropriate respiratory protection, protective clothing and equipment, medical surveillance, training and posted signs, until your employer conducts an exposure assessment and determines actual employee exposure, as required under subsection (d) of the lead standard. Once an exposure assessment has been completed, your employer must provide you with the appropriate protections, based on your level of exposure to lead, as required by the standard. If you are exposed to lead and air sampling is performed, your employer is required to ~~quickly~~ notify you in writing within 5 working days of the air monitoring results which represent your	

	exposure. If the results indicate your exposure exceeds the PEL (without regard to your use of respirators), then your employer must also notify you of this in writing and also provide you with a description of the corrective action that has been or will be taken to reduce your exposure. Your exposure must be rechecked by monitoring, at least every 12~~six~~ months if your exposure is at or above~~over~~ the action level (2 µg/m^3 as an 8-hour TWA) but below 30 µg/m^3 as an 8-hour TWA~~the PEL~~. ~~Air monitoring must be repeated every three months, if you are exposed over the PEL.~~ Your employer may discontinue monitoring for you if ~~2~~two consecutive measurements, taken at least ~~two weeks~~ 7 days apart, are below the action level. Air monitoring must be repeated every 6 months if you are exposed at or above 30 µg/m^3 as an 8-hour TWA but at or below 50 µg/m^3 as an 8-hour TWA. Your employer must continue monitoring for you every 6 months until two consecutive measurements, taken at least 7 days apart, are below 30 µg/m^3 as an 8-hour TWA. Air monitoring must be repeated every 3 months if you are exposed above 50 µg/m^3 as an 8-hour TWA. Your employer must continue monitoring for you every 3 months until two consecutive measurements, taken at least 7 days apart, are at or below 50 µg/m^3 as an 8-hour TWA. However, whenever there is a production, process, control, or personnel change at your workplace which may result in new or additional exposure to lead, or whenever there is any other reason to suspect a change which may result in	

	new or additional exposure to lead, your employer must perform additional monitoring. III. Compliance - subsection (e) ~~Except for certain industries, the regulation requires employers to reduce and maintain employee exposure to lead at or below the permissible exposure limit by means of engineering, work practice, and administrative controls to the extent that such controls are feasible. Even though such controls may not be sufficient to effect compliance with the PEL, they must be instituted to achieve the lowest feasible exposure level and the employer must provide supplemental protection in the form of respirators.~~ Your employer is required to ensure that no employee is exposed to lead above the PEL. The lead standard requires employers to institute engineering and work practice controls, including administrative controls, to the extent feasible to reduce employee exposure to lead. Where such controls are feasible but not adequate to reduce exposures to at or below the PEL, they must be used to reduce exposures to the lowest level that can be accomplished by these means, and then supplemented with appropriate respiratory protection. Certain processes used in the lead acid battery manufacturing industry have Separate Engineering Control Airborne Limits (SECALs), which will have a phase-in period. Table 1 shows	

the specific processes, SECALs, and implementation dates:

Table 1 -- Separate Engineering Control Airborne Limits (SECALs) for Selected Processes; Implementation Schedule

Industry	Process	SECAL (as an 8-hour TWA) and Implementation Dates
Lead acid battery manufacturing*	Oxide production; paste mixing; grid pasting and parting; and battery assembly.	50 µg/m^3 on [OAL insert effective date here], then 40 µg/m^3 on [OAL insert five years from effective date here].
	Grid production and small parts casting; and plate formation.	50 µg/m^3 on [OAL insert effective date here], then 30 µg/m^3 on [OAL insert five years from effective date here].

* Processes in this industry that are not specified in this table must achieve the PEL as specified in subsection (e)(1)(A).

	Where a SECAL has been specified for particular processes, your employer must implement engineering and work practice controls to reduce and maintain employee exposures to or below the SECAL, except to the extent that your employer can demonstrate that such controls are not feasible. Note that even when there is a SECAL for a particular process, your employer must ensure that your exposure to lead is not above the PEL. Respirators may be used to supplement engineering and work practice controls to reduce employee exposure to or below the PEL. ~~Where employee exposure above the PEL occurs intermittently for no more than 30 days per year, feasible engineering controls must be implemented to achieve compliance with an exposure limit of 150 µg/M^3 but compliance with the PEL may be accomplished by any combination of engineering, work practice, and administrative controls and respiratory protection.~~ Your employer must also develop and implement a written compliance program to reduce exposures to or below the PEL or, where applicable, the SECAL, using only engineering and work practice controls. The standard identifies the various elements that must be included in the program. For example, employers are required to include a description of operations in which lead is emitted, detailing other relevant information about the operation such as the type of equipment used, the type of material involved, crew size, employee job responsibilities,	

	operating procedures and maintenance practices. In addition, your employer's compliance program must specify the means that will be used to achieve compliance and, where engineering controls are required, include any engineering plans or studies that have been used to select the control methods. If engineering and work practice controls were considered but not put in place, the program must include a report that shows how they were demonstrated not to be feasible. Also, if administrative controls involving job rotation are used to reduce employee exposure to lead, the job rotation schedule must be included in the compliance program. The program must also detail the type of protective clothing and equipment, including respirators, housekeeping, and hygiene practices that will be used to protect you from the adverse effects of exposure to lead. The written compliance program must be made available, upon request, to affected employees and their designated representatives, the Cal/OSHA Chief, and the National Institute for Occupational Safety and Health (NIOSH). The program must be reviewed and updated at least every 6 months to ensure it reflects the current status of exposure control. IV. Respiratory Protection - subsection (f) Your employer is required to provide and ~~assure~~ensure your use of respirators when your exposure to lead is not controlled below the PEL by other means, and as interim protection if you perform PHLW and an exposure assessment has	

	not been completed. The employer must pay the cost of the respirator. Whenever you request one, your employer is also required to provide you a respirator even if ~~the~~your air exposure level ~~does not exceed~~is not above the PEL. You might ~~desire~~want a respirator when, for example, you intend to have children in the near future, and want to reduce the level of lead in your body to minimize adverse reproductive effects. While respirators are the least satisfactory means of controlling your exposure, they are capable of providing significant protection when properly chosen, fitted, worn, cleaned, and maintained and are replaced when they stop providing adequate protection. Your employer is required to select respirators as specified in the Respiratory Protection standard, in section 5144(d)(3)(A)(1)~~from the types listed in the respiratory protection subsection of the standard~~. However, when respirators are required, filtering facepiece respirators (disposable respirators or dust masks) are not to be selected by your employer and are not to be used for protection from lead. Any respirator chosen must be approved by ~~the National Institute for Occupational Safety and Health (~~NIOSH~~)~~ under the provisions of 42 CFR part 84. The respirator selection table in section 5144 will enable your employer to choose a type of respirator which will give you proper protection based on your airborne lead exposure. Your employer may select a type of respirator that provides greater protection than that required by the standard; that is, one recommended for a	

	higher concentration of lead than that to which you are exposed. An air-~~-~~purifying respirator works by removing particles, gases, or vapors from the air you breathe,~~is any respirator which has a~~ if the correct type of filter, cartridge, or canister ~~which cleans the work room air as you breathe it~~is used with the facepiece. The typical air-~~-~~purifying respirator is a negative pressure respirator because it requires the force of your inhalation to draw air through the ~~filtering~~purifying element. ~~It is less protective than a~~A powered air-~~-~~purifying respirator (PAPR) is much more protective than a typical negative pressure respirator, and may also be more comfortable to wear. A PAPR~~which~~ also has a filter, cartridge, or canister to clean the air, ~~but~~and a power source which continuously blows filtered air into your breathing zone. ~~Your employer might make a~~A PAPR ~~available to you to~~may ease the burden of having to wear a negative pressure air-~~-~~purifying respirator for long periods of time. The standard ~~provides~~requires that your employer must provide ~~can obtain~~you with a PAPR upon request. Your employer also must provide high-efficiency particulate air (HEPA) filters for PAPRs and N-100, R-100, or P-100 filters for non-powered air-purifying respirators. In addition, if you are exposed to lead aerosols that cause eye or skin irritation at the use concentrations, your employer must provide you with a full facepiece respirator instead of a half mask respirator. A ~~S~~supplied-air respirator~~s~~ (SAR) can also be more protective than a typical negative pressure	

	respirator. A SAR is supplied with breathing-quality air from a source such as an air compressor or compressed air cylinder. Three types of supplied-air respirators are demand, pressure-demand, and continuous flow. The demand-type provides protection equivalent to that of a non-powered negative pressure air-purifying respirator of the same facepiece type.~~are also available which, as the name implies, are respirators to which breathing quality air is supplied from a source such as an air compressor, blower or compressed air cylinder. Three types of supplied-air respirators are availabledemand, pressure demand, and continuous flow. The demand-type requires the force of inhalation to open a diaphragm valve thus admitting air from the supply source. As any leakage around the facepiece will permit the concurrent admission of contaminated air, the demand-type only provides protection generally equivalent to that of the typical negative pressure air purifying respirator of the same facepiece type.~~ Greater protection is provided by either the pressure-demand or continuous-flow types as~~because~~ positive air pressure exists within the respirator at all times. Your employer must implement~~also start~~ a Respiratory Protection Program in accordance with ~~General Industry Safety Orders~~ section 5144. This program must include written procedures for ~~the~~ proper respirator selection, medical evaluations, fit testing, use, cleaning, storage, and maintenance of respirators, and training, as well as procedures to ensure	

	adequate air quality, quantity and flow for supplied-air respirators. Your employer must ~~assure~~ensure that your respirator facepiece fits properly. Proper fit of a respirator facepiece is critical and no single facepiece fits all facial configurations equally well. Obtaining a proper fit thus may require your employer to make available two or three different mask types, in various sizes, in order that facepiece leakage is minimized for each employee. In order to ~~assure~~ensure that your respirator fits properly and that facepiece leakage is minimized, your employer must give you either a "quantitative or qualitative fit test" as specified in Appendix A of ~~S~~section 5144, Respiratory Protection. You must also receive from your employer proper training in the use of respirators. Your employer is required to teach you how to wear a respirator, to know why it is needed, and to understand its limitations. The standard provides that if your respirator uses filter elements, you must be given an opportunity to change the filter elements whenever an increase in breathing resistance is detected. You also must be permitted to periodically leave your work area to wash your face and respirator facepiece whenever necessary to prevent skin irritation. Before you begin using a respirator, and again i~~I~~f you ever have difficulty in breathing during a fit test or while using a respirator, your employer must make a medical examination available to you to determine whether you can	

	safely wear a respirator. The result of this examination may be to give you a positive pressure respirator (which reduces breathing resistance) or to provide alternative means of protection. V. Protective Work Clothing and Equipment - subsection (g) If you are exposed to lead above the PEL or perform PHLW and an exposure assessment has not been completed, or if you are exposed to lead compounds such as lead arsenate or lead azide which can cause skin and eye irritation, your employer must provide you with protective work clothing and equipment appropriate for the hazard. If work clothing is provided, it must be provided in a clean and dry condition at least weekly, and daily if your exposure to airborne lead without regard to respirator use is greater than 30~~150~~ µg/~~M~~m^3. Appropriate protective work clothing and equipment can include coveralls or similar full-body work clothing, gloves, hats, shoes or disposable shoe coverlets, and face shields or vented goggles. Your employer is required to provide all such equipment at no cost to you. ~~He~~Your employer is responsible for providing repairs and replacement as necessary, and also is responsible for the cleaning, laundering or disposal of protective clothing and equipment. Contaminated work clothing or equipment must be removed in change rooms and not worn home or you will extend your exposure and expose your family since lead from your clothing can accumulate in your house, car, etc. Contaminated clothing which is to be	

	cleaned, laundered or disposed of must be placed in closed containers in the change room. At no time may lead be removed from protective clothing or equipment by any means which disperses lead into the workroom air. VI. Housekeeping - subsection (h) Your employer must establish a housekeeping program sufficient to maintain all surfaces as free as practicable of accumulations of lead dust. HEPA ~~V~~vacuuming is the preferred method of meeting this requirement, and the use of compressed air to clean floors and other surfaces is absolutely prohibited. Dry or wet sweeping, shoveling, or brushing may not be used except where vacuuming or other equally effective methods have been tried and do not work. Vacuums must be equipped with a special filter called a HEPA filter and be used and emptied in a manner which minimizes the reentry of lead into the workplace. VII. Hygiene Facilities and Practices - subsection (i) The standard requires that hand washing facilities be provided, and used, where occupational exposure to lead occurs. In addition, clean change rooms, showers, and lunchrooms must be made available to ~~workers~~employees exposed to lead above the PEL without regard to the use of respirators. When employees are exposed to lead~~the PEL is exceeded~~, the employer must ~~assure~~ensure that food and beverage is not present or consumed,	

	tobacco products are not present or used, and cosmetics are not applied, except in these facilities. Change rooms, showers, and lunchrooms~~, if available,~~ must be used by ~~workers~~employees exposed in excess of the PEL. After showering, no clothing or equipment worn during the shift may be worn home, and this includes shoes and underwear. Your own clothing worn during the shift should be carried home and cleaned carefully so that it does not contaminate your home. Lunchrooms may not be entered with protective clothing or equipment unless surface dust has been removed by HEPA vacuuming, downdraft booth, or other cleaning method. Finally, ~~workers~~employees exposed to lead~~above the PEL~~ must wash their hands, exposed arms, and faces prior to entering eating areas, ~~to~~ eating, drinking, smoking or applying cosmetics, and at the end of their shift. All of the facilities and hygiene practices just discussed are essential to minimize additional sources of lead absorption from inhalation or ingestion of lead that may accumulate on you, your clothes, or your possessions. Strict compliance with these provisions can virtually eliminate several sources of lead exposure which significantly contribute to excessive lead absorption. VIII. Medical Surveillance - subsection (j) The medical surveillance program is part of the standard's comprehensive approach to the prevention of lead-related disease. Its purpose is to supplement the main thrust of the standard	

	which is aimed at minimizing airborne concentrations of lead and sources of ingestion. Only medical surveillance can determine if the other provisions of the standard have effectively protected you as an individual. Compliance with the standard's provisions will protect most ~~workers~~employees from the ~~adverse~~harmful effects of lead exposure, but may not be satisfactory to protect individual ~~workers~~employees (1) who have high body burdens of lead acquired over past years, (2) who have additional uncontrolled sources of non-occupational lead exposure, (3) who ~~exhibit unusual variations in~~absorb lead ~~absorption~~at an unusually high rate~~s~~, or (4) who have specific non-work related ~~medical~~health-related conditions which could be aggravated by lead exposure (e.g., ~~renal~~kidney disease, anemia). In addition, control systems may fail, or hygiene and respirator programs may be inadequate. Periodic medical surveillance of individual ~~worker~~semployees will help detect those failures. Medical surveillance ~~will~~is also ~~be~~ important to protect your reproductive ~~ability~~health, regardless of whether you are a man or woman. All medical surveillance required by the standard must be performed by or under the supervision of a licensed physician. The employer must provide required medical surveillance without cost to the employees and at a reasonable time and place. The standard's medical surveillance program has two parts, blood lead testing ~~periodic biological monitoring~~ and medical examinations.	

	~~Your employer's obligation to offer medical surveillance is triggered by the results of the air monitoring program. Medical surveillance must be made available to all employees who are exposed in excess of the action level (without regard to the use of respirators) for more than 30 days a year. The initial phase of the medical surveillance program, which includes blood lead level tests and medical examinations, must be completed for all covered employees within 150 days of the effective date of the lead standard. Priority within this first round of medical surveillance must be given to employees whom the employer believes to be at greatest risk from continued exposure (for example, those with the longest prior exposure to lead, or those with the highest current exposure). Thereafter, the employer must periodically make medical surveillance both biological monitoring and medical examinations available to all covered employees.~~ A. Blood Lead Testing Blood lead testing must be made available to you prior to assignment, or as soon as possible thereafter, when you are assigned to work in which you may be exposed to lead at or above the action level, and as interim protection, if you perform PHLW. There is an exception to this requirement. If you are exposed to lead at or above the action level for less than 10 days in any 12 consecutive months, and your exposure is not on any day at or above 100 µg/m^3 as an 8-hour TWA, without regard to respirator use, then blood lead testing is not required to be provided.	

	Blood lead test results show your blood lead level (BLL). BLL means the concentration of lead measured in whole blood, expressed as micrograms per deciliter (µg/dl). Unless your exposure to lead falls under the exception described above, additional blood lead testing under the standard must be provided on the following schedule: at least every two months for the first 6 months after initial placement, and also for the 6 months after any change in task resulting in higher exposure; and at least every 6 months thereafter.~~Biological monitoring under the standard consists of blood lead level (PbB) and zinc protoporphyrin tests at least every 6 months after the initial PbB test.~~ If ~~a worker's~~your last BLL~~PbB~~ is at or above 10 ~~exceeds 40~~ µg/dl~~100g~~ but below 20 µg/dl, the ~~monitoring~~testing frequency must be ~~increased from every 6 months to~~ at least every 2 months and not reduced until two consecutive tests, taken at least 30 days apart,~~PbBs~~ indicate a blood lead level below 10 ~~40~~µg/dl~~100g~~. Blood lead testing then must be provided as described in the schedule given at the start of this paragraph. If your last BLL is at or above 20 µg/dl, or you are removed from exposure to lead due to an elevated BLL, blood lead testing must be provided to you at least monthly. Each time your BLL is tested~~PbB is determined to be over 40 µg/100g~~, your employer must notify you of the results~~this~~ in writing within five working days of their~~his~~ receipt of the test results. The employer must also inform you that the standard requires temporary medical removal with	

	economic protection when your BLL~~PbB~~ exceeds certain criteria (~~S~~see Part IX below,~~Discussion of~~ Medical Removal Protection). ~~During the first year of the standard, this removal criterion is 80 µg/100g. Anytime your PbB exceeds 80 µg/100g your employer must make available to you a prompt follow-up PbB test to ascertain your PbB. If the two tests both exceed 80 µg/100g and you are temporarily removed, then your employer must make successive PbB tests available to you on a monthly basis during the period of your removal.~~Finally, if you have a BLL at or above 10 µg/dl, your employer must establish and implement a written elevated blood lead level response plan designed to reduce and maintain your BLL below 10 µg/dl. B. Medical Examination and Consultation An initial medical examination and consultation must be made available to you prior to assignment for the first time to an area where the concentration of airborne lead may be at or above the action level. There is an exception to this requirement. If you are exposed to lead at or above the action level for less than 10 days in any 12 consecutive months, and your exposure is not on any day at or above 100 µg/m^3 as an 8-hour TWA, without regard to respirator use, then a medical examination is not required to be provided. The initial examination will provide information to establish a baseline with which subsequent data can be compared. A ~~M~~medical examinations and consultation beyond the initial one must be made available on	

	an annual basis if your blood lead level ~~exceeds~~is 20~~40~~ µg/dl~~100g~~ or greater at any time during the preceding year. This medical examination must be made available as soon as possible upon receiving a blood lead test result of 20 µg/dl or greater if you have not had a lead-specific medical examination in the last 12 months.~~The initial examination will provide information to establish a baseline with which subsequent data can be compared. An initial medical examination must also be made available (prior to assignment) for each employee being assigned for the first time to an area where the concentration of airborne lead equals or exceeds the action level.~~ In addition, a medical examination or consultation beyond the initial one must be made available as soon as possible if you notify your employer that you are experiencing signs or symptoms commonly associated with lead poisoning or that you have difficulty breathing while wearing a respirator or during a respirator fit test. You must also be provided a medical examination or consultation beyond the initial one if you notify your employer that you desire medical advice concerning the effects of current or past exposure to lead on your ability to procreate a healthy child. Finally, beyond the initial medical examination or consultation, appropriate follow-up medical examinations or consultations ~~may~~must also be provided for employees who have been temporarily removed from exposure under the medical removal protection provisions of the	

	standard (~~S~~see Part IX~~,~~ below, Medical Removal Protection). The standard specifies the minimum content of pre-assignment and annual medical examinations. The content of other types of medical examinations and consultations is left up to the sound discretion of the examining physician. Pre-assignment and annual medical examinations must include (1) a detailed work history~~,~~ and medical history; (2) a thorough physical examination, ~~and~~including an evaluation of your pulmonary status if you will be using a respirator; (3) a blood pressure measurement; (4) a series of laboratory tests designed to check your blood chemistry and your kidney function; and (5) a zinc protoporphyrin level if your last blood lead level was at or above 20 µg/dl. In addition, at any time upon your request, a laboratory evaluation of male fertility will be made (microscopic examination of a sperm sample), or a pregnancy test will be given. The standard does not require that you participate in any of the medical procedures, tests, etc. which your employer is required to make available to you. Medical surveillance can, however, play a very important role in protecting your health. You are strongly encouraged, therefore, to participate in a meaningful fashion. The standard contains a multiple physician review mechanism which provides you with the right to a second medical opinion from a physician of your choice if you are dissatisfied with an examination by a physician chosen by your employer. The standard requires the two	

	physicians to attempt a resolution of any difference in their opinions. If any dispute remains unresolved, the standard provides that a third physician, selected by you and your employer, shall make a final, binding medical determination unless you and your employer reach an agreement which is otherwise consistent with the recommendations of one of the physicians. Generally, your employer will choose the physician who conducts medical surveillance under the lead standard, unless you and your employer otherwise agree on the choice of a physician or physicians. Some companies and unions have agreed in advance, for example, to use certain independent medical laboratories or panels of physicians. Any of these arrangements are acceptable so long as required medical surveillance is made available to ~~workers~~employees. The standard requires your employer to provide certain information to a physician to aid in his or her examination of you. This information includes (1) the standard and these appendices, (2) a description of your duties as they relate to lead exposure, (3) your exposure level, (4) a description of personal protective equipment you wear, (5) prior blood lead level results, ~~and~~ (6) prior written medical opinions concerning you that the employer may have~~.~~, and (7) a copy of your employer's written elevated blood lead level response plan (required when an employee's BLL is at or above 10 µg/dl). After a medical examination or consultation the physician must prepare a written ~~report~~opinion for	

	your employer which must contain (1) the physician's opinion as to whether you have any health-relatedmedical condition which places your health, including the ability to procreate a healthy child, at increased risk of material impairment to health from exposure to lead, (2) any recommended special protective measures to be provided to you, (3) any blood lead test resultslevel determinations, and (4) any recommended limitation on your use of respirators. This last element must include a determination of whether you can wear a powered air-purifying respirator (PAPR) if you are found unable to wear a negative pressure respirator. Your employer must ensure that you also receive a copy of the physician's written medical opinion. In addition, the physician who conducts your medical examination will explain the results of your medical examination to you and provide you with a separate written medical report within 30 days of your medical exam. This report will contain the information in the physician's written medical opinion, plus additional information, including a determination of whether you should wear a PAPR instead of a non-powered (negative pressure) air-purifying respirator, any recommended follow-up blood lead testing or medical exams, and the physician's opinion as to whether you have any health-related condition, work-related or not for which you should have a further medical examination or treatment. C. Additional Information about Medical Surveillance	

	The medical surveillance program of the lead standard may at some point in time serve to notify certain ~~workers~~employees that they have acquired a disease or other adverse ~~medical~~health-related condition as a result of occupational lead exposure. If this is true, ~~workers~~employees may have legal rights to compensation from public agencies, their employers, firms that supply hazardous products to their employers, or other persons. The results of the medical surveillance program can significantly affect the legal remedies of an ~~worker~~employee who has acquired a job-related disease or impairment. Some states have laws, including workers' compensation laws, that disallow an employee who learns of a job-related health impairment to sue, unless the employee sues within a short period of time after learning of the impairment (this period of time may be a matter of months or years). An attorney can be consulted about these possibilities. It should be stressed that Cal/OSHA is in no way trying to either encourage or discourage claims or lawsuits. However, since results of the standard's medical surveillance program can significantly affect the legal remedies of an employee who has acquired a job-related disease or impairment, it is proper for Cal/OSHA to make you aware of this. The medical surveillance subsection of the standard also contains provisions dealing with chelation. Chelation is the use of certain drugs (administered in pill form or injected into the body) to reduce the amount of lead absorbed in body tissues. Experience accumulated by the	

	medical and scientific communities has largely confirmed the effectiveness of this type of therapy for the treatment of very severe lead poisoning. On the other hand, it has also been established that there can be a long list of extremely harmful side effects associated with the use of chelating agents. The medical community has balanced the advantages and disadvantages resulting from the use of chelating agents in various circumstances and has established when the use of these agents is acceptable. The standard includes these accepted limitations due to a history of abuse of chelation therapy by some lead companies. The most widely used chelating agents are succimer and calcium disodium EDTA~~,~~ (Ca Na_2 EDTA)~~, calcium disodium versenate (Versenate), and d-penicillamine (penicillamine or Cupramine)~~. The standard prohibits “prophylactic chelation” of any employee by any person the employer retains, supervises or controls. “Prophylactic chelation” is the routine use of chelating or similarly acting drugs to prevent elevated blood lead levels in ~~workers~~employees who are occupationally exposed to lead, or the use of these drugs to routinely lower blood lead levels to predesignated concentrations believed to be ‘safe.’~~.~~ It should be emphasized that where an employer takes an ~~worker~~employee who has no symptoms of lead poisoning and has chelation carried out by a physician (either inside or outside of a hospital) solely to reduce the ~~worker’s~~employee's blood lead level, such practice is generally considered prophylactic chelation. The use of a hospital and a physician	

	does not mean that prophylactic chelation is not being performed. Routine chelation to prevent increased or reduce current blood lead levels is unacceptable whatever the setting. The standard allows the use of “therapeutic” or “diagnostic” chelation if administered under the supervision of a licensed physician in a clinical setting with thorough and appropriate medical monitoring. Therapeutic chelation responds to severe lead poisoning where there are marked symptoms. Diagnostic chelation involves giving a patient a dose of the drug then collecting all urine excreted for some period of time as an aid to the diagnosis of lead poisoning. In cases where the examining physician determines that chelation is appropriate, you must be notified in writing of this fact before such treatment. This will inform you of a potentially harmful treatment and allow you to obtain a second medical opinion if you choose to do so. IX. Medical Removal Protection - subsection (k) Excessive lead absorption subjects you to increased risk of disease. Medical removal protection (MRP) is a means of protecting you when, for whatever reasons, other methods such as engineering and administrative controls, work practices, and respirators have failed to provide the protection you need. MRP involves the temporary removal of an ~~worker~~employee from his or her regular job to a place of significantly lower exposure without any loss of earnings, seniority, or other employment rights or benefits.	

	The purpose of this program is to cease further lead absorption and allow your body to naturally excrete lead which has previously been absorbed. Temporary medical removal can result from an elevated blood lead level, or a medical opinion. Up to ~~eighteen~~18 months of protection is provided as a result of either form of removal. The vast majority of removed ~~workers~~employees, however, will return to their former jobs long before this ~~eighteen~~18-month period expires. The standard contains special provisions to deal with the extraordinary but possible case where an ~~worker's~~employee's blood lead level does not adequately decline during ~~eighteen~~18 months of removal. If your last blood lead level is 30~~50~~ µg/dl~~100g~~ or above, or effective [OAL insert 1 year from effective date here], your last 2 blood lead results are at or above 20 µg/dl or the average of the results of all blood lead tests in the last 6 months is at or above 20 µg/dl, you must be removed from any exposure where your air lead level without a respirator would be at or above 2~~30~~ µg/m^3 as an 8-hour TWA~~or above~~, from work altering or disturbing any material containing lead at a concentration greater than or equal to 0.5% by weight, and from torch cutting any scrap metal. If you are removed from your normal job because of a high BLL, your employer ~~may not~~must ~~be~~ return~~ed~~ ~~until~~you to your former job status when your ~~blood lead level~~BLL declines to ~~at least~~below 15 ~~40~~ µg/dl~~100g~~, and two consecutive blood lead tests, taken at least 30 days apart, both indicate this level.	

	You may also be removed from exposure even if your blood lead levels are below ~~these~~30 µg/dl or the other criteria described above if a medical determination indicates that you temporarily need reduced lead exposure for medical reasons. If the physician who is implementing your employer's medical program makes a written opinion recommending your removal or other special protective measures, your employer must implement the physician's recommendation. If you are removed in this manner, you ~~may only~~must be returned when the doctor indicates that it is safe for you to do so. The standard does not give specific instructions dealing with what an employer must do with a removed ~~worker~~employee. Your job assignment upon removal is a matter for you, your employer and your union (if any) to work out consistent with procedures or agreements for job assignments which may exist in your place of employment. Each removal must be accomplished in a manner consistent with existing collective bargaining relationships. Your employer is given broad discretion to implement temporary removals so long as no attempt is made to override existing agreements. Similarly, a removed ~~worker~~employee is provided no right to veto an employer's choice which satisfies the standard. In most cases, employers will likely transfer removed employees to other jobs with sufficiently low lead exposure. Alternatively, an ~~worker's~~employee's hours may be reduced so that the time-weighted average exposure is reduced to below the action level, or he or she	

	may be temporarily laid off if no other alternative is feasible. In all of these situations, MRP benefits must be provided during the period of removal that is, you continue to receive the same earnings, seniority, and other rights and benefits you would have had if you had not been removed. Earnings include more than just your base wage; they include overtime, shift differentials, incentives, and other compensation you would have earned if you had not been removed. During the period of removal you must also be provided with appropriate follow-up medical surveillance. If you were removed because your blood lead level was too high, you must be provided with a monthly blood lead test. If a medical opinion caused your removal, you must be provided medical tests or examinations that the doctor believes to be appropriate. If you do not participate in this follow up medical surveillance, you may lose your eligibility for MRP benefits. When you are medically eligible to return to your former job, your employer must return you to your "former job status." This means that you are entitled to the position, wages, benefits, etc., you would have if you had not been removed. If you would still be in your old job if no removal had occurred, you are to be returned to this job. If you would not be in your old job, the job assignment to which you return must be consistent with the decision which your employer would have been obliged to make had no removal occurred. MRP only seeks to maintain your rights, not expand them or diminish them.	

	If you are removed under MRP and you are also eligible for workers' compensation or other compensation for lost wages, your employer's MRP benefits obligation is reduced by the amount that you actually receive from these other sources. Similarly, if you obtain other employment during the time you are laid off, the benefits you receive under MRP are reduced by the amount you earn in such other employment. The standard also covers situations where an employer voluntarily removes an ~~worker~~employee from exposure to lead due to the effects of lead on the employee's ~~medical~~health-related condition, even though the standard does not require removal. In these situations MRP benefits must also be provided as though the standard required removal. Finally, it is important to note that in all cases where removal is required, respirators cannot be used as a substitute. Respirators may be used before removal becomes necessary, but not as an alternative to a transfer to a low exposure job or to a lay-off with MRP benefits. X. Employee Information and Training - subsection (*l*) Your employer is required to provide an information and training program for all employees exposed to lead at or above the action level on any day, or who may ~~suffer~~experience skin or eye irritation from lead compounds such as lead arsenate or lead azide, and as interim protection for employees who	

	perform PHLW. This program must inform these employees of the specific hazards associated with their work environment, protective measures which can be taken, the danger of lead to their bodies (including their reproductive healthsystems), and their rights under the standard. In addition your employer must make readily available to all employees, including those exposed below the action level, a copy of the standard and these appendices. Your employer is required to complete this training program for all new employees described above (who may be exposed to lead at or above the action level or for whom the possibility exists of eye or skin irritation from lead exposure) prior to initial job assignment. This training program must also be provided at least annually thereafter. XI. Communication of HazardsSigns - subsection (m) Your employer must include lead in their hazard communication program and training. The standard requires that the following warning sign must be posted in work areas where the exposure to lead is at or above the action level, and as interim protection in each work area where PHLW is performedexceeds the PEL: DANGER LEAD WORK AREA MAY DAMAGE FERTILITY OR THE UNBORN CHILD	

	CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM DO NOT EAT, DRINK OR SMOKE IN THIS AREA ~~However, prior to June 1, 2016, employers may use the following legend in lieu of that specified above:~~ ~~WARNING~~ ~~LEAD WORK AREA~~ ~~POISON~~ ~~NO SMOKING OR EATING~~ XII. Recordkeeping - subsection (n) Your employer is required to keep all records of exposure monitoring for airborne lead. These records must include the name and job classification of employees measured, details of the sampling and analytic techniques, the result of this sampling, and the type of respiratory protection being worn by the person sampled. Your employer is also required to keep all records of ~~biological monitoring~~blood lead testing and medical examination results. These must include the name~~s~~ of the employee, the physician's written opinion, and a copy of the results of the examination. All of the above kinds of records must be kept for 40 years or for at least 20 years after your termination of employment, whichever is longer. Recordkeeping is also required if you are temporarily removed from your job under the medical removal protection program. This record must include your name and unique	

	identifier~~social security number~~, the date of your removal and return, how the removal was or is being accomplished, and whether or not the reason for the removal was an elevated blood lead level. Your employer is required to keep each medical removal record only for the duration of an employee's employment. In addition, the standard requires that your employer keep records of their semi-annual review of their written compliance program, and written elevated blood lead level response plans, for three years. They are also required to keep records of any training required by this standard for three years. The standard requires that if you request to see or copy environmental monitoring, blood lead level (~~Pb~~BLL) ~~monitoring~~testing, or medical removal records, they must be made available to you or to a representative that you authorize. Your union also has access to these records. Upon your request, your complete medical records must also be provided to you, to your physician or to any other person whom you may specifically designate. Your union does not have access to your personal medical records unless you authorize such access. XIII. Observation of Monitoring - subsection (o) When air monitoring for lead is performed at your workplace as required by the standard, your employer must allow you or someone you designate to observe the monitoring. The observer is entitled to an explanation of the	

	measurement procedure and to record the results obtained. Since results will not normally be available at the time of the monitoring, the observer is entitled to record or receive the results of the monitoring when returned by the laboratory. Your employer is required to provide the observer with any personal protective devices required to be worn by employees working in the area that is being monitored. The employer must require the observer to wear all such equipment and to comply with all other applicable safety and health procedures. XIV. ~~Effective Date~~ ~~The standard's effective date is September 8, 1979, and the employer obligations under the standard begin to come into effect as of that date.~~ ~~XV.~~ For Additional Information A. A copy of the standard for lead in general industry can be obtained free of charge at http://www.dir.ca.gov/Title8/5198.html, or by calling or writing your local Cal/OSHA office. ~~Copies of the Federal lead standard and explanatory materials can be obtained free of charge by calling or writing the OSHA Office of Publications, Room S-1212, United States Department of Labor, Washington, D.C. 20210; Telephone, (202) 523-6138. The following publications are available:~~ ~~1. The Federal lead standard and summary of the statement of reasons (preamble), Federal~~	

	~~Register, Volume 43, pp. 52952-53014, November 14, 1978.~~ ~~2. The full statement of reasons (preamble), Federal Register, Volume 43, pp. 54354-54509, November 21, 1978.~~ ~~3. Partial Administrative Stay and Corrections to the Federal lead standard, Federal Register, Volume 44, pp. 5446-5448, January 26, 1979.~~ ~~4. Notice of the Partial Judicial Stay, Federal Register, Volume 44, pp. 14554-14555, March 13, 1979.~~ ~~5. Corrections to the preamble, Federal Register, Volume 44, pp. 20680-20681, April 6, 1979.~~ ~~6. Additional correction to the preamble concerning the construction industry, Federal Register, Volume 44, p. 50338, August 28, 1979.~~ ~~7. Appendices A, B and C to the Federal lead standard, Federal Register, Volume 44, pp. 60980-60994, October 23, 1979. Corrections to the appendices, Federal Register, Volume 44, p. 68828, November 30, 1979.~~ ~~8. Notice of Limited Reopening of Rulemaking Record (and summary of U.S. Court of Appeals decision), Federal Register, Volume 45, pp. 63881-3, September 26, 1980.~~ ~~9. Supplemental feasibility statement (in response to U.S. Court of Appeal's remand~~	

	~~order), Federal Register, Volume 46, pp. 6134-6228, January 21, 1981.~~ ~~10. Revised supplemental feasibility statement, Federal Register, Volume 46, pp. 60758-60776, December 11, 1981.~~ ~~11. Revisions of the Federal standard and appendices and new Appendix D. Federal Register, Volume 47, pp. 51110-51119, November 12, 1982.~~ B. Additional information about the ~~California~~ lead standard for general industry, its enforcement, and your employer's compliance can be obtained at http://www.dir.ca.gov/dosh/EnforcementPage.htm or from the nearest Cal~~AL~~/OSHA ~~Consulting Service~~ District Office~~ in Downey, Fresno, Panorama City, Sacramento, San Diego, and San Francisco. The CAL/OSHA Consulting Service is~~ listed in your telephone directory~~ies under California State Government/Industrial Relations Department~~.	
Appendix C	Appendix C to Section 5198 – Medical Surveillance Requirements	
	This appendix outlines the medical surveillance provisions of the general industry standard for lead and provides further information to the physician regarding the examination and evaluation of employees exposed to lead. ~~Medical Surveillance Guidelines~~	The State proposes to modify the language in Appendix C – Medical Surveillance Requirements to reflect current information about the medical evaluation and treatment of exposure to lead, as well as changes that are proposed for Section 5198.

	Introduction ~~The occupational health standard for lead was promulgated to protect workers exposed to lead which, as defined by the standard, includes metallic lead, all inorganic lead compounds and organic lead soaps but excludes all other organic lead compounds. The term "inorganic lead" used throughout this appendix is meant to be synonymous with the definition of lead set forth in the standard.~~ The primary purpose of the Occupational Safety and Health Act of 1970 is to ensure, so far as possible, safe and healthful working conditions for every working man and woman. The occupational health standard for lead is designed to protect employees exposed to inorganic lead including metallic lead, all inorganic lead compounds and organic lead soaps. Under this ~~final~~ standard ~~in effect as of September 8, 1979~~, occupational exposure to inorganic lead is to be limited to an airborne concentration of 10~~50~~ µg/~~M~~m^3 (micrograms per cubic meter) ~~based on~~ calculated as an 8-hour time-weighted average (TWA). This permissible~~level of~~ exposure limit (PEL) must be achieved through a combination of engineering, work practice, and administrative controls to the extent feasible ~~(in periods of time ranging from 1 to 10 years) in primary lead smelting, secondary lead smelting, electronics, gray iron foundries, ink manufacture, paints and coatings manufacture, can manufacture, and printing. In these industries, respirators may be used to meet the~~	

	~~50 µg/M^3 exposure limit pending the implementation of the prescribed controls. For all other industries, there is no prescribed period during which compliance with the PEL must be achieved by controls other than respiratory protection~~. Where these controls are in place but are found not to reduce employee exposures to or below the PEL, they must be used nonetheless, and supplemented with respirators to meet the 10 µg/m^3 exposure limit. Where a separate engineering control air limit (SECAL) has been specified for particular processes in lead acid battery manufacturing (see section 5198, Table 1 in subsection (e) Compliance), the employer shall implement engineering and work practice controls to reduce and maintain employee exposure at or below the SECAL, except to the extent that the employer can demonstrate that such controls are not feasible. Where these controls are in place but are found not to reduce employee exposures to or below the PEL, they must be used nonetheless, and supplemented with respirators to meet the 10 µg/m^3 PEL. The standard establishes an action level of 2 µg/m^3 calculated as an 8-hour TWA. The action level refers to employee exposure, without regard to the use of respirators. The action level triggers several ancillary provisions of the standard such as exposure monitoring, medical surveillance, training, and signs. The standard includes a classification for work with lead that may result in significant employee exposure to airborne lead. In the standard, this	

	work is referred to as presumed hazardous lead work (PHLW). PHLW includes altering or disturbing material that contains or is likely to contain at least 0.5% lead by weight; and torch cutting any scrap metal. In the standard, “altering or disturbing” means “subjecting to a process that may result in the release of lead dust, lead mist, lead fume, or other lead particles. Such processes include, but are not limited to, welding, torch cutting, brazing, torch soldering, melting, pouring, spraying, cutting, shredding, crushing, baling, grinding, polishing, machining, drilling, scraping, sanding, abrading, sweeping, raking, and shoveling.” Examples of materials that are likely to contain at least 0.5% lead include scrap lead, lead solder, lead bullet fragments and dust, lead sheeting, lead cable housing, and lead billets. Because scrap metal is likely to contain lead, and it is not easy to tell if there is lead in a piece of scrap metal, all torch cutting of scrap metal is classified as PHLW. There is an exception to what counts as PHLW. Altering or disturbing material, or torch cutting any scrap metal, is not PHLW when the total combined duration of lead exposure resulting from altering, disturbing, and torch cutting is less than 8 hours during any 30-day period. If the employee performs PHLW, the employer must provide the employee with interim protection, until the employer conducts an exposure assessment and determines actual employee exposure, as required under subsection (d) of the lead standard. Interim protections include appropriate respiratory	

	protection, protective clothing and equipment, medical surveillance, training and posted signs. Once an exposure assessment has been completed, the employer must provide the employee with appropriate protections based on their level of exposure to lead, as required by the standard. The standard also provides for a program of ~~biological monitoring and~~ medical surveillance for ~~all~~ employees ~~exposed to levels of inorganic lead above the action level of 30 µg/M^3 (TWA) for more than 30 days per year.~~as outlined in section I. This program consists of initial blood lead testing and medical evaluation, along with periodic blood lead testing and medical evaluation, to be performed on a schedule which is defined by previous laboratory results, employee complaints or concerns, and the clinical assessment of the examining physician. ~~The purpose of this document is to outline the medical surveillance provisions of the standard for inorganic lead and to provide further information to the physician regarding the examination and evaluation of workers exposed to inorganic lead.~~ Section I of this appendix provides a detailed description of the medical surveillance~~monitoring~~ procedures including the required frequency of blood lead testing and medical examination and consultation for exposed ~~workers~~employees, provisions for medical removal protection (MRP), the right of the employee to a second medical opinion, and notification and recordkeeping	

	requirements of the physician and the employer. Discussions of respirator use, respirator monitoring, and Cal/OSHA's position on prophylactic chelation therapy are also included in this section. Section II discusses the toxic effects and clinical manifestations of lead poisoning and effects of lead intoxication on the cardiovascular, neurologic, renal, gastrointestinal, and hematologic systems ~~enzymatic pathways in heme synthesis~~. The adverse effects on both male and female reproductive capacity and on the fetus are also discussed. Section III outlines the recommended medical evaluation of the ~~worker~~employee exposed to inorganic lead including details of the medical history, physical examination, and recommended laboratory tests, which are based on the toxic effects of lead as discussed in ~~S~~section II. Section IV provides detailed information concerning the laboratory tests available for the monitoring of exposed ~~workers~~employees. Also discussed are the relative value of each test and the limitations and precautions which are necessary in the interpretation of laboratory results. I. Medical surveillance ~~and monitoring~~ requirements for ~~workers~~employees exposed to inorganic lead. A. Blood Lead Testing	

	Under the occupational health standard for inorganic lead, ~~a program of biological monitoring and medical surveillance~~blood lead testing is to be made available to ~~all~~ employees prior to assignment, or as soon as possible thereafter, when they are assigned to work in which they may be exposed to lead at or above the action level, and as interim protection, if they perform PHLW. There is an exception to this requirement. If the employee is exposed to lead at or above the action level for less than 10 days in any 12 consecutive months, and their exposure is not on any day at or above 100 µg/m^3 as an 8-hour TWA, without regard to respirator use, then blood lead testing is not required to be provided.~~exposed to lead above the action level of 30 µg/M^3 TWA for more than 30 days each year. This program consists of periodic blood sampling and medical evaluation to be performed on a schedule which is defined by previous laboratory results, worker complaints or concerns, and the clinical assessment of the examining physician.~~ Unless the employee's exposure to lead falls under the exception described above, additional blood lead testing under the standard must be provided on the following schedule: at least every two months for the first 6 months after initial placement, and also for the 6 months after any change in task resulting in higher exposure; and at least every 6 months thereafter. If an employee's last blood lead level (BLL) was at or above 10 µg/dl but below 20 µg/dl, the testing frequency must be at least every 2 months and not reduced until two consecutive tests, taken at	

	least 30 days apart, indicate a BLL below 10 µg/dl. Blood lead testing then must be provided as described in the schedule given at the start of this paragraph. ~~Under this program, the blood lead level of all employees who are exposed to lead above the action level of 30 µg/M^3 is to be determined at least every six months. The frequency is increased to every two months for employees whose last blood lead level was between 40 µg/100g whole blood and the level requiring employee medical removal to be discussed below.~~ For employees whose last BLL was at or above 20 µg/dl or who are removed from exposure to lead due to an elevated blood lead, a new ~~blood lead level~~ BLL must be measured monthly. ~~A zinc protoporphyrin (ZPP) measurement is required on each occasion that a blood lead level measurement is made.~~ B. Medical Examination and Consultation An ~~annual~~initial medical examination and consultation performed under the guidelines discussed in ~~S~~section III is to be made available to employees prior to assignment for the first time to an area where the concentration of airborne lead may be at or above the action level. There is an exception to this requirement. If the employee is exposed to lead at or above the action level for less than 10 days in any 12 consecutive months, and their exposure is not on any day at or above 100 µg/m^3 as an 8-hour TWA, without regard to respirator use, then an initial medical examination is not required to be provided. Medical examinations and consultations must be	

	made available to employees in some additional situations. When employees are exposed at or above the action level for 10 or more days in any 12 consecutive months, or are exposed on any day at or above 100 µg/m^3 as an 8-hour TWA, or perform PHLW and an exposure assessment has not been completed, medical examinations and consultations must be made available. These medical examinations and consultations must be made on an annual basis ~~to each~~if an employee's ~~for whom a blood test conducted at any time during the preceding 12 months indicated a blood lead level~~BLL is ~~at or above~~20 ~~40~~ µg/~~100~~ gdl or greater at any time during the preceding 12 months. This medical examination must be made available as soon as possible upon receiving a blood lead test result of 20 µg/dl or greater if the employee has not had a lead-specific medical examination in the last 12 months.~~Also, an examination is to be given to all employees prior to their assignment to an area in which airborne lead concentrations reach or exceed the action level.~~ In addition, a medical examination must be provided as soon as possible after notification by an employee that the employee has developed signs or symptoms commonly associated with lead intoxication, that the employee desires medical advice regarding lead exposure and the ability to procreate a healthy child, or that the employee has demonstrated difficulty in breathing during a respirator fit~~ting~~ test or during respirator use. A~~n~~ medical examination is also to be made available as soon as possible and then as medically appropriate to each employee removed from exposure to lead due to elevated BLLs, as	

discussed in the next section,~~due to a risk of sustaining material impairment to health,~~ or whose exposure to lead is otherwise limited or specially protected pursuant to medical recommendations.

The requirements of section 5198 for the medical surveillance of employees who are exposed to lead are summarized in Table 1.

Table 1. Minimum Requirements for Medical Surveillance.

A. Blood lead level (BLL) tests required to be made available.	For employees: who are exposed ≥ the action level (2 µg/m^3 as an 8-hour TWA) for ≥ 10 days in any 12 consecutive months; or who are exposed on any day ≥ 100 µg/m^3 as an 8-hour TWA; or who perform presumed

			hazardous lead work (PHLW), and an exposure assessment has not been completed.		
		B. Schedule of BLL tests required to be made available for employees when:			
		1. Assigned to work where exposure will be ≥ the action level for ≥ 10 days in any 12 consecutive months.	Prior to assignment to such work.		
		2. Assigned to work where exposure on any day will be ≥ 100	Prior to assignment to such work.		

		µg/m^3 as an 8-hour TWA. 3. Assigned to perform PHLW, and an exposure assessment has not been completed.	Prior to assignment to such work.		
		4. Last BLL was < 10 µg/dl.	Every 2 months for the first 6 months after initial placement, and also for the first 6 months after a change in work task or process resulting in higher exposure, and then every 6 months.		
		5. Last BLL was ≥ 10 µg/dl but < 20 µg/dl.	Every 2 months. Continue until 2 BLLs, taken at least 30 days apart,		

		6. Last BLL was ≥ 20 µg/dl.	are < 10 µg/dl. Every 1 month.		
		C. Initial medical examination and consultation required to be made available.	Prior to assignment for employees who will be: exposed ≥ action level for ≥ 10 days in any 12 consecutive months; or exposed on any day ≥ 100 µg/m^3 as an 8-hour TWA.		
		D. Medical examinations and consultations required to be made available.	For employees: who are exposed at or above the action level for ≥ 10 days in any 12 consecutive months; or		

			who are exposed on any day ≥ 100 µg/m^3 as an 8-hour TWA; or who perform PHLW and an exposure assessment has not been completed.		
		E. Schedule of medical examinations and consultations required to be made available, for employees included in D above.	As soon as possible when an employee's BLL is ≥ 20 µg/dl, if no lead-specific medical examination was done in the preceding 12 months; and annually until the employee's BLL is < 20 µg/dl. As soon as		

			possible, upon notification by an employee either that the employee has developed signs or symptoms commonly associated with lead intoxication, 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, that the employee is pregnant, or that the employee has		

	demonstrated difficulty in breathing during a respirator fit test or during use.

NOTE: Exposure levels in Table 1 are without regard to an employee's use of a respirator.

C. Medical Removal Protection

Results of ~~biological monitoring~~BLL testing or the recommendations of an examining physician may necessitate removal of an employee from further lead exposure pursuant to the standard's medical removal protection (MRP) program. The objective of the MRP program is to provide temporary medical removal to ~~workers~~employees either with substantially elevated ~~blood lead levels~~BLLs or otherwise at risk of sustaining material health impairment from continued substantial exposure to lead. ~~The guidelines which are summarized in the following table were created under the standard for the temporary removal of an exposed employee and his or her subsequent return to work in an exposure area.~~

~~A. Blood lead level requiring employee medical removal. (Level must be confirmed with second follow-~~	~~≥60 µg/100 g or average of last three blood samples over previous 6 months (whichever is over a longer time period) is~~

	~~up blood lead level within two weeks of first report.)~~	~~50 µg/100g or greater unless last blood sample is 40 µg/100g or less.~~		
	~~B. Frequency which employees exposed to action level of lead (30 µg/m/TWA) must have blood level checked (ZPP is also strongly recommended in each occasion that a blood lead is obtained):~~ ~~1. Last blood lead level less than 40 µg/100g~~ ~~2. Last blood lead level between 40 µg/100g and level requiring medical removal (see A above)~~	 ~~Every 6 months.~~ ~~Every 2 months.~~		

~~3. Employees removed from exposure to lead because of an elevated blood lead level.~~	~~Every 1 month.~~	
~~C. Permissible airborne exposure limit for workers removed from work due to an elevated blood lead level (without regard to respirator protection).~~	~~<30 µg/m^3 8 hr. TWA.~~	
~~D. Blood lead level confirmed with a second blood analysis at which employee may return to work.~~	~~≤40 µg/100 g.~~	

~~Note: When medical opinion indicates that an employee is at risk of material impairment from exposure to lead, the physician can remove an employee from exposures exceeding the action~~

	~~level (or less) or recommend special protective measures as deemed appropriate and necessary. Medical monitoring during the medical removal period can be more stringent than noted in the table above if the physician so specifies. Return to work or removal of limitations and special protection is permitted when the physician indicates that the worker is no longer at risk of material impairment.~~ Under the standard's ~~ultimate worker~~employee medical removal criteria, an ~~worker~~employee is to be removed from any work having ~~any eight-hour TWA exposure to lead of 30 µg/M^3 or more (without regard to the use of respirators) whenever either of the following circumstances apply: (1) a blood lead level of 60 µg/100g or greater is obtained and confirmed by a second follow-up blood lead level performed within two weeks after the employer receives the results of the first blood sampling test, or (2) the average of the previous three blood lead determinations or the average of all blood lead determinations conducted during the previous six months, whichever encompasses the longest time period, equals or exceeds 50 µg/100g, unless the last blood sample indicates a blood lead level at or below 40 µg/100g in which case the employee need not be removed.~~ an exposure to lead at or above the action level, altering or disturbing any material containing lead at a concentration equal to or greater than 0.5% by weight, or torch cutting any scrap metal, on each occasion that either: 1. The last blood lead test indicates that the employee's BLL is at or above 30 µg/dl; or	

	2. Effective [OAL insert 1 year from effective date here], the last two blood lead test results are at or above 20 µg/dl; or 3. Effective [OAL insert 1 year from effective date here], the average of the results of all blood lead tests conducted in the last 6 months is at or above 20 µg/dl. Medical removal is to continue until two consecutive ~~blood lead levels~~BLLs at least 30 days apart are below 15 ~~40~~ µg/dl~~100g or less~~. ~~As part of the standard, the employer is required to notify in writing each employee whose blood lead level exceeds 40 µg/100g. In addition each such employee is to be informed that the standard requires medical removal with MRP benefits, discussed below, when an employee's blood lead level exceeds the above defined limits.~~ In addition to the above ~~blood lead level~~BLL criteria, temporary medical~~worker~~ removal for employees may also take place as a result of medical determinations and recommendations. A written medical opinion must be prepared after each examination pursuant to the standard. If the examining physician includes a medical finding, determination or opinion that the employee has a health-related condition which places the employee's health, including the ability to procreate a healthy child, ~~medical condition which places the employee~~ at increased risk of material ~~health~~ impairment from exposure to lead, then the employee must be removed from	

	any work having an exposure to lead at or above the action level, altering or disturbing any material containing lead at a concentration equal to or greater than 0.5% by weight or torch cutting any scrap metal. Alternatively, if the examining physician recommends special protective measures for an employee (e.g., use of a powered air-purifying respirator) or recommends limitations on an employee's exposure to lead, then the employer must implement these recommendations. Monthly BLL tests must be made available during the medical removal period for an employee who is removed from exposure to lead due to an elevated BLL. In addition, a medical examination is to be made available as soon as possible and then as medically appropriate to each employee removed from exposure to lead due to an elevated BLL or due to a risk of sustaining material impairment to health, or otherwise limited or specially protected pursuant to medical recommendations. Recommendations may be more stringent than the specific provisions of the standard. The examining physician, therefore, is given broad flexibility to tailor special protective procedures to the needs of individual employees. This flexibility extends to the evaluation and management of pregnant ~~workers~~employees and male and female ~~workers~~employees who are planning to raise children. Based on the history, physical examination, and laboratory studies, the physician might recommend special protective measures or medical removal for an employee	

	who is pregnant or who is planning to conceive a child when, in the physician's judgement, continued exposure to lead at the current job would pose a significant risk. The return of the employee to his or her former job status, or the removal of special protections or limitations, depends upon the examining physician determining that the employee is no longer at increased risk of material impairment or that special measures are no longer needed. During the period of any form of special protection or removal, the employer must maintain the ~~worker's~~employee's earnings, seniority, and other employment rights and benefits (as though the ~~worker~~employee had not been removed) for a period of up to 18 months. This economic protection will maximize meaningful ~~worker~~employee participation in the medical surveillance program, and is appropriate as part of the employer's overall obligation to provide a safe and healthful workplace. The provisions of MRP benefits during the employee's removal period may, however, be conditioned upon participation in medical surveillance. On rare occasions, an employee's ~~blood lead level~~BLL may not acceptably decline within 18 months of removal. This situation will arise only in unusual circumstances, thus the standard relies on an individual medical examination to determine how to protect such an employee. This medical determination is to be based on both laboratory values, including BLLs~~lead levels~~, zinc protoporphyrin levels, blood counts, and other tests felt to be warranted, as well as the	

physician's judgment that any symptoms or findings on physical examination are a result of lead toxicity. The medical determination may be that the employee is incapable of ever safely returning to his or her former job status. The medical determination may provide additional removal time past 18 months for some employees or specify special protective measures to be implemented.

The requirements of section 5198 for the temporary removal of an exposed employee and their subsequent return to work with lead are summarized in Table 2.

Table 2. Minimum Requirements During the Medical Removal Protection (MRP) Period.

A. BLL requiring employee medical removal.	one BLL ≥ 30 µg/dl; or effective [OAL insert 1 year from effective date here], the last two BLLs are ≥ 20 µg/dl; or effective [OAL insert 1 year from effective date here], the average of all BLLs over the last 6 months is ≥ 20 µg/dl.

		B. MRP due to a final medical determination.	A written medical opinion on the employee's health status by the examining physician results in a medical finding, determination, or opinion that the employee has a detected health-related condition which places the employee's health, including the ability to procreate a healthy child, at increased risk of material impairment from exposure to lead.		
		C. Frequency of BLL tests	Every 1 month.		

		required to be made available for an employee removed from exposure to lead because of an elevated BLL.			
		D. Medical examinations and consultations required to be made available.	As soon as possible, then as medically appropriate, for an employee: who is exposed (without regard to respirator use) ≥ the action level (2 µg/m^3 8-hour TWA) for ≥ 10 days in any 12 consecutive months; or who is exposed (without regard to respirator use) on any day ≥ 100		

			μg/m^3 as an 8-hour TWA; or who performs PHLW and an exposure assessment has not been completed.		
		E. Permissible working conditions for an employee on MRP.	Employee must be removed from any work: having an exposure to lead (without regard to respirator use) ≥ the action level; or altering or disturbing any material containing lead at a concentration ≥ 0.5% by weight; or torch cutting any scrap metal.		

	F. When an employee has been placed on MRP due to elevated BLL, the BLL at which an employee can return to their former work.	Two consecutive BLLs, taken at least 30 days apart, both indicate a BLL < 15 µg/dl.		
	G. When an employee has been placed on MRP due to a final medical determination, the conditions under which an employee shall be returned to their former work.	A subsequent final medical determination results in a medical finding, determination, or opinion that the employee no longer has a detected health-related condition that places the employee's health, including the ability to procreate a healthy child, at increased risk of material impairment from		

	exposure to lead.	

NOTE: When a medical opinion indicates that an employee is at risk of material impairment from exposure to lead, the physician can remove an employee from exposures exceeding the action level (or less) or recommend special protective measures as deemed appropriate and necessary. Medical monitoring during the medical removal period can be more stringent than noted in the table above if the physician so specifies. Return to work or removal of limitations and special protection is permitted when the physician indicates that the employee is no longer at risk of material impairment.

The lead standard provides for a multiple physician review in cases where the employee wishes a second opinion concerning potential lead poisoning or toxicity. If an employee wishes a second opinion, he or she can make an appointment with a physician of his or her choice. This second physician will review the findings, recommendations or determinations of the first physician and conduct any examinations, consultations or tests deemed necessary in an attempt to make a final medical determination. If the first and second physicians do not agree in their assessment they must try to resolve their differences. If they cannot reach an agreement then they must designate a third physician to resolve the dispute.

	D. Requirements for Providing Information to Laboratories, Employees, Employers, and Healthcare Providers For Blood Lead Tests: The employer must instruct the healthcare provider who orders blood lead tests to provide the analyzing laboratory with complete employee identification information. This information includes: 1. Employee name, date of birth, address, and phone number; and 2. Employer name, address, and phone number. The employer must ensure that the ordering physician explains the findings of any blood lead test and notifies the employee of the following: 1. The results of the blood lead test; 2. Any recommended follow-up blood lead testing in accordance with subsection (j)(2)(A) and the timing of that recommended blood lead testing; and 3. If the employee's blood lead level is 20 µg/dl or greater, the recommendation that the employee undergo a medical examination by a physician if the employee has not had a lead-specific medical exam in the preceding 12 months.	

	In addition, the employer is required to provide a written notification to the employee within five working days after the receipt of the employee's blood lead test results. The employer must notify each employee: 1. Of that employee's BLL; 2. That the standard requires the employer to make medical examinations and consultations available to employees exposed at or above the action level, and as interim protection, to employees performing PHLW, unless an employee's exposure or work is covered by the exception in subsection (j)(1)(A). When they are required, the employer must make medical examinations and consultations available as soon as possible, upon notification by an employee either that the employee has developed signs or symptoms commonly associated with lead intoxication, 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, or that the employee has demonstrated difficulty breathing during a respirator fit test or during use; and 3. That the standard requires medical removal with MRP benefits when an employee's BLL exceeds any of the limits defined for medical removal. For Medical Examination and Consultation: The employer must provide examining and	

	consulting physicians with the following specific information: 1. ~~a~~A copy of the lead standard and all appendices~~,~~; 2. ~~a~~A description of the employee's duties as related to exposure~~,~~; 3. ~~t~~The exposure level or anticipated level to lead and any other toxic substances (if applicable)~~,~~; 4. ~~a~~A description of personal protective equipment used~~,~~; 5. Prior ~~blood lead levels~~BLLs~~,~~; 6. ~~and a~~All prior written medical opinions regarding the employee in the employer's possession or control~~.~~; and 7. A copy of the employer's written elevated blood lead level response plan for that employee (required when an employee's BLL is at or above 10 µg/dl). ~~The employer must also obtain from the physician and provide the employee with a written medical opinion containing blood lead levels, the physician's opinion as to whether the employee is at risk of material impairment to health, any recommended protective measures for the employee if further exposure is permitted, as well as any recommended limitations upon an employee's use of respirators.~~	

	The employer must ensure that the physician explains to the employee the results of the medical examination and provides each employee with a written medical report within 30 days of each medical examination performed. The written report shall contain: 1. The physician's opinion as to whether the employee has any detected health-related condition that would place the employee's health, including the ability to procreate a healthy child, at increased risk of material impairment from exposure to lead; 2. Any recommended special protective measures to be provided to the employee, or recommended limitations to be placed upon the employee's exposure to lead; 3. Any recommended limitations upon the employee's use of respirators, including a determination of whether the employee should wear a powered air-purifying respirator (PAPR) instead of a non-powered air-purifying respirator; 4. The employee's BLL; 5. Any recommended follow-up blood lead testing and medical examinations and the timing of each; and 6. The physician's opinion as to whether the employee has any health-related condition, occupational or non-occupational, that dictates further medical examination or treatment.	

	The employer must also obtain a written medical opinion from the examining physician within 30 days of the medical examination. The written opinion shall contain the following information: 1. The physician's opinion as to whether the employee has any detected health-related condition that would place the employee's health, including the ability to procreate a healthy child, at increased risk of material impairment from exposure to lead; 2. Any recommended special protective measures to be provided to the employee, or limitations to be placed upon the employee's exposure to lead; 3. Any recommended limitation upon the employee's use of respirators, including a determination of whether the employee can wear a PAPR if the physician determines that the employee cannot wear a negative pressure respirator; and 4. The employee's BLL. Employers must instruct each physician not to reveal to the employer in writing or in any other way his or her findings, laboratory results, or diagnoses which are felt to be unrelated to occupational lead exposure. ~~They must also instruct each physician to advise the employee of any occupationally or non-occupationally related medical condition requiring further treatment or evaluation.~~	

	E. Additional Requirements The standard provides for the use of respirators where engineering and other primary controls ~~have not been fully implemented~~do not provide adequate protection. However, the use of respiratory protection shall not be used in lieu of temporary medical removal due to elevated ~~blood lead levels~~ BLLs or findings that an employee is at risk of material health impairment. This is based on the numerous inadequacies of respirators including skin rash where the facepiece makes contact with the skin, unacceptable stress to breathing in some ~~workers~~employees with underlying cardiopulmonary impairment, difficulty in providing adequate fit, the tendency for respirators to create additional hazards by interfering with vision, hearing, and mobility, and the difficulties of assuring the maximum effectiveness of a complicated work practice program involving respirators. Respirators do, however, serve a useful function where engineering and work practice controls are inadequate by providing supplementary, interim, or short-term protection, provided they are properly selected for the environment in which the employee will be working, properly fitted to the employee, maintained and cleaned periodically, and worn by the employee when required. When respirators are required, filtering facepiece respirators (disposable respirators or dust masks) are not to be used for protection from lead. Also, a PAPR is much more protective than a typical negative pressure respirator, and may also be more comfortable to wear. The	

	standard provides that an employer must provide a PAPR to an employee upon request. Prophylactic chelation is prohibited by the lead standard. Diagnostic and therapeutic chelation are permitted only under the supervision of a licensed physician with appropriate medical monitoring in an acceptable clinical setting. The decision to initiate chelation therapy must be made on an individual basis and must take into account the severity of symptoms felt to be a result of lead toxicity along with ~~blood lead levels~~BLLs, zinc protoporphyrin (ZPP) levels, and other laboratory tests as appropriate. Calcium disodium EDTA (Ca Na_2 EDTA) and ~~penicillamine~~succimer, which are the primary chelating agents used in the therapy of occupational lead poisoning, have significant potential side effects and their use must be justified on the basis of expected benefits to the ~~worker~~employee. Unless frank and severe symptoms are present, therapeutic chelation is not recommended, given the opportunity to remove an ~~worker~~employee from exposure and allow the body to naturally excrete accumulated lead. As a diagnostic aid, the chelation mobilization test ~~using Ca EDTA~~ has limited applicability. ~~According to some investigators, the test can differentiate between lead-induced and other nephropathies. The test may also provide an estimation of the mobile fraction of the total body lead burden.~~It offers very limited utility as a biomarker of long-term lead exposure, and does not predict the clinical efficacy of chelation. Employers are required to ~~assure~~ensure that	

	accurate records are maintained on exposure monitoring, medical surveillance, and medical removal for each employee. Exposure monitoring and medical surveillance records must be kept for 40 years or the duration of employment plus 20 years, whichever is longer, while medical removal records must be maintained for the duration of employment. All records required under the standard must be available upon request to the Cal/OSHA Chief ~~of the Division of Occupational Safety and Health~~ and the Director of the National Institute for Occupational Safety and Health (NIOSH). ~~Employees~~Employers must also make environmental and biological monitoring and medical removal records available to affected employees and to former employees or their authorized employee representatives. Employees or their specifically designated representatives have access to their entire medical surveillance records. In addition, the standard requires that the employer inform all ~~workers~~employees who are exposed to lead at or above the action level on any one day; for whom the possibility exists of skin or eye irritation from exposure to lead; or who perform PHLW and an exposure assessment has not been completed, of the provisions of the standard and all its appendices, the purpose and description of medical surveillance, and provisions for medical removal protection if temporary removal is required. An understanding of the potential health effects of lead exposure by all exposed employees along with full understanding of their rights under the lead	

	standard is essential for an effective monitoring program. II. Adverse health effects of inorganic lead. Although the toxicity of lead has been known for 2,000 years, the knowledge of the complex relationship between lead exposure and human response is still being refined. Significant research into the toxic properties of lead continues throughout the world~~, and it should be anticipated that our understanding of thresholds of effects and margin of safety will be improved in future years~~. The most recent scientific evidence shows multiple health effects at BLLs once thought to be without recognized harm. Prolonged exposure to these low levels of lead can result in adverse cumulative effects. These health effects may be permanent. The provisions of the lead standard are founded on two prime medical judgments: first, the prevention of adverse health effects from exposure to lead throughout a working lifetime requires that ~~worker~~employee ~~blood lead levels~~BLLs be maintained ~~at or below 40 µg/100g~~as low as possible; and second, the ~~blood lead levels~~BLLs of female ~~workers~~employees~~, male or female,~~ who ~~intend to parent in the near future~~ are trying to conceive should be maintained below 5 µg/dl~~30 µg/100g~~ to minimize adverse reproductive health effects to the ~~parents~~mother and developing fetus. The lead standard is designed to detect BLL increases early and take action to control exposures. The adverse effects of lead on	

	reproduction are being actively researched and the physician is encouraged to remain abreast of recent developments in the area to best advise pregnant ~~workers~~employees or ~~workers~~employees planning to conceive children. The spectrum of health effects caused by lead exposure can be subdivided into ~~five~~four developmental stages: ~~normal,~~ physiological changes of uncertain significance, pathophysiological changes, overt symptoms (morbidity), and mortality. Within this process there are no sharp distinctions, but rather a continuum of effects. Boundaries between categories overlap due to the wide variation of individual responses and exposures in the working population. The development of the lead standard focused on pathophysiological changes as well as later stages of disease. In terms of mechanisms of disease, lead interferes with cellular metabolism in tissues throughout the body. As a divalent cation, lead interferes with calcium metabolism which affects, for example, neurotransmission and vascular tone. Lead has a high affinity for negatively charged sulfhydryl groups, ultimately affecting synthesis of heme required for production of hemoglobin; cytochromes involved in cellular respiration; and microsomal oxidases involved in biotransformation pathways. In addition, lead increases reactive oxygen species, which affects vascular tone. Lead also affects cell membranes and nucleic acids with multi-system effects. In the nervous system, lead alters the permeability of the blood brain barrier and accumulates in	

	astroglia. Other modes of action include cell death, genotoxicity, inflammation, and endocrine disruption. 1. Cardiovascular Effects. Current evidence indicates a causal relationship between lead exposure and hypertension, and between lead exposure and coronary heart disease. Various mechanisms of action may mediate the hypertensive effect, including oxidative stress, inflammation, hormonal and blood pressure regulatory system dysfunction, and vasomodulator imbalance. These mechanisms, and possibly subclinical atherosclerosis which has been demonstrated in some studies, likewise contribute to coronary heart disease. Since hypertension is a significant risk factor for heart disease, stroke, and renal insufficiency, lead exposure may exert an important influence on cardiovascular, cerebrovascular, and renovascular mortality. Prospective cohort studies have demonstrated an approximate 50% increase in cardiovascular mortality associated with chronic BLLs of 10 µg/dl or greater. ~~1~~2. Heme Synthesis Inhibition. The earliest ~~demonstrated~~hematologic effect ~~of lead~~ involves ~~its~~lead's ability to inhibit at least two enzymes of the heme synthesis pathway at very low ~~blood lead levels~~BLLs. Inhibition of delta aminolevulinic acid ~~dehydrase~~dehydratase (ALA-D) which catalyzes the conversion of delta-aminolevulinic acid (ALA) to protoporphyrin is observed at a ~~blood lead level~~BLL as low as 10 µg/dl ~~below 20 µg/100g of whole blood~~. At a ~~blood lead level~~BLL of 40 µg/~~100g~~dl, more than 20% of the population	

	would have 70% inhibition of ALA-D. There is an exponential increase in ALA excretion at ~~blood lead levels~~BLLs greater than 40 µg/~~100g~~dl. Another enzyme, ferrochelatase, is also inhibited at low ~~blood lead levels~~BLLs. Inhibition of ferrochelatase leads to increase free erythrocyte protoporphyrin (FEP) in the blood which can then bind to zinc to yield zinc protoporphyrin (ZPP). At a ~~blood lead level~~BLL of 50 µg/dl~~100g~~ or greater, nearly 100% of the population will have an increase in FEP. There is also an exponential relationship between ~~blood lead levels~~BLLs greater than 40 µg/dl~~100g~~ and the associated ZPP level, which has led to the development of the ZPP screening test for lead exposure. While the significance of these effects is subject to debate, these enzymatic disturbances ~~may be~~are early stages of a disease process which eventually results in the clinical symptoms of lead poisoning. Whether or not the effects do progress to the later stages of clinical disease, disruption of these enzymatic processes over a working lifetime is ~~considered to be~~ a material impairment of health. One of the eventual results of lead-induced inhibition of enzymes in the heme synthesis pathway is anemia which can be asymptomatic if mild, but is associated with a wide array of symptoms including dizziness, fatigue, and tachycardia when more severe. Recent evidence suggests that bone lead stores may exert a subclinical effect on hematopoiesis, since bone lead levels have been found to correlate with	

	decreased hemoglobin and hematocrit in individuals with low BLLs (mean BLL<10 µg/dl). ~~Studies have indicated that~~Once ~~lead levels~~BLLs reach~~as low as~~ 50 µg/dl~~100g ,can be associated with~~ a definite decrease~~d~~ in hemoglobin is evident, although most cases of lead-induced anemia, as well as shortened red-cell survival times, occur at ~~lead levels~~BLLs exceeding 80 µg/~~100g~~dl. Inhibited hemoglobin synthesis is more common in chronic cases, whereas shortened erythrocyte life span is more common in acute cases. In lead-induced anemias, there is usually a reticulocytosis along with the presence of basophilic stippling, and ringed sideroblasts, although none of the above are pathognomonic for lead-induced anemia. ~~2~~3. Neurological Effects. Inorganic lead has been found to have toxic effects on both the central and peripheral nervous systems. The earliest stages of lead-induced central nervous system effects are manifested by behavioral disturbances and central nervous system symptoms including irritability, restlessness, insomnia and other sleep disturbances, fatigue, vertigo, headache, poor memory, tremor, depression, and apathy. With more severe exposure, symptoms can progress to drowsiness, stupor, hallucinations, delirium, convulsions, and coma. The most severe and acute form of lead poisoning which usually follows ingestion or inhalation of large amounts of lead is acute	

	encephalopathy which may arise precipitously with the onset of intractable seizures, coma, cardio~~respiratory~~pulmonary arrest, and death within 48 hours. While there is disagreement about what exposure levels are needed to produce the earliest symptoms, most experts agree that symptoms and neurocognitive deficits definitely can occur at ~~blood lead level~~ BLLs of ~~60~~40 µg/~~100g~~dl. Subclinical neurocognitive deficits are possible at lower levels, ~~whole blood~~ and therefore a ~~recommend a 40~~10 µg/~~100g~~dl maximum is recommended. The central nervous system effects frequently are not reversible following discontinued exposure or chelation therapy and when improvement does occur, it is almost always only partial. The peripheral neuropathy resulting from lead exposure characteristically involves only motor function with minimal sensory damage and has a marked predilection for the extensor muscles of the most active extremity. The peripheral neuropathy can occur with varying degrees of severity. The earliest and mildest form which can be detected in ~~worker~~employees with ~~blood lead levels~~BLLs as low as ~~50~~30 µg/~~100g~~dl is manifested by slowing of motor nerve conduction velocity often without clinical symptoms. With progression of the neuropathy there is development of painless extensor muscle weakness usually involving the extensor muscles of the fingers and hand in the most active upper extremity, followed in severe cases by wrist drop or, much less commonly, foot drop.	

	In addition to slowing of nerve conduction, electromyographical studies in patients with ~~blood lead levels~~BLLs greater than 50 µg/~~100g~~dl have demonstrated a decrease in the number of acting motor unit potentials, an increase in the duration of motor unit potentials, and spontaneous pathological activity including fibrillations and fasciculations. ~~Whether these effects occur at levels of 40 µg/100g is undetermined.~~ Essential tremor in some studies has been shown to occur at BLLs less than 10 µg/dl. While the peripheral neuropathies can occasionally be reversed with therapy, again such recovery is not assured particularly in the more severe neuropathies and often improvement is only partial. The lack of reversibility is felt to be due in part to segmental demyelination. ~~3~~4. Gastrointestinal. Lead may also affect the gastrointestinal system producing abdominal colic or diffuse abdominal pain, constipation, obstipation, diarrhea, anorexia, nausea and vomiting. Lead colic may develop at chronic BLLs of 40 µg/dl and greater, or at acutely elevated BLLs of 80 µg/dl or greater ~~rarely develops at blood lead levels below 80 µg/100g~~. ~~4~~5. Renal. Renal toxicity represents one of the most serious health effects of lead poisoning. Kidney dysfunction is thought to occur at chronic BLLs of 5-10 µg/dl or greater but also may arise after acute high-dose lead exposures. In the early	

	stages of disease nuclear inclusion bodies can frequently be identified in proximal renal tubular cells. Renal function remains normal and the changes in this stage are probably reversible. With more advanced disease there is progressive interstitial fibrosis and impaired renal function. Eventually extensive interstitial fibrosis ensues with sclerotic glomeruli and dilated and atrophied proximal tubules; all represent end stage kidney disease. Azotemia can be progressive, eventually resulting in frank uremia necessitating dialysis. There is occasionally associated hypertension and hyperuricemia with or without gout. Early kidney disease is difficult to detect. The urinalysis is normal in early lead nephropathy and the blood urea nitrogen and serum creatinine increase only when two-thirds of kidney function is lost. Measurement of creatinine clearance can often detect earlier disease as can other methods of measurement of glomerular filtration rate. An abnormal ~~Ca EDTA~~chelation mobilization test has been used to differentiate between lead-induced and other nephropathies, but this procedure is not widely accepted. ~~A form of Fanconi syndrome with aminoaciduria, glycosuria, and hyperphosphaturia indicating severe injury to the proximal renal tubules is occasionally seen in children.~~ ~~5~~6. Reproductive ~~effects~~Effects. Exposure to lead can have serious effects on reproductive function in both males and females. In male ~~workers~~employees exposed to lead there can be a decrease in sexual drive, impotence, decreased ability to produce healthy sperm, and	

	sterility. Malformed sperm (teratospermia), decreased number of sperm (hypospermia), and sperm with decreased motility (asthenospermia) can all occur. ~~Teratospermia has been noted at mean blood lead levels of 53 µg /100g and hypospermia and asthenospermia at 41 µg/100g.~~These adverse effects may occur at BLLs of 20 µg/dl or greater. Furthermore, there appears to be a dose-response relationship for teratospermia in lead~~-~~-exposed ~~workers~~employees. Women exposed to lead may experience menstrual disturbances including dysmenorrhea, menorrhagia, and amenorrhea. Following exposure to lead, women have a higher frequency of sterility, premature births, spontaneous miscarriages, and stillbirths. Germ cells can be affected by lead and lead can cause genetic damage in the egg or sperm cells before conception and result in failure to implant, miscarriage, stillbirth, or birth defects. Infants of mothers with lead poisoning have a higher mortality during the first year and suffer from lowered birth weights, slower growth, and nervous system disorders. Lead can pass through the placental barrier and lead levels in the mother's blood are comparable to concentrations of lead in the umbilical cord at birth. Transplacental passage becomes detectable at 12-14 weeks of gestation and increases until birth.	

	There is little direct data on damage to the fetus from exposure to lead but it is generally assumed that the fetus and newborn would be at least as susceptible to neurological damage as young children. Current evidence indicates that there is no known lower limit of toxicity at any age. ~~Blood lead levels of 50-60 µg/100g~~Lead exposure in children can cause significant neurobehavioral impairments including cognitive dysfunction and ~~there is evidence of~~ hyperactivity ~~at blood lead levels as low as 25 µg/100g~~. Therefore, women planning to conceive should maintain BLLs less than 5 µg/dl. ~~Given the overall body of literature concerning the adverse health effects of lead in children, it is recommended that the blood lead level in children should be maintained below 30 µg/100g with a population mean of 15 µg/100g. Blood lead levels in the fetus and newborn likewise should not exceed 30 µg/100g.~~ ~~Because of lead's ability to pass through the placental barrier and also because of the demonstrated adverse effects of lead on reproductive function in both the male and female as well as the risk of genetic damage of lead on both the ovum and sperm, a 30 µg/100g maximum permissible blood lead level is recommended for both males and females who wish to bear children.~~ ~~6~~7. Other ~~t~~Toxic ~~e~~Effects. Debate and research continue on the effects of lead on the human body. ~~Hypertension has frequently been noted in occupationally exposed individuals although it is difficult to assess whether this is due to lead's adverse effects on the kidney or if some other~~	

	~~mechanism is involved. Vascular and electrocardiographic changes have been detected but have not been well characterized.~~ Lead ~~is thought to impair~~ may impair the immune and endocrine systems, including thyroid function and ~~interfere with~~ the pituitary-adrenal axis, but ~~again~~ these effects have not been well defined. Also, although the epidemiologic data is limited and inconsistent, based on toxicologic data and animal studies, lead is considered a probable human carcinogen by several authoritative sources. III. Medical Evaluation The most important principle in evaluating an ~~worker~~employee for any occupational disease, including lead poisoning, is a high index of suspicion on the part of the examining physician. As discussed in ~~S~~section II, lead can affect numerous organ systems and produce a wide array of signs and symptoms, most of which are non-specific and subtle in nature at least in the early stages of disease. Unless serious concern for lead toxicity is present, many of the early clues to diagnosis may easily be overlooked. The crucial initial step in the medical evaluation is recognizing that an ~~worker's~~employee's employment can result in exposure to lead. The ~~worker~~employee will frequently be able to define exposures to lead and lead-containing materials but often will not volunteer this information unless specifically asked. In other situations the ~~worker~~employee may not know of any exposures to lead but the suspicion might be raised on the	

	part of the physician because of the industry or occupation of the ~~worker~~employee. Potential occupational exposure to lead and its compounds occur in at least 120 occupations, including lead smelting, the manufacture of lead storage batteries, the manufacture of lead pigments and products containing pigments, solder manufacture, shipbuilding and ship repair, auto manufacturing and repair, scrap yard work, construction, ~~and~~ painting, and work with firearms and ammunition. Once the possibility for lead exposure is known, the focus can then be directed toward eliciting information from the medical history, physical examination, and finally from laboratory data to evaluate the ~~worker~~employee for potential lead toxicity. A complete and detailed work history is important in the initial evaluation. A listing of all previous employment with information on work processes, exposure to fumes or dust, known exposures to lead or other toxic substances, respiratory protection used, and previous medical surveillance should all be included in the ~~worker's~~employee's record. Where exposure to lead is suspected, information concerning on-the-job personal hygiene, smoking or eating habits in work areas, laundry procedures, and use of any protective clothing or respiratory protection equipment should be noted. A complete work history is essential in the medical evaluation of an ~~worker~~employee with suspected lead toxicity, especially when long term effects such as neurotoxicity and nephrotoxicity are considered.	

	The medical history is also of fundamental importance and should include a listing of all past and current ~~medical~~health-related conditions, current medications including proprietary drug intake and ethnic remedies, previous surgeries and hospitalizations, allergies, smoking history, alcohol consumption, and also non-occupational lead exposures such as hobbies (hunting, riflery). Also, known childhood exposures should be elicited. Any previous history of cardiovascular, hematological, neurological, gastrointestinal, renal, psychological, gynecological, genetic, or reproductive problems should be specifically noted. A careful and complete review of systems must be performed to assess both recognized complaints and subtle or slowly acquired symptoms which the ~~worker~~employee might not appreciate as being significant. The review of symptoms should include the following: 1. General weight loss, fatigue, decreased appetite. 2. Head, Eyes, Ears, Nose, Throat (HEENT) - headaches, visual disturbances or decreased visual acuity, hearing deficits or tinnitus, pigmentation of the oral mucosa, or metallic taste in mouth. 3. Cardiopulmonary - shortness of breath, cough, chest pains, palpitations, or orthopnea. 4. Gastrointestinal - nausea, vomiting, heartburn,	

	abdominal pain, constipation or diarrhea. 5. Neurologic - irritability, insomnia, weakness (fatigue), dizziness, loss of memory, confusion, hallucinations, incoordination, ataxia, decreased strength in hands or feet, disturbances in gait, difficulty in climbing stairs, or seizures. 6. Hematologic - pallor, easily fatigued, abnormal blood loss, melena. 7. Reproductive - (male and female and spouse where relevant) history of infertility, impotence, loss of libido, abnormal menstrual periods, history of miscarriages, stillbirths, or children with birth defects. 8. Musculo-skeletal - muscle and joint pains. The physical examination should emphasize the neurological, gastrointestinal, and cardiovascular systems. The ~~worker's~~employee's weight and blood pressure should be recorded. Historically, ~~and~~the oral mucosa was checked for pigmentation characteristic of a possible Burtonian or lead line on the gingiva. ~~It should be noted, however, that~~However, the lead line may not be present even in severe lead poisoning if good oral hygiene is practiced. The presence of pallor on skin examination may indicate an anemia, which if severe might also be associated with a tachycardia. If an anemia is suspected, an active search for blood loss should be undertaken including potential blood loss through the gastrointestinal tract.	

	A complete neurological examination should include an adequate mental status evaluation including a search for behavioral and psychological disturbances, memory testing, evaluation for irritability, insomnia, hallucinations, and mental clouding. Gait and coordination should be examined along with close observation for tremor. A detailed evaluation of peripheral nerve function including careful sensory and motor function testing is warranted. Strength testing particularly of extensor muscle groups of all extremities is of fundamental importance. Cranial nerve evaluation should also be included in the routine examination. The abdominal examination should include auscultation for bowel sounds and abdominal bruits and palpation for organomegaly, masses, and diffuse abdominal tenderness. Cardiovascular examination should evaluate possible early signs of ischemic heart disease and congestive heart failure. Pulmonary status should be addressed particularly if respiratory protection is contemplated. As part of the medical evaluation, the lead standard requires the following laboratory studies: 1. Blood lead level. 2. Hemoglobin and hematocrit determinations, red cell indices, and examination of the peripheral blood smear to evaluate red blood cell	

	morphology. 3. Blood urea nitrogen. 4. Serum creatinine. 5. Routine urinalysis with microscopic examination. 6. A zinc protoporphyrin (ZPP) level for each employee whose last blood lead level was at or above 20 µg/dl. In addition to the above, the physician is authorized to order any further laboratory or other tests which ~~he or she~~they deem~~s~~ necessary in accordance with sound medical practice. The evaluation must also include pregnancy testing or laboratory evaluation of male fertility if requested by the employee. Additional tests which are probably not warranted on a routine basis but may be appropriate when blood lead and ZPP levels are equivocal include delta-aminolevulinic acid and coproporphyrin concentrations in the urine, and dark-field illumination for detection of basophilic stippling in red blood cells. If an anemia is detected further studies including a careful examination of the peripheral smear, reticulocyte count, stool for occult blood, serum iron, total iron binding capacity, bilirubin, and, if appropriate, vitamin B12 and folate may be of value in attempting to identify the cause of the anemia.	

	If a peripheral neuropathy is suspected, nerve conduction studies are warranted both for diagnosis and as a basis to monitor any therapy. If renal disease is questioned, a 24-hour urine collection for creatinine clearance, protein, and electrolytes may be indicated. Elevated uric acid levels may result from lead-induced renal disease and a serum uric acid level might be performed. An electrocardiogram and chest X-ray may be obtained as deemed appropriate. Sophisticated and highly specialized testing should not be done routinely and where indicated should be under the direction of a specialist. IV. Laboratory Evaluation The ~~blood lead level~~BLL at present remains the single most important test to monitor lead exposure and is the test used in the medical surveillance program under the lead standard to guide employee medical removal. ~~The ZPP has several advantages over the blood lead level, but because of its relatively recent development and the lack of extensive data concerning its interpretation, the~~The ZPP currently remains an ancillary test due to its lack of sensitivity. This section will discuss the ~~blood lead level~~BLL and ZPP in detail and will outline their relative advantages and disadvantages. Other blood tests currently available to evaluate lead exposure will also be reviewed. ~~The blood lead level is a good index of current or recent lead absorption when there is no anemia~~	

	~~present and when the worker has not taken any chelating agents. However, blood lead levels along with urinary lead levels do not necessarily indicate the total body burden of lead and are not adequate measures of past exposure.~~ BLL, a measure of the amount of lead currently found in the blood, reflects both recent exogenous exposure as well as endogenous redistribution of lead stored in bone. BLL does not reflect the body burden. One reason for this is that lead has a high affinity for bone and up to 90% of the body's total lead is deposited there. A very important component of the total lead body burden is lead in soft tissue (liver, kidney, and brain). This fraction of the lead body burden, the biologically active lead, is not entirely reflected by ~~blood lead levels~~BLLs since it is a function of the dynamics of lead absorption, distribution, deposition in bone and excretion. Following discontinuation of exposure to lead, the excess body burden is only slowly mobilized from bone and other relatively stable body stores and excreted. When interpreting a person's BLL, three key questions to keep in mind are whether the exposure history has been acute or chronic; recent or remote; high or low. ~~Consequently~~For instance, a high ~~blood lead level~~ BLL may only represent recent heavy exposure to lead without a significant total body excess and likewise a low ~~blood lead level~~BLL does not exclude an elevated total body burden of lead. Also, due to its correlation with recent exposures, the ~~blood lead level~~BLL may vary considerably	

	over short time intervals. To minimize laboratory error and erroneous results due to contamination, blood specimens must be carefully collected (after thorough cleaning of the skin with appropriate methods) using lead-free blood containers and analyzed by a reliable laboratory. Under the standard, samples must be analyzed in laboratories that are CLIA-approved (under the federal Clinical Laboratory Improvement Amendments (CLIA) regulations).~~which are approved by the Center of Disease Control (CDC) or which have received satisfactory grades in proficiency testing by the CDC in the previous year. Analysis is to be made using atomic absorption spectrophotometry, anodic stripping voltammetry or any method which meets the accuracy requirements set forth by the standard.~~ The determination of lead in urine is generally considered a less reliable monitoring technique than analysis of whole blood primarily due to individual variability in urinary excretion capacity as well as the technical difficulty of obtaining accurate 24-hour urine collections. In addition, ~~workers~~employees with renal insufficiency, whether due to lead or some other cause, may have decreased lead clearances and consequently urine lead levels may underestimate the true lead burden. Therefore, urine lead levels should not be used as a routine test. ~~The zinc protoporphyrin test, unlike the blood lead determination, measures an adverse~~	

	~~metabolic effect of lead and as such is a better indicator of lead toxicity than the level of blood lead itself. The level of ZPP reflects lead absorption over the preceding 3 to 4 months, and therefore is a better indicator of lead body burden. The ZPP requires more time than the blood lead to reach significantly elevated levels; the return to normal after discontinuing lead exposure is also slower. Furthermore, the ZPP test is simpler, faster, and less expensive to perform and no contamination is possible. Many investigators believe it is the most reliable means of monitoring chronic lead absorption.~~ The ZPP test, unlike the blood lead determination, is an indirect and relatively insensitive biomarker of lead absorption. Zinc protoporphyrin results from the inhibition of the enzyme ferrochelatase which catalyzes the insertion of an iron molecule into the protoporphyrin molecule, which then becomes heme. If iron is not inserted into the molecule, then zinc, having a greater affinity for ~~protoporphrin~~protoporphyrin, takes the place of the iron, forming ZPP. ~~An evaluation in the level of circulating ZPP may occur at blood lead levels as low as 20-30 µg/100g in some workers. Once the blood lead level has reached 40 µg/100g there is more marked rise in the ZPP value from its normal range of less than 100 g/100ml.~~ The level of circulating ZPP may not rise until a BLL of 20 µg/dl in some adults and is not greater than 90% sensitive until the BLL exceeds 50 µg/dl. Increases in ~~blood lead levels~~BLLs beyond 40 µg/~~100g~~dl are associated with exponential	

	increases in ZPP. The upper limit of normal for ZPP varies some between labs but is usually between 35 and 40 µg/dl. Whereas ~~blood lead levels~~BLLs fluctuate over short time spans, ZPP levels remain relatively stable. ZPP is measured directly in red blood cells and is present for the cell's entire 120-day life span. Therefore, the ZPP level in blood reflects the average ZPP production over the previous 3-4 months and consequently the average lead exposure during that time interval. The ZPP requires more time than the blood lead to reach significantly elevated levels; the return to normal after discontinuing lead exposure is also slower, lagging the BLL by about 2-6 weeks. Therefore, the ZPP may be useful to assess chronicity of exposure. For example, an elevated BLL and normal ZPP suggest recent exposure, while an elevated BLL and elevated ZPP suggest chronic/ongoing exposure. It is recommended that a hematocrit be determined whenever a confirmed ZPP of 50 µg/dl~~100ml whole blood~~ is obtained to rule out a significant underlying iron deficiency anemia. If the ZPP is in excess of 100 µg/dl~~g/100ml~~ and not associated with abnormal elevations in ~~blood lead levels~~BLLs, the laboratory should be checked to be sure that blood leads were determined using a laboratory that is CLIA-approved~~atomic absorption spectrophotometry, anodic stripping voltammetry or other method meeting the accuracy requirements set forth by the standard and by a CDC-approved laboratory which is experienced in lead level determinations~~.	

	Repeat periodic blood lead studies should be obtained in all individuals with elevated ZPP levels to be certain that an associated elevated ~~blood lead level~~BLL has not been missed due to transient fluctuations in blood leads. ZPP has a characteristic fluorescence spectrum with a peak at 594 nanometers~~nm~~ which is detectable with a hematofluoro~~i~~meter. The hematofluoro~~i~~meter is accurate and portable and can provide on-site, instantaneous results for ~~workers~~employees who can be frequently tested via a finger prick. However, careful attention must be given to calibration and quality control procedures. Limited data on blood lead-ZPP correlations and the ZPP levels which are associated with the adverse health effects discussed in ~~S~~section II are the major limitations of the test. Also it is difficult to correlate ZPP levels with environmental exposure and there is some variation of response with age and sex. ~~Nevertheless, the ZPP promises to be an important diagnostic test for the early detection of lead toxicity and its value will increase as more data are collected regarding its relationship to other manifestations of lead poisoning.~~ Levels of delta-aminolevulinic acid (ALA) in the urine are also used as a measure of lead exposure. Increasing concentrations of ALA are believed to result from the inhibition of the enzyme delta-aminolevulinic acid ~~dehydrase~~dehydratase (ALA-D). Although the test is relatively easy to perform, inexpensive,	

	and rapid, the disadvantages include variability in results, the necessity to collect a complete 24-hour urine sample which has a specific gravity greater than 1.010, and also the fact that ALA decomposes in the presence of light. The pattern of porphyrin excretion in the urine can also be helpful in identifying lead intoxication. With lead poisoning, the urine concentrations of coproporphyrins I and II, porphobilinogen and uroporphyrin I rise. The most important increase, however, is that of coproporphyrin III~~; levels may exceed 5,000 µg/1 in the urine in lead poisoned individuals~~, but its correlations with ~~blood lead levels~~BLLs and ZPP are not as good as those of ALA. Increases in urinary p~~r~~orphyrins are not diagnostic of lead toxicity and may be seen in porphyria, some liver diseases, and in patients with high reticulocyte counts. V. Summary. The standard for inorganic lead places significant emphasis on the medical surveillance of all ~~workers~~employees exposed to levels of inorganic lead at or above the action level of 2 ~~30~~µg/~~M~~m^3 TWA for 10 or more days per year, and as interim protection for those who perform PHLW as defined in the standard. The physician has a fundamental role in this surveillance program, and in the operation of the medical removal protection program. Even with adequate ~~worker~~employee education on the adverse health effects of lead and appropriate training in work practices, personal hygiene and other control measures, the physician has a primary responsibility for	

	evaluating potential lead toxicity in the ~~worker~~employee. It is only through a careful and detailed medical and work history, a complete physical examination, and appropriate laboratory testing that an accurate assessment can be made. Many of the adverse health effects of lead toxicity are either irreversible or only partially reversible and therefore early detection of disease is very important. This document outlines the medical monitoring program as defined by the occupational safety and health standard for inorganic lead. It reviews the adverse health effects of lead poisoning and describes the important elements of the history and physical examinations as they relate to these adverse effects. Finally, the appropriate laboratory testing for evaluating lead exposure and toxicity is presented. It is hoped that this review and discussion will give physicians a better understanding of the Cal/OSHA lead standard, with the ultimate goal of protecting the health and well-being of employees exposed to lead who are under their care.	
Appendix D	~~Appendix D~~	
A note indicates that Appendix D - Qualitative Fit Test Protocols was removed 1/8/98.	~~Qualitative Fit Test (QLFT) Protocols [See Section 5144, Appendix A]~~	The State proposes to remove Appendix D Qualitative Fit Test (QLFT) Protocols from the regulation.

		This change is necessary as the History notes for Section 5216* indicate that an amendment repealing appendix D and adding an editorial reference was filed 8-25-98; operative 11-23-98 (Register 98, No. 35). This change is also necessary to avoid confusion as there is no reference to Qualitative Fit Test (QLFT), nor requirement to use this method of fit test, in Section 5198. *A change without regulatory effect renumbering Section 5216 and appendices A-D to section 5198 was filed 2-16-2000 pursuant to section 100, title 1, California Code of Regulations (Register 2000, No. 7).

FEBRUARY 23, 2011

ADVISORY COMMITTEE MEETING

LEAD

MINUTES AND ROSTER

Cal/OSHA Occupational Lead Standards
Revision Advisory Meeting
February 23, 2011
1515 Clay St.Oakland CA Rm. 1304
Chairs: S. Smith, R. Nakamura

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JANUARY 17, 2012

ADVISORY COMMITTEE MEETING

LEAD

MINUTES AND ROSTER

CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

ATTENDANCE ROSTER

MEETING NAME: Occupational Lead Exposure Sec. 5198 & 1532.1 Advisory Committee ***DATE***: Tue., Jan. 17,2012

CHAIRPERSONS: Steve Smith / Bob Nakamura ***Time***: **10am to 3:30 pm** ***LOCATION***: Rm. 1304,1515 Clay St., Oakland, CA

NEW ATTENDEES: PLEASE BE SURE TO WRITE YOUR NAME, AFFILIATION, AND E-MAIL ADDRESS CLEARLY

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DEPARTMENT OF INDUSTRIAL RELATIONS

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CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

ATTENDANCE ROSTER

MEETING NAME: **Occupational Lead Exposure Sec. 5198 & 1532.1 Advisory Committee** ***DATE***: **Tue., Jan. 17,2012**

CHAIRPERSONS: Steve Smith / Bob Nakamura ***Time***: **10am to 3:30 pm** ***LOCATION***: Rm. 1304,1515 Clay St., Oakland, CA

NEW ATTENDEES: PLEASE BE SURE TO WRITE YOUR NAME, AFFILIATION, AND E-MAIL ADDRESS CLEARLY

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Mallori Spilker EUCA	MSpilker@euca.com	925-855-7900	———

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CAL OSHA
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CAL OSHA
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CAL OSHA
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CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

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JUNE 12, 2014

ADVISORY COMMITTEE MEETING

LEAD

MINUTES AND ROSTER

CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

ATTENDANCE ROSTER

MEETING NAME: Cal/OSHA Lead Advisory Committee **DATE:** Thursday, June 12, 2014
CHAIRPERSONS: Steve Smith / Peter Scholz / Bob Nakamura **LOCATION:** Harris State Bldg., 1515 Clay St., 2nd Floor, Room 1, Oakland
ALL ATTENDEES: PLEASE BE SURE TO WRITE YOUR NAME, AFFILIATION, AND E-MAIL ADDRESS CLEARLY

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CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

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CAL OSHA
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CAL OSHA
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CAL OSHA
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APRIL 21, 2015

ADVISORY COMMITTEE MEETING

LEAD

MINUTES AND ROSTER

CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

pg 1

ATTENDANCE ROSTER

MEETING NAME: Cal/OSHA Advisory Meeting -- Occupational Lead Exposure -- General Industry DATE: April 21, 2015, Tuesday, 10a-3p

CHAIRPERSONS: P.Scholz/R. Nakamura, S Smith LOCATION: Harris State Bldg,1515 Clay St., 2nd Floor, Rm 1, Oakland, CA 94612

NEW ATTENDEES: PLEASE BE SURE TO WRITE YOUR NAME, AFFILIATION, AND E-MAIL ADDRESS CLEARLY

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CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

Pg 2

ATTENDANCE ROSTER

MEETING NAME: Cal/OSHA Advisory Meeting -- Occupational Lead Exposure -- General Industry DATE: April 21, 2015, Tuesday, 10a-3p

CHAIRPERSONS: P.Scholz/R. Nakamura, S Smith LOCATION: Harris State Bldg,1515 Clay St., 2nd Floor, Rm 1, Oakland, CA 94612

NEW ATTENDEES: PLEASE BE SURE TO WRITE YOUR NAME, AFFILIATION, AND E-MAIL ADDRESS CLEARLY

	NAME AND AFFILIATION	E-MAIL ADDRESS (for notices of future meetings)	PHONE & FAX NUMBERS	MAILING ADDRESS (for notices of future meetings)
6.	Gerry Manley RSR	gmanleye rsrcorp.com	214583-0232	2777 Stemmons Freeway Dallas TX 75207
7.	TERRY Campbell U.S. BATTERY			
8.	Perry Gottesfeld OK International			
9.	Dan Napier CIH DNA Industrial Hygiene	dan@cihcsp.com	310-644-1824 FAX 310-937-8642	111 N. Sepulveda BLD 355 Manhattan Beach CA 90266
10.	Barbara Materna CDPH Occ Health Branch			

CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

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ATTENDANCE ROSTER

MEETING NAME: Cal/OSHA Advisory Meeting -- Occupational Lead Exposure -- General Industry DATE: April 21, 2015, Tuesday, 10a-3p

CHAIRPERSONS: P.Scholz/R. Nakamura, S Smith LOCATION: Harris State Bldg,1515 Clay St., 2nd Floor, Rm 1, Oakland, CA 94612

NEW ATTENDEES: PLEASE BE SURE TO WRITE YOUR NAME, AFFILIATION, AND E-MAIL ADDRESS CLEARLY

NAME AND AFFILIATION	E-MAIL ADDRESS (for notices of future meetings)	PHONE & FAX NUMBERS	MAILING ADDRESS (for notices of future meetings)
D SAE HER MUKHTAR CDPH	← also on next page		

CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

ATTENDANCE ROSTER

Pg 4

MEETING NAME: Cal/OSHA Advisory Meeting -- Occupational Lead Exposure -- General Industry DATE: April 21, 2015, Tuesday, 10a-3p

CHAIRPERSONS: P.Scholz/R. Nakamura, S Smith LOCATION: Harris State Bldg,1515 Clay St., 2nd Floor, Rm 1, Oakland, CA 94612

NEW ATTENDEES: PLEASE BE SURE TO WRITE YOUR NAME, AFFILIATION, AND E-MAIL ADDRESS CLEARLY

	NAME AND AFFILIATION	E-MAIL ADDRESS (for notices of future meetings)	PHONE & FAX NUMBERS	MAILING ADDRESS (for notices of future meetings)
11.	Elizabeth Treanor PRR-OSH	etreanor@phylmar.com	916-486-4415	〃
12.	Howard Spielman CIH C	hspielman@healthscience.com	714-220-3922 ph 714-220-2081 fx	〃
13.	David Kernaitskas OSHSB			
14.	Linda Delp	LDelp@csla.edu		
15.	Jay Weir AT&T	jay.weir@att.com	916-972-5994	2700 WATT AVE RM S-286 SACRAMENTO, CA 95821

CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

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ATTENDANCE ROSTER

MEETING NAME: Cal/OSHA Advisory Meeting -- Occupational Lead Exposure -- General Industry DATE: April 21, 2015, Tuesday, 10a-3p

CHAIRPERSONS: P.Scholz/R. Nakamura, S Smith LOCATION: Harris State Bldg,1515 Clay St., 2nd Floor, Rm 1, Oakland, CA 94612

NEW ATTENDEES: PLEASE BE SURE TO WRITE YOUR NAME, AFFILIATION, AND E-MAIL ADDRESS CLEARLY

	NAME AND AFFILIATION	E-MAIL ADDRESS (for notices of future meetings)	PHONE & FAX NUMBERS	MAILING ADDRESS (for notices of future meetings)
16.	Sean Banaee Industrial Hygienist	sbanaee@gmail.com siavash.banaee@sce.com	626-825-3635	SCE
17.	DAVID B. WEINBERG BATTERY COUNCIL INT'L	dweinberg@wileyrein.com	202-719-7102	WILEY REIN LLP 1776 K ST NW WASH DC 20006
18.	SAEHER MUZAFFAR CA OPH	Saeher.muzaffar@cdph.ca.gov	510-620-5731	
19.	SCOTT MCALLISTER M&M H&S.	oshacowboy@gmail.com	510-847-5308	
20.	STEVE FAGREY PDCA	WELOVETOPAINT@ATT.NET	510-910-6997	2727 OLIVE AVE. OAKLAND CA.

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CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

ATTENDANCE ROSTER

MEETING NAME: Cal/OSHA Advisory Meeting -- Occupational Lead Exposure -- General Industry DATE: April 21, 2015, Tuesday, 10a-3p

CHAIRPERSONS: P.Scholz/R. Nakamura, S Smith LOCATION: Harris State Bldg,1515 Clay St., 2nd Floor, Rm 1, Oakland, CA 94612

NEW ATTENDEES: PLEASE BE SURE TO WRITE YOUR NAME, AFFILIATION, AND E-MAIL ADDRESS CLEARLY

	NAME AND AFFILIATION	E-MAIL ADDRESS (for notices of future meetings)	PHONE & FAX NUMBERS	MAILING ADDRESS (for notices of future meetings)
21.	Jerry Bailey V.S. Battery Mfg. Co.	Jbailey@vsbattery.com	951-371-8090	1675 Sampson Ave Corona, CA - 92879
22.	Kate Durand SFDPH	Kate.durand@sfdph.org	415-759-3321	375 Laguna Honda Blvd San Francisco, CA 94127
23.	Mary Deems CDPH	mary.deems@cdph.ca.gov	510.620.5722	850 Marina Bay Pkwy Bldg. P Richmond, CA 94804
24.	Jim Dunnegan Varian Medical Systems	jim.dunnegan@ varian.com	650-424-6696 650-424-5920F	911 Hansen Way Palo Alto CA 94304
25.	Kevin Thompson Cal-OSHA Reporter	KThompson@ cal-osha.com	916-276-7704 707 664-8749	PO Box 911 Petaluma 94953

CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

ATTENDANCE ROSTER

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MEETING NAME: Cal/OSHA Advisory Meeting -- Occupational Lead Exposure -- General Industry DATE: April 21, 2015, Tuesday, 10a-3p

CHAIRPERSONS: P.Scholz/R. Nakamura, S Smith LOCATION: Harris State Bldg,1515 Clay St., 2nd Floor, Rm 1, Oakland, CA 94612

NEW ATTENDEES: PLEASE BE SURE TO WRITE YOUR NAME, AFFILIATION, AND E-MAIL ADDRESS CLEARLY

	NAME AND AFFILIATION	E-MAIL ADDRESS (for notices of future meetings)	PHONE & FAX NUMBERS	MAILING ADDRESS (for notices of future meetings)
26.	Dr. Michael Kosnett Univ. of Colorado	michael.kosnett@ucdenver.edu	303.571.5778	
27.	Kathleen Vork OEHHA	Kathleen.Vork@oehha.ca.gov		
28.	David Jones AGC of Calif.	jonesd@agc-ca.org	916-371-2422	AGC of Ca 3095 Beacon Blvd. West Sacramento, Ca 95691
29.	BRIAN HERAMB	bheramb@semprauy.com	858-650-4006	8306 CENTURY PARK CT. CP41E SAN DIEGO, CA 92107
30.	DAVID HARRINGTON CAL/OSHA CONSULTATION	dharrington@dir.ca.gov	(510) 622-2504	

CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

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ATTENDANCE ROSTER

MEETING NAME: Cal/OSHA Advisory Meeting -- Occupational Lead Exposure -- General Industry DATE: April 21, 2015, Tuesday, 10a-3p

CHAIRPERSONS: P.Scholz/R. Nakamura, S Smith LOCATION: Harris State Bldg,1515 Clay St., 2nd Floor, Rm 1, Oakland, CA 94612

NEW ATTENDEES: PLEASE BE SURE TO WRITE YOUR NAME, AFFILIATION, AND E-MAIL ADDRESS CLEARLY

NAME AND AFFILIATION	E-MAIL ADDRESS (for notices of future meetings)	PHONE & FAX NUMBERS	MAILING ADDRESS (for notices of future meetings)
Gail Bateson Worksafe	G Bateson @ worksafe.org	510-302-1011	

CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

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ATTENDANCE ROSTER

MEETING NAME: Cal/OSHA Advisory Meeting -- Occupational Lead Exposure -- General Industry DATE: April 21, 2015, Tuesday, 10a-3p

CHAIRPERSONS: P.Scholz/R. Nakamura, S Smith LOCATION: Harris State Bldg,1515 Clay St., 2nd Floor, Rm 1, Oakland, CA 94612

NEW ATTENDEES: PLEASE BE SURE TO WRITE YOUR NAME, AFFILIATION, AND E-MAIL ADDRESS CLEARLY

NAME AND AFFILIATION	E-MAIL ADDRESS (for notices of future meetings)	PHONE & FAX NUMBERS	MAILING ADDRESS (for notices of future meetings)
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Kim Smith Caltrans Dept of Eng Serv Structure Const. Safety Engineer	Kim_smith@dot.ca.gov	530-330-9033	1801 30th St. MS 9-2/11H Sacramento, CA 95816
ISMAEL PEDROZA JR TROJAN BATTERY CO.	IPedroza@TrojanBattery.com	562-236-3069	12380 CLARK ST. SANTA FE SPRINGS, CA 90670

MAY 28, 2015

ADVISORY COMMITTEE MEETING

LEAD

MINUTES AND ROSTER

CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

ATTENDANCE ROSTER

pg 1.

MEETING NAME: *Cal/OSHA Advisory Mtg-- Occupational Lead Exposure -- Construction* **DATE:** Thursday, May 28, 2015 10 a.m. to 3 pm

CHAIRPERSONS: P.Scholz, B. Nakamura, S. Smith **LOCATION:** Harris State Bldg, 1515 Clay St., 2nd Floor, Rm.1, Oakland, CA

PLEASE BE SURE YOUR NAME, AFFILIATION, AND E-MAIL ARE CLEAR FOR ACCURATE TRANSCRIPTION - THANKS

NAME, TITLE, AND AFFILIATION	E-MAIL ADDRESS (for notices of future meetings)	PHONE & FAX NUMBERS	MAILING ADDRESS
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David Jones ✓	jonesd@agc-ca.org	916-371-2422	3095 Beacon Blvd. West Sacramento, Ca 95691
MIKE ELY President ✓	MIKE@JANUSCORP.COM Janus Corporation	(925) 969-9200 main#	1081 SHARY CIRCLE CONCORD CA 94518
Dan Napoli ✓ DIR, CIH, CSP	dan@cihcsp.com	800 644-1924	DNA 111 N Sepulveda Blvd STE 355 Manhattan Beach 90266
David Kernazitskas ✓	dKernazitskas@dir.ca.gov		OSHSB

CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

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ATTENDANCE ROSTER

MEETING NAME: *Cal/OSHA Advisory Mtg-- Occupational Lead Exposure -- Construction* **DATE:** Thursday, May 28, 2015 10 a.m. to 3 pm

CHAIRPERSONS: P.Scholz, B. Nakamura, S. Smith **LOCATION:** Harris State Bldg, 1515 Clay St., 2nd Floor, Rm.1, Oakland, CA

PLEASE BE SURE YOUR NAME, AFFILIATION, AND E-MAIL ARE CLEAR FOR ACCURATE TRANSCRIPTION - THANKS

NAME, TITLE, AND AFFILIATION	E-MAIL ADDRESS (for notices of future meetings)	PHONE & FAX NUMBERS	MAILING ADDRESS
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JAY A WEIR - SR MGR EHS ✓ AT&T	Jay.Weir@att.com	916-972-5994	2900 WAFT AVE Rm 5-286 SACRAMENTO, CA 95821
Sean Banaee ✓ IH SCE	Siavash.Banaee@sce.com	626 825-3536	1218 S. Fifth Ave Monrovia, CA 91016
Joe Vuglia I/A ✓ HMS, Inc.	jvuglia@hazmanage.com	559-436-0277	371 E. Bullard Ave Suite 109 Fresno CA 93710
Perry Gottesfeld ✓ OK International	okperry@gmail.com Occupational Knowledge International	415-921-8900	4444 Geary Blvd #302 SF 94118

CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

ATTENDANCE ROSTER

pg. 3.

MEETING NAME: *Cal/OSHA Advisory Mtg-- Occupational Lead Exposure -- Construction* **DATE:** Thursday, May 28, 2015 10 a.m. to 3 pm

CHAIRPERSONS: P.Scholz, B. Nakamura, S. Smith **LOCATION:** Harris State Bldg, 1515 Clay St., 2nd Floor, Rm.1, Oakland, CA

PLEASE BE SURE YOUR NAME, AFFILIATION, AND E-MAIL ARE CLEAR FOR ACCURATE TRANSCRIPTION - THANKS

NAME, TITLE, AND AFFILIATION	E-MAIL ADDRESS (for notices of future meetings)	PHONE & FAX NUMBERS	MAILING ADDRESS
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DAVID HARRINGTON CAL/OSHA CONSULTATION ✓	dharrington@dir.ca.gov	(510) 622-2504	
STEVE MANTHE, ✓ ASSOCIATION OF ENVIRONMENTAL CONTRACTORS	smanthe@eainc.com	(925)-930-0814	
Barbara Materna CDPH-OHB ✓	~~CDPH~~ yo have it		
Jeremy Smith ✓ State Building Trades	jsmith@sbtc.org	916-443-3302	

CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

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ATTENDANCE ROSTER

MEETING NAME: *Cal/OSHA Advisory Mtg-- Occupational Lead Exposure -- Construction* **DATE:** Thursday, May 28, 2015 10 a.m. to 3 pm

CHAIRPERSONS: P.Scholz, B. Nakamura, S. Smith **LOCATION:** Harris State Bldg, 1515 Clay St., 2nd Floor, Rm.1, Oakland, CA

PLEASE BE SURE YOUR NAME, AFFILIATION, AND E-MAIL ARE CLEAR FOR ACCURATE TRANSCRIPTION - THANKS

NAME, TITLE, AND AFFILIATION	E-MAIL ADDRESS (for notices of future meetings)	PHONE & FAX NUMBERS	MAILING ADDRESS
Kristina Mazzocchi ✓	Kmazzoce@gmail.com	347 484 7493	331 Leonard St Brooklyn, NY 11211
Eric Goldman ✓	egoldman@sfwater.org	415 307-8032	40 Bayview Terrace Mill Valley, CA 94941

CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

ATTENDANCE ROSTER

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MEETING NAME: *Cal/OSHA Advisory Mtg-- Occupational Lead Exposure -- Construction* **DATE:** Thursday, May 28, 2015 10 a.m. to 3 pm

CHAIRPERSONS: P.Scholz, B. Nakamura, S. Smith **LOCATION:** Harris State Bldg, 1515 Clay St., 2nd Floor, Rm.1, Oakland, CA

PLEASE BE SURE YOUR NAME, AFFILIATION, AND E-MAIL ARE CLEAR FOR ACCURATE TRANSCRIPTION - THANKS

NAME, TITLE, AND AFFILIATION	E-MAIL ADDRESS (for notices of future meetings)	PHONE & FAX NUMBERS	MAILING ADDRESS
Vickie Wells ✓ OSH Director CCSF Dept. of Public Health	Vickie.wells@sfdph.org	415-554-2797	101 Grove St Rm 217 SF, CA 94102
Jora Trang ✓ worksafe	jtrang@worksafe.org	510 302 1077	55 Hanson St Ste 400 Oakland CA 94607
RUBEN BARBA ✓ LABORERS #67	RBARBALOCAL67@SBCGLOBAL.NET	510 385-4336 510 569-4763 FAX	8301 EDGEWATER DR. SUITE 201 OAKLAND, CA 94621
Bruce Wick ✓ CALPASC	bwick@calpasc.org	909-793-9932	1150 Brookside Ave, Ste Q Redlands, CA 92373
Andy Maelk ✓ Safety Director Jeffco Painting	andymaelk@jeffcoptg.com	707-562-1900	1260 Railroad Ave #750 Vallejo, CA 94592

CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

ATTENDANCE ROSTER

pg. 6

MEETING NAME: *Cal/OSHA Advisory Mtg-- Occupational Lead Exposure -- Construction* **DATE:** Thursday, May 28, 2015 10 a.m. to 3 pm

CHAIRPERSONS: P.Scholz, B. Nakamura, S. Smith **LOCATION:** Harris State Bldg, 1515 Clay St., 2nd Floor, Rm.1, Oakland, CA

PLEASE BE SURE YOUR NAME, AFFILIATION, AND E-MAIL ARE CLEAR FOR ACCURATE TRANSCRIPTION - THANKS

NAME, TITLE, AND AFFILIATION	E-MAIL ADDRESS (for notices of future meetings)	PHONE & FAX NUMBERS	MAILING ADDRESS
Dennis Jordan ✓ Principal Jordan Consulting	djordanconsult@comcast.net	510-798-3511	582 Lewis Ave San Leandro, CA 94577
Eric Rozance ✓ Regulatory consultant Phylmar Regulatory Roundtable	erozance@phylmar.com	1-415.694-9522	530 Manzanita Cir ~~Ann~~ Prunedale, CA 93907
Michael Kosnett ✓ MD, MPH	michael.kosnett@ucdenver.edu	303 5715778	730 17th st Ste 925F Denver, CO 80202 -3537
Michael Cooper ✓ IH Consultant	michaelcoopermph@gmail.com	585-507-3228	316 B Auburn st San Rafael CA 94901
Frank Werbelow Jr ✓ safety manager DPR Construction	frankw@dpr.com	925-596-0719	1450 Veterans Blvd Redwood City, CA. 94063

CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

ATTENDANCE ROSTER

pg. 7

MEETING NAME: *Cal/OSHA Advisory Mtg-- Occupational Lead Exposure -- Construction* **DATE:** Thursday, May 28, 2015 10 a.m. to 3 pm

CHAIRPERSONS: P.Scholz, B. Nakamura, S. Smith **LOCATION:** Harris State Bldg, 1515 Clay St., 2nd Floor, Rm.1, Oakland, CA

PLEASE BE SURE YOUR NAME, AFFILIATION, AND E-MAIL ARE CLEAR FOR ACCURATE TRANSCRIPTION - THANKS

NAME, TITLE, AND AFFILIATION	E-MAIL ADDRESS (for notices of future meetings)	PHONE & FAX NUMBERS	MAILING ADDRESS
Julie Pettijohn ✓ CDPH	Julie.Pettijohn@[redacted]cdph.ca.gov	510 620 374	850 Marina Bay Pkwy Bldg P 2nd fl Richmond 94804
Kathleen Vork ✓ OEHHA	Kathleen.Vork@oehha.ca.gov		
Mary Deems ✓ CDPH	marg.deems@cdph.ca.gov	510.620.5772	850 Marina Bay Pkwy Richmond 94804
Lorna Benne ✓ Caltrans	lorna.benne@dot.ca.gov	510 867-6132	111 Grand Ave Oakland
Scott McAllister ✓	oshacowboy@gmail.com	510-847-5307	M&M Health Services 2342 Shattuck Ave #345 Berkeley CA 94704

CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

pg. 8

ATTENDANCE ROSTER

MEETING NAME: *Cal/OSHA Advisory Mtg-- Occupational Lead Exposure -- Construction* **DATE:** Thursday, May 28, 2015 10 a.m. to 3 pm

CHAIRPERSONS: P.Scholz, B. Nakamura, S. Smith **LOCATION:** Harris State Bldg, 1515 Clay St., 2nd Floor, Rm.1, Oakland, CA

PLEASE BE SURE YOUR NAME, AFFILIATION, AND E-MAIL ARE CLEAR FOR ACCURATE TRANSCRIPTION - THANKS

NAME, TITLE, AND AFFILIATION	E-MAIL ADDRESS (for notices of future meetings)	PHONE & FAX NUMBERS	MAILING ADDRESS
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Kim Smith ✓ Construction Safety Engineer/Structure Const.	Kim_smith@dot.ca.gov	530-330-9033 (916) 227-8244	1801 30th St. MS 9-2/11H Sacramento, CA 95816
HOWARD SPIELMAN ✓ CIHC	hspielman@healthscience.com	714-220-3922 ph 714-220-2091 fx	Health Science Assoc. 10771 Noel St, Los Alamitos, CA 90720
Gail Bateson ✓ Worksafe	GBateson@worksafe.org	510-302-1011	55 Harrison #400 Oak CA 94607
BRIAN HERAMB ✓ SAN DIEGO GAS & ELECTRIC	bheramb@semprautilities.com	858-650-4006	8306 CENTURY PARK CT CP41E SAN DIEGO, CA 92123

CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

pg. 9.

ATTENDANCE ROSTER

MEETING NAME: *Cal/OSHA Advisory Mtg-- Occupational Lead Exposure -- Construction* **DATE:** Thursday, May 28, 2015 10 a.m. to 3 pm

CHAIRPERSONS: P.Scholz, B. Nakamura, S. Smith **LOCATION:** Harris State Bldg, 1515 Clay St., 2nd Floor, Rm.1, Oakland, CA

PLEASE BE SURE YOUR NAME, AFFILIATION, AND E-MAIL ARE CLEAR FOR ACCURATE TRANSCRIPTION - THANKS

NAME, TITLE, AND AFFILIATION	E-MAIL ADDRESS (for notices of future meetings)	PHONE & FAX NUMBERS	MAILING ADDRESS
JO FORCHIONE, IH PACIFIC GAS & ELECTRIC CO. ✓	JAFN@PGE.COM	(707) 577-7102	111 STONY CIRCLE SANTA ROSA, CA 95401
STEVE FAGERAY PDCA ✓	WELOVETOPAINT@ATT.NET	510-910-6997	2727 OLIVER AVE OAKLAND, CA 94605
Dale Hagen Housing Programs Planner Alameda County Healthy Homes ✓	Dale.Hagen@acgov.org	510-567-8298	2000 EMBARCADERO. #300 OAKLAND, CA 94606
Patricia Coyle Occ Health Branch CDPH ✓	patricia.coyle@cdph.ca.gov	510-620-5721	850 Marina Bay Pkway Richmond CA 94__
Rebecca Jackson Occ Health Branch CDPH ✓	rebecca.jackson@cdph.ca.gov	510 620 1324	850 Marina Bay Pkwy Richmond, CA 94__

CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

pg. 10

ATTENDANCE ROSTER

MEETING NAME: *Cal/OSHA Advisory Mtg-- Occupational Lead Exposure -- Construction* **DATE:** Thursday, May 28, 2015 10 a.m. to 3 pm

CHAIRPERSONS: P.Scholz, B. Nakamura, S. Smith **LOCATION:** Harris State Bldg, 1515 Clay St., 2nd Floor, Rm.1, Oakland, CA

PLEASE BE SURE YOUR NAME, AFFILIATION, AND E-MAIL ARE CLEAR FOR ACCURATE TRANSCRIPTION - THANKS

NAME, TITLE, AND AFFILIATION	E-MAIL ADDRESS (for notices of future meetings)	PHONE & FAX NUMBERS	MAILING ADDRESS
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SAETHER MUZAFFAR CAPM ✓	Saeher.muzaffar@cdph.ca.gov	510 620 5731	850 Marina Bay Pkwy Richmond
Kevin Thompson ✓ Editor Cal OSHA Reporter ✓	KThompson@calOSHA.com	916 276 7704 B 707 664 8701	PO Box 911 Petaluma 94953
CHRISTOPHER LEE UNITED CONTRACTORS ✓	CCarlee@sbcglobal.net	510 421 0242	
Denise Souza Calif. Assoc of ✓ Occ Health Nurses	dsouza16@its.jnj.com	916-300 1536	1874 Emily Lane Lincoln CA 95648

CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

ATTENDANCE ROSTER

pg 11

MEETING NAME: *Cal/OSHA Advisory Mtg-- Occupational Lead Exposure -- Construction* **DATE:** Thursday, May 28, 2015 10 a.m. to 3 pm

CHAIRPERSONS: P.Scholz, B. Nakamura, S. Smith **LOCATION:** Harris State Bldg, 1515 Clay St., 2nd Floor, Rm.1, Oakland, CA

PLEASE BE SURE YOUR NAME, AFFILIATION, AND E-MAIL ARE CLEAR FOR ACCURATE TRANSCRIPTION - THANKS

NAME, TITLE, AND AFFILIATION	E-MAIL ADDRESS (for notices of future meetings)	PHONE & FAX NUMBERS	MAILING ADDRESS
Maurice Pantoja ✓ EHS Manager LA County Public Health EH/CLPPP	mpantoja@ph.lacounty.gov	(323) 869-7061	5555 Ferguson Dr Suite 210-02 Commerce CA 90022
Angie Toyota. ✓ CLPPP Coordinator LA County Public Health	atoyota@ph.lacounty.gov	(323) 869-7171	"
Justin Weisbrod, ~~Safety Mgr~~ ✓ Safety Manager Chrisp Company	safety@chrispco.com	510-656-2840 x 140 510-659-0402	43650 Osgood Rd Fremont, CA 94539
Karen Hopkins ✓	khopkins@msn.com		PO Box 8 Berkeley, CA 94701
Frances Doherty ✓	frances@dohertyrestoration.com	415.867.6910	P.O. BOX 885473 SF - Ca 94188

NOVEMBER 10, 2015

ADVISORY COMMITTEE MEETING

LEAD

MINUTES AND ROSTER

CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

(1)

ATTENDANCE ROSTER

MEETING NAME: Cal/OSHA Advisory Meeting -- Occ. Lead Exposure -- General Ind.&Constr. Stds DATE: Nov. 10, 2015, Tuesday, 10a-3p

CHAIRPERSONS: P.Scholz/R. Nakamura, S Smith LOCATION: Harris State Bldg,1515 Clay St., 2nd Floor, Rm 1, Oakland, CA 94612

NEW ATTENDEES: PLEASE BE SURE TO WRITE YOUR NAME, AFFILIATION, AND E-MAIL ADDRESS CLEARLY

NAME AND AFFILIATION	E-MAIL ADDRESS (for notices of future meetings)	PHONE & FAX NUMBERS	MAILING ADDRESS (for notices of future meetings)
David Jones AGC of Calif.	jonesd@agc-ca.org	916-371-2422	3095 Beacon Blvd West Sacramento, Ca 95691
Kim Smith Caltrans Structure Const Safety Engineer	kim.smith@dot.ca.gov	530-330-9033	1801 30th St. MS 9-2/11H Sacramento CA 95816
Frank Werbelow Jr DPR Construction	frankw@dpr.com	925-596-0719	10355 Manfre Rd Morgan Hill, CA 95037
Heather Stiner SSPC	Stiner@sspc.org	412-281-2331 X2224	40 24th St 6th Floor Pittsburgh PA 15222
RUBEN BARBA LABORERS # 67	RBARBALOCAL67@SBCGLOBAL.NET	510 385-4336 510 569-4761 FAX	8301 EDGEWATER DR STE. 201 OAKLAND, CA 94621

CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

(2)

ATTENDANCE ROSTER

MEETING NAME: Cal/OSHA Advisory Meeting -- Occ. Lead Exposure -- General Ind.&Constr. Stds DATE: Nov. 10, 2015, Tuesday, 10a-3p

CHAIRPERSONS: P.Scholz/R. Nakamura, S Smith LOCATION: Harris State Bldg,1515 Clay St., 2nd Floor, Rm 1, Oakland, CA 94612

NEW ATTENDEES: PLEASE BE SURE TO WRITE YOUR NAME, AFFILIATION, AND E-MAIL ADDRESS CLEARLY

NAME AND AFFILIATION	E-MAIL ADDRESS (for notices of future meetings)	PHONE & FAX NUMBERS	MAILING ADDRESS (for notices of future meetings)
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Michael Cooper CDPH	michael.cooper@cdph.ca.gov		
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CHRISTOPHER LEE UNITED CONTRACTORS	CCarlee@sbcglobal.net	510 821 0242	

CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

(3)

ATTENDANCE ROSTER

MEETING NAME: Cal/OSHA Advisory Meeting -- Occ. Lead Exposure -- General Ind.&Constr. Stds DATE: Nov. 10, 2015, Tuesday, 10a-3p

CHAIRPERSONS: P.Scholz/R. Nakamura, S Smith LOCATION: Harris State Bldg,1515 Clay St., 2nd Floor, Rm 1, Oakland, CA 94612

NEW ATTENDEES: PLEASE BE SURE TO WRITE YOUR NAME, AFFILIATION, AND E-MAIL ADDRESS CLEARLY

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Ismael Pedroza Jr Trojan Battery Co.	IPedroza@TROJANBATTERY.com	562-236-3069 562-236-3775	12380 Clarke St Santa Fe Springs CA 90670
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Vickie Wells CCSF DPH	Vickie.wells@sfdph.org	415-554-2797	101 Grove St Rm 217 SF CA 94102
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CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

(4)

ATTENDANCE ROSTER

MEETING NAME: Cal/OSHA Advisory Meeting -- Occ. Lead Exposure -- General Ind.&Constr. Stds DATE: Nov. 10, 2015, Tuesday, 10a-3p

CHAIRPERSONS: P.Scholz/R. Nakamura, S Smith LOCATION: Harris State Bldg,1515 Clay St., 2nd Floor, Rm 1, Oakland, CA 94612

NEW ATTENDEES: PLEASE BE SURE TO WRITE YOUR NAME, AFFILIATION, AND E-MAIL ADDRESS CLEARLY

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(6)

ATTENDANCE ROSTER

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DEPARTMENT OF INDUSTRIAL RELATIONS

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CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

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CAL OSHA
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CAL OSHA
DEPARTMENT OF INDUSTRIAL RELATIONS

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State of California—Health and Human Services Agency
California Department of Public Health

MARK B HORTON, MD, MSPH
Director

ARNOLD SCHWARZENEGGER
Governor

December 13, 2010

Mr. Steve Smith
Research and Standards Health Unit
Division of Occupational Health and Safety
Department of Industrial Relations
1515 Clay Street, 19th Floor
Oakland, CA 94612

Dear Steve:

Subject: CDPH Response to Cal/OSHA's Proposed Revisions to the Lead Standards

Thank you again for sharing Cal/OSHA's draft lead standard revisions with the California Department of Public Health (CDPH). The Occupational Lead Poisoning Prevention Program (OLPPP) in CDPH has reviewed the proposal and submits the following response for your consideration. OLPPP, in the Occupational Health Branch, was established by legislation in 1991 to provide a statewide, comprehensive program aimed at preventing lead poisoning among California workers and their family members. OLPPP's services are directed towards workers and their employers, labor unions, industry and trade associations, health professionals, and the general public.

As I have previously communicated to you, OLPPP has serious concerns about the extent that Cal/OSHA's proposal deviates from the General Industry (GI) lead standard revision proposal CDPH/OLPPP submitted to Cal/OSHA in June 2010. As you are probably aware, OLPPP has been actively involved since 2000 in reviewing the current scientific data on chronic and low-level lead exposure and toxicity, developing revised medical guidelines based on the new evidence, and preparing and disseminating bilingual information to workers, employers, and health-care providers for educational and training purposes. No other agency in California is more knowledgeable and has more experience related to occupational lead poisoning and health impacts than OLPPP. Based on our experience, we believe that Cal/OSHA's proposed revisions will not adequately protect workers from the documented serious adverse health effects of low lead exposures, and further, do not address significant structural flaws (loopholes) in the existing lead standards. While we consider all of the changes in our proposed GI standard revision important, we have identified four core revisions, which are necessary to protect lead exposed workers from currently known adverse health effects. These core revisions are discussed below.

Furthermore, the strategy to speed through an abbreviated proposal with the hope of revisiting the standard at a later date to address other shortcomings seems highly unrealistic to us. This will likely be California's only opportunity to establish revised lead regulations that protect workers from the serious adverse health effects of low lead exposures. Therefore, any proposal submitted to an Advisory Committee must address at the very least the four core deficiencies of the current lead standards.

Core elements of any proposed lead standard revision

My staff and I are concerned that the Cal/OSHA proposed revisions to the frequency of BLL testing/medical examinations and MRP removal requirements will be largely ineffective without corresponding changes to the trigger for blood lead level (BLL) testing and a reduction in the Permissible Exposure Limit (PEL). Therefore, *all four* of the following elements must be included in any proposal Cal/OSHA sends to an Advisory Committee:

1. Uncoupling BLL testing from air monitoring.
2. A schedule for BLL testing and medical examinations that follows the March 2007 Environmental Health Perspectives (EHP) article and the 2009 OLPPP Medical Guidelines.
3. Medical Removal Protection (MRP) removal requirements per the EHP article and OLPPP Medical Guidelines (i.e., trigger of one BLL at or above 30 ug/dL or average of 20 ug/dL).
4. Revision to the PEL that is consistent with the MRP levels above; this is in keeping with the rationale that OSHA used when the PEL was first set.

1. Uncoupling BLL testing and air monitoring

Improving BLL testing frequencies and lowering the MRP level will have little impact on the majority of lead-exposed workers if few employers are testing. OLPPP examined how many employers were providing BLL testing in four industries in which significant lead exposure is possible. With the exception of lead-acid battery manufacturing, too few employers are doing testing (percent of employers testing: battery manufacturing 87%; lead-using foundries 56%; radiator repair 14%; wrecking and demolition 1%). More recently, OLPPP looked at the percentage of licensed painting contractors in San Francisco that are providing BLL testing to employees (91% of the housing in San Francisco has lead-based paint). Of approximately 240 contractors, fewer than 20 were providing testing.

The most critical barrier to workers getting tested is that few employers ever conduct the air monitoring that triggers medical surveillance under the current standards. Even when air monitoring is conducted, it misses possible ingestion exposure that occurs even when air lead levels are low. In order to ensure that most lead-exposed workers get tested and benefit from a lower MRP level, Cal/OSHA must change the trigger for BLL testing. OLPPP has proposed that BLL testing be required whenever lead, above a *de minimus* level, is subjected to a process that can generate dust, mist, fume, or other particles. OLPPP's proposed language for BLL testing is more employer friendly than the current standards yet would provide greater worker protection if implemented correctly.

2. A schedule for BLL testing and medical examinations that follows the EHP article/OLPPP Medical Guidelines

Cal/OSHA's proposal for the BLL testing schedule largely agrees with OLPPP's proposal. However there are significant differences between OLPPP and Cal/OSHA regarding medical examinations.

First, under Section 5198(j)(3)(A)(1), Cal/OSHA proposes to lower to 20 µg/dL the BLL at which a medical exam is required but is not proposing adding the requirement that the exam be provided within four weeks of the elevated BLL. In some cases, this would allow an employer to delay for up to a year the provision of a medical exam to a worker who has had a BLL above 20 µg/dL. As an example, a worker who has had a several-year of history of BLLs below 20 µg/dL, who now

has a BLL above 20, could wait several months for an employer provided medical exam under the Cal/OSHA version. In contrast, OLPPP's wording would require this worker to be provided with an exam within four weeks. This is a particular risk to a worker who has a medical condition that increases the likelihood of harm to their health from lead exposure.

Secondly, for workers who have not had a medical exam within the last 12 months, OLPPP believes that the addition of a requirement to provide an annual blood pressure measurement and brief medical questionnaire, as per the EHP article, is essential. Cal/OSHA's proposal did not adopt this important recommendation. The brief medical questionnaire would cover medical conditions that might increase the risk of adverse health effects from lead exposure. Without this requirement there is no assurance that changes in a worker's health status that place him or her at greater risk of harm from even low level lead exposure will be brought to the attention of the physician charged with protecting the worker's health.

3. MRP removal requirements per the EHP article/OLPPP Medical Guidelines

The purpose of an MRP requirement is to identify workers with elevated lead levels presenting a health concern and then manage their activities (e.g., remove them from any further lead exposure) in order to reduce their blood lead levels as fast as possible. Cal/OSHA is proposing that in general industry a worker be medically removed when the *average of the last three* BLL tests is at or above 30 µg/dL and for construction, that a worker be removed when a BLL test and a follow-up test indicate that the worker's BLL is at or above 30 µg/dL. First, if adopted as proposed, Cal/OSHA's revised lead standards would perpetuate the existing discrepancy between the general industry and construction standards, allowing lesser protection to workers in general industry. Secondly, if removal is required only after an average BLL of 30 µg/dL rather than a single BLL of 30, workers will be allowed to stay at BLL levels known to be harmful for up to two months until monthly repeat testing shows an average of 30 µg/dL. In the most extreme case, the Cal/OSHA proposal as written could allow a worker with an extremely high BLL, for example 80 µg/dL, to remain in a lead-exposed job for weeks or months while waiting for repeat BLL tests to be done to indicate that an average of three tests is above 30 µg/dL.

In addition, allowing an employer to transfer a worker with an elevated BLL (at or above 30 µg/dL) to an area with airborne lead levels at the "action level" rather than to an area with no lead exposure lengthens the time it takes for the worker's BLL to come down to a safer level (at or below 15 µg/dL). There is no acceptable theoretical or practical reason for allowing a worker's BLL to be maintained at an unsafe level for an extended period of time and thereby placing that worker at greater risk of harm.

Finally, regarding returning an employee to former job status, OLPPP's proposed addition that the two consecutive BLLs are taken at least four weeks apart is important as it provides time needed for the worker to clear additional lead from the body. As currently written, a worker could be returned to their former job status based on BLL test results taken as little as one day apart. OLPPP's believes this does not provide sufficient worker protection.

4. Revision of PEL based on lower MRP levels

Based on the extensive and widely accepted scientific and medical literature on the impact of repeated low lead exposures on adults, OLPPP strongly believes that the intent of any revisions to the Cal/OSHA lead standards should be to maintain a lead-exposed worker's BLL less than

10 µg/dL for their working lifetime. Anything less stringent will knowingly allow workers to be exposed to lead levels which are known to be harmful.

A newly calculated PEL based on lower target BLLs must be included in the revised standard(s). Unless the PEL is revised downward at the time the MRP level is lowered, *Cal/OSHA is legally allowing workers to be exposed to air lead levels the agency knows will lead to harmful elevated BLLs*. This turns the standard on its head by placing the burden on workers, who will suffer elevated BLLs and have to be removed from their jobs, rather than requiring that employers reduce exposure. The standard must prevent elevated BLLs, not simply respond after the fact.

The current PEL was intended to achieve a mean BLL of 40 µg/dL and a maximum BLL of 60 µg/dL, the current blood lead levels at which a lead medical exam is required and workers have to be removed from exposure, respectively. Lowering these levels without also lowering the PEL leads to a standard that is no longer internally consistent. There is no longer any rational basis for a PEL of 50 $\mu g/m^3$.

OLPPP, in conjunction with the Office of Environmental Health Hazard Assessment, is examining through physiological-based pharmacokinetic modeling the relationship between human BLLs and lead exposure from contaminated air and dust; OLPPP is targeting levels of 5 and 10 µg/dL lead in blood as the health-based benchmark levels of concern. In the near future, OLPPP will be proposing a new PEL to replace the existing one in the lead standards based on the current scientific data.

Conclusion

Both CDPH and Cal/OSHA agree that this is a crucial opportunity to revise the lead standards based on widely accepted scientific and medical evidence that has accumulated in the 32 years since the GI lead standard was released. We hope that Cal/OSHA will acknowledge that compromise on any of the above four core elements will continue to put workers at risk for years to come.

Sincerely,

Original signed by

Michael J. DiBartolomeis, PhD, DABT, Chief
Occupational Lead Poisoning Prevention Program

cc: Barbara Materna, PhD, CIH, Chief
Occupational Health Branch
California Department of Public Health

Paul Papanek, MD, MPH, FACOEM, President
Western Occupational and Environmental Medical Association

Comparison Table of Current LIC Standard Triggers/Requirements vs. Proposed Triggers/Requirements (4/07/11)

REQUIREMENT	TRIGGER				
	Scope	Lead altered/disturbed	Level 1,2, 3 Trigger Tasks	AL	PEL
Exposure monitoring	--Not proposing any changes to this section				
Protective clothing + laundry			--Protective clothing and laundry service	--Protective clothing and laundry service	--Protective clothing and laundry service
Housekeeping	--All work surfaces maintained free of lead dust accumulation				
Hygiene (next 7 reqs.)					
Prohibit eating, drinking, smoking, in work areas		--Prohibit eating, drinking, smoking, etc in work areas			--Prohibit eating, drinking, smoking, etc in work areas
Change areas			--Provide clean change areas ~~as interim measure until exposure monitoring~~	--Provide clean change areas	--Provide clean change rooms
Showers					--Provide showers
Eating facilities/Clean eating area		--Provide clean eating area			--Provide clean lunchroom facilities as defined in standard
Wash-up requirement		--Ensure employees wash-up before breaks			--Ensure employees wash-up before breaks
Surface sampling		--Test eating area and change area surfaces weekly with a colorimetric or quantitative method			
Surface contamination limit		--When using a quantitative method, must meet a specific surface limit			
Medical surveillance			--Enroll in medical surveillance program if doing Level 2,3 task; Level 1 tasks if >8 hrs in 30 days	--Enroll in medical surveillance if exposure ≥ AL 30 or more days/year (still in revised standard)	
Medical removal protection		--Transfer to area where no lead altered or disturbed if BLL at or above 30 µg/dL or average of 20 over 4 weeks		--Transfer to area at or below the AL if BLL at or above 50 µg/dL	
Training	--Inform workers of lead hazards per Hazard Communication Std.			--Comprehensive annual training; quarterly toolbox/tailgate training	
Signs		--Warning sign in work area where lead altered or disturbed			--Warning sign in work area above the PEL
Exposure Control					--Engineering, work practice, respirators; specific, min eng and work practice controls req unless shown infeasible; prohibited practices
Compliance Plan					--Written compliance plan

Black text = current standard; blue text = our proposed changes

State of California—Health and Human Services Agency
California Department of Public Health

RON CHAPMAN, MD, MPH
Director & State Health Officer

EDMUND G. BROWN JR.
Governor

September 30, 2013

Juliann J. Sum, JD, ScM
Acting Chief
Division of Occupational Safety and Health (Cal/OSHA)
California Department of Industrial Relations
1515 Clay Street, Suite 1901
Oakland, CA 94612

Re: Health-based Permissible Exposure Limit for Lead

Dear Ms. Sum,

The California Department of Public Health (CDPH), Occupational Lead Poisoning Prevention Program (OLPPP), transmitted its initial recommendations for revising the Cal/OSHA general industry lead standard in June 2010 to Cal/OSHA Chief, Len Welsh. At that time, we indicated that our specific recommendation for a health-based permissible exposure limit (PEL) was pending the completion of modeling of the correlation between airborne lead concentrations and blood lead levels in the range associated with adverse health effects. The Office of Environmental Health Hazard Assessment (OEHHA) in Cal/EPA has now completed the modeling, and a copy of their final report and two summaries (one for health professionals and another for the general public) are enclosed. Our recommendation for a health-based PEL is presented here.

Recommendation for a health-based PEL

OLPPP has determined that having chronic blood lead levels (BLLs) in the range of 5 to 10 micrograms per deciliter (µg/dL) poses a health risk to working adults, and we use this conclusion as our basis for recommending a health-based PEL to Cal/OSHA. Our determination is based on the available peer-reviewed health effects literature as well as government agency reviews on lead toxicity. Concern about BLLs in this range is strongly supported by the scientific evidence.

In order to prevent chronic BLLs at or above 5 to 10 µg/dL, air lead levels in the workplace must not exceed an 8-hour time-weighted average concentration of 0.5 – 2.1 micrograms lead per cubic meter of air (µg/m^3). At a PEL of 0.5 µg/m^3, 95% of workers would have a BLL less than 5 µg/dL over a 40-year working lifetime. At a PEL of 2.1 µg/m^3, 95% of workers would have a BLL less than 10 µg/dL and 57% would have a BLL less than 5 µg/dL over their working lifetime.

Background

In the preamble to the final general industry lead standard, Federal OSHA described in detail the process it used to establish the 1978 PEL for lead. Federal OSHA first determined BLLs associated with adverse effects and then correlated those BLLs with airborne concentrations of lead using pharmacokinetic modeling. OLPPP followed a similar approach to Federal OSHA in deriving its recommended health-based PEL for lead in the workplace.

In choosing the appropriate BLL basis for its 1978 PEL, Federal OSHA addressed consideration of subclinical effects, incorporation of an appropriate margin of safety, and protection of susceptible groups. OSHA concluded, "OSHA must promulgate a standard which prevents occupational disease resulting from both acute and prolonged or chronic exposure to lead in order to guard against the onset, progression, and severity of chronic degenerative diseases of aging workers. The degree of protection to be provided must extend over the full span of working life and must cover the more susceptible, as well as the more robust, members of the exposed group." OSHA further states, "Simply to prevent overt manifestations of disease is not sufficient to prevent material impairment of health for the period of a working life since many of the disorders associated with lead are either irreversible (neurological disease and reproductive effects) or are only manifested when severe damage has occurred (kidney). Rather the PEL must seek to prevent the earliest indications or onset of disease and to the degree feasible establish a safety margin to allow for the remaining years of exposure."[1]

OLPPP agrees with Federal OSHA's conclusion that early and subclinical effects must be considered in establishing a PEL, and that the PEL must provide some margin of safety to ensure that more susceptible members of the working population will be protected over their working lifetimes. The recommendations in this letter reflect these considerations.

Health effects

In 1978, Federal OSHA concluded that the health effects data indicated that BLLs should be maintained below 40 µg/dL, although they acknowledged that feasibility constraints limited their ability to completely achieve that goal. In the intervening decades, a large body of evidence has been amassed that demonstrates adverse health effects at much lower BLLs in adults, as well as the importance of limiting cumulative dose to prevent chronic health effects.

In March 2007, Environmental Health Perspectives (EHP) published a mini monograph on lead. One of the articles in the monograph[2], co-authored by OLPPP staff, provided guidance to clinicians and the public health community on the medical management of adult lead exposure in light of recent research on health effects at low to moderate levels of lead. The guidance focused on four adverse health effects including hypertension, decrement in kidney function, cognitive dysfunction, and adverse reproductive outcome. The authors concluded that there is a risk of hypertension, kidney dysfunction, and reduced birth weight at BLLs 10 µg/dL or greater over an extended period of time. At this BLL they also found evidence of possible subclinical neurocognitive effects and possible postnatal developmental delay and spontaneous abortion.

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[1] Federal Register, Volume 43, Number 225 – Tuesday, November 21, 1978, page 54413

[2] Kosnett MJ, Wedeen RP, Rothenberg SJ, Hipkins KL, Materna BL, Schwartz BS, Hu H, Woolf A. (2007). Recommendations for Medical Management of Adult Lead Exposure. Environmental Health Perspect, 115(3):463-471. Available at: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1849937/

The EHP article is the basis of OLPPP's 2009 lead medical guidelines[3] for clinicians and our recommendation to employers and workers that BLLs be maintained below 10 µg/dL and below 5 µg/dL for pregnant women or women planning a pregnancy.[4,5]

Lead has also been the subject of in-depth reviews by the Agency for Toxic Substances and Disease Registry (ATSDR) [6], US Environmental Protection Agency (EPA)[7], and the National Toxicology Program (NTP) [8] of the voluminous scientific literature on health effects at lower levels.

The 2013 US EPA report concluded that, within the range of relevant lead pollutant exposure or dose levels, there is a "causal relationship" between lead exposure and hypertension, coronary heart disease, hematologic effects, and decrements in male reproductive function. At these same exposure or dose levels, they concluded that there is a "likely causal relationship" between cognitive function decrement, psychopathological effects, immune system effects, and cancer.

The 2012 NTP report concluded that there is sufficient evidence that BLLs below 10 µg/dL are associated with increased blood pressure, risk of hypertension, and increased incidence of essential tremor. The authors further concluded that there is sufficient evidence that BLLs lower than 5 µg/dL are associated with decreased glomerular filtration rate and reduced fetal growth. At the same time the report acknowledges that "...health effects in adults today may have been influenced by blood Pb [lead] levels >10 µg/dL that many individuals experienced earlier in life" and that "...the role of early-life Pb [lead] exposure cannot be discriminated from the role of concurrent blood lead without additional long-term studies."[9]

While some scientists have questioned low-level lead effects on kidney function because of inconsistency in the epidemiological data, lack of an identified nephrotoxic mechanism at low doses, and questions about reverse causality[10,11,12], there is general consensus that the epidemiological and toxicological data for cardiovascular and neurocognitive effects is consistent and strong.

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[3] OLPPP Medical Guidelines for the Lead-Exposed Worker, CDPH, 2009. Available at: http://www.cdph.ca.gov/programs/olppp/Documents/medgdln.pdf
[4] Employer Alert – Low levels of lead dangerous, CDPH, 2011. Available at: http://www.cdph.ca.gov/programs/olppp/Documents/EmployerAlert.pdf
[5] New Health Dangers from Lead, CDPH, 2010. Available at: http://www.cdph.ca.gov/programs/olppp/Documents/LeadHazAlert.pdf
[6] Agency for Toxic Substances and Disease Registry (2007) Toxicological Profile for Lead. Available at: http://www.atsdr.cdc.gov/toxprofiles/tp.asp?id=96&tid=22
[7] U.S. Environmental Protection Agency (2013). Integrated Scientific Assessment for Lead (EPA/600/R-10/075F). Research Triangle Part, NC: US EPA. Available at: http://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=255721#Download
[8] NTP (2012). Monograph on Health Effects of Low Level Lead. Available at http://ntp.niehs.nih.gov/?objectid=4F04B8EA-B187-9EF2-9F9413C68E76458E
[9] *Ibid.*, page xvii
[10] Clean Air Scientific Advisory Committee (CASC) review of the EPA's Integrated Science Assessment for Lead (Second External Review Draft – February 2012)
[11] Evans, M and Elinder, CG. (2011). Chronic renal failure from lead: myth or evidence-based fact? Kidney International 79, 272-279
[12] U.S. Environmental Protection Agency, *op. cit.*

No threshold for the health effects of lead has been identified. Ongoing research continues to reveal health effects at lower and lower levels. Future long-term studies of individuals with lifetime BLLs below 10 µg/dL, and even below 5 µg/dL, may produce conclusive evidence of adverse health effects at these levels. Future studies may also address remaining questions about low-level renal effects.

OLPPP has determined that at the present time definite conclusions cannot be drawn regarding the risk of adverse health effects in an adult population whose BLLs *never* exceed 10 µg/dL. However, increased blood pressure and effects on other cardiovascular endpoints have been observed in multiple, high-quality studies in adults with years to decades of blood lead concentrations across a range of 10 to 25 µg/dL.[13] Although the evidence is somewhat less extensive, neurodegenerative effects have been observed in adults with the same long-term chronic exposure. The epidemiological evidence is supported by the existence of toxicological studies that demonstrate modes of action for these adverse effects at the human dose associated with these blood lead concentrations.

A PEL that maintains worker BLLs *below* 10 µg/dL over a working lifetime would significantly reduce the risk of lead-related cardiovascular and neurodegenerative effects for most workers. However, as 10 µg/dL is still within the range where health effects have been observed, it does not provide a margin of safety for more susceptible individuals. A more health protective approach would maintain BLLs below 5 µg/dL.

Reproductive effects

Kosnett et al. concluded that at BLLs 10 µg/dL or greater there is increased risk of reduced birth weight and at levels 5 µg/dL or greater there is limited evidence of spontaneous abortion and postnatal developmental delay. More recently, NTP concluded that maternal blood lead levels below 5 µg/dL are associated with reduced fetal growth. OLPPP is aware that a PEL of 0.5 – 2.1 µg/m^3 is not sufficient to protect pregnant workers. However, the *existing* medical removal protection provisions of the standard provide for the temporary additional protection a pregnant woman, or a woman planning a pregnancy, needs. In order to ensure that women workers may avail themselves of this protection, OLPPP recommends that the standard explicitly state that medical removal protection benefits apply to a woman who is pregnant or planning a pregnancy.

Air lead/blood lead relationship

In order to identify a limit on the amount of lead in air workers breathe, it is necessary to determine the relationship between airborne lead levels over a working lifetime (40 years) and BLLs resulting in adverse health effects (as low as 5 to 10 µg/dL). No empirical data or studies of workers exist on this relationship for the BLLs and timeframe of interest (40 years). Human studies of the relationship between air lead concentrations and blood lead at airborne lead concentrations less than 5 µg/m^3 exist, but have been confined to children exposed to ambient lead over the course of an entire day for months to years at a time.[14] Consequently, a mathematical model that takes into account lead exposure, absorption, transport, and metabolism must be used to predict this relationship. The existing lead PEL was derived from

[13] Kosnett et al., *op. cit.*
[14] U.S. Environmental Protection Agency (2013), *op. cit.*

pharmacokinetic modeling of correlations between air lead levels and corresponding BLLs. Since Federal OSHA established the PEL in 1978, multiple pharmacokinetic models have been developed, each with certain advantages and limitations for predicting occupational blood lead-air lead relationships.

OLPPP contracted with the Office of Environmental Health Hazard Assessment (OEHHA) to evaluate the available pharmacokinetic models for lead, select the best model for predicting worker exposure, and, using the selected model, estimate the concentrations of lead in air that would result in blood lead concentrations of interest over a 40-year working lifetime. Please see the enclosed summaries of OEHHA's report for additional details.

Five outside peer reviewers, selected for their knowledge of the complex pharmacokinetics of lead and expertise in lead pharmacokinetic modeling, reviewed the OEHHA report. Two of the reviewers played a role in Federal OSHA's development of the original 1978 standard. Reviewers were given specific questions about the selection and implementation of the model but were also invited to offer any other comments they felt relevant. OEHHA revised the report in response to reviewers' comments and a second draft was again submitted to the reviewers for comment. The final revision was reviewed internally by OEHHA management before being submitted to OLPPP. Based on the extensive internal and external review of the document, OLPPP is confident that the modeling produced by OEHHA is scientifically sound.

Based on the results of OEHHA's modeling, to maintain BLLs below 5 µg/dL in 95% of workers over a 40-year working lifetime, the 8-hour time-weighted-average (TWA) airborne lead concentration must not exceed 0.5 $\mu g/m^3$. To maintain BLLs below 10 µg/dL in 95% of workers, the 8-hour TWA airborne air lead concentration must not exceed 2.1 $\mu g/m^3$. It is also important to note that OEHHA's modeling shows that at these air lead concentrations, BLLs climb rapidly during the first year of workplace exposure and continue to climb at a much slower rate thereafter. While the BLL may not be increasing substantially after the first year, there is a significant increase in bone lead levels. This lead in the bone is slowly released into the blood over a worker's lifetime.

Conclusion

The available scientific evidence demonstrates that adverse health effects begin to emerge with chronic blood lead levels at 10 µg/dL and possibly even at lower levels. OEHHA modeling shows that, in order to maintain BLLs 10 µg/dL or lower over a working lifetime in 95% of workers, the air concentration of lead must not exceed an 8-hour TWA of 2.1 $\mu g/m^3$. However, a PEL of 2.1 $\mu g/m^3$ would not provide a margin of safety for more susceptible individuals. A more health protective PEL of 0.5 $\mu g/m^3$ (8-hour TWA) would maintain BLLs 5 µg/dL or lower in 95% of workers.

OLPPP recognizes that Cal/OSHA must consider technical and economic feasibility in addition to health information in establishing exposure standards. To assist Cal/OSHA in the assessment of feasibility, OLPPP's Occupational Blood Lead Registry can provide data on the distribution of worker BLLs by industry in California. These data can give Cal/OSHA information on the impact of a revised PEL on various industry sectors.

We look forward to continued collaboration with Cal/OSHA in revising the occupational lead standards. For questions about our recommendations, please contact Barbara Materna, PhD, CIH, Chief, Occupational Health Branch. She may be reached at (510) 620-5730.

Sincerely,

Kathleen J. Billingsley, RN
Chief Deputy Director of Policy and Programs

Encl.

cc: Barbara Materna, PhD, CIH, Chief
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850 Marina Bay Parkway, Bldg P, Third Floor
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Deborah Gold, MPH, CIH
Deputy Chief for Health and Technical Services
Division of Occupational Safety and Health
California Department of Industrial Relations
1515 Clay Street Suite 1901
Oakland, CA 94612

Occupational Safety and Health Standards Board

Business Meeting

Occupational Safety and Health Standards Board

Business Meeting

Proposed Variance Decisions

CONSENT CALENDAR—PROPOSED VARIANCE DECISIONS
APRIL 20, 2023 MONTHLY BUSINESS MEETING
OF THE OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

PROPOSED DECISIONS FOR BOARD CONSIDERATION, HEARD ON MARCH 22, 2023

Docket Number	Applicant Name	Safety Order(s) at Issue	Proposed Decision Recommendation
1. 13-V-249M1	Chevron Products Company	Elevator	GRANT
2. 16-V-212M1	CLPF Artist Walk LP	Elevator	GRANT
3. 16-V-213M1	CLPF Artist Walk LP	Elevator	GRANT
4. 16-V-214M1	CLPF Artist Walk LP	Elevator	GRANT
5. 16-V-215M1	CLPF Artist Walk LP	Elevator	GRANT
6. 18-V-325M1	Camino 23, L.P.	Elevator	GRANT
7. 20-V-355M1	8811 Sepulveda L.P.	Elevator	GRANT
8. 21-V-210M1	Gateway Millbrae Office, LLC	Elevator	GRANT
9. 22-V-142M1	MPK Menlo Park Properties, LLC	Elevator	GRANT
10. 22-V-230M1	Core Berkeley Bancroft LLC	Elevator	GRANT
11. 22-V-632	ARE/CAL-SD Region No. 62, LLC	Elevator	GRANT
12. 22-V-675	SFIII Reframe, LLC	Elevator	GRANT
13. 23-V-002	TP Heritage Inn of Pleasanton, LLC	Elevator	GRANT
14. 23-V-003	Gelastopoulos Trust	Elevator	GRANT
15. 23-V-004	1557 Orange Grove Apartments LLC	Elevator	GRANT
16. 23-V-005	Lodi Hospitality II, LLC	Elevator	GRANT
17. 23-V-006	NDD on Washington, St., LLC	Elevator	GRANT
18. 23-V-007	SIOF 3 Properties, LLC	Elevator	GRANT
19. 23-V-008	Central 180 LLC	Elevator	GRANT
20. 23-V-009	Central 180 LLC	Elevator	GRANT
21. 23-V-010	Mercy Housing California 82, L.P.	Elevator	GRANT

Docket Number	Applicant Name	Safety Order(s) at Issue	Proposed Decision Recommendation
22. 23-V-011	Ancora, L.P.	Elevator	GRANT
23. 23-V-012	Georgia Modern, LLC	Elevator	GRANT
24. 23-V-013	Woaraputt LLC	Elevator	GRANT
25. 23-V-014	Intuitive Surgical, Inc.	Elevator	GRANT
26. 23-V-015	City of Pacifica City Hall	Elevator	GRANT
27. 23-V-016	Siesta Senior Apartments, LP	Elevator	GRANT
28. 23-V-017	City of Santa Rosa	Elevator	GRANT
29. 23-V-018	Intuitive Surgical, Inc.	Elevator	GRANT
30. 23-V-019	Bascom Station Residential LLC, a Delaware LLC	Elevator	GRANT
31. 23-V-020	College for Certain LLC	Elevator	GRANT
32. 23-V-021	Walmart Fulfillment Services, LLC	Elevator	GRANT
33. 23-V-022	150 Healthy Way Investor, LP	Elevator	GRANT
34. 23-V-023	W-SW WBLS East Owner IX, L.P. W-SW WBLS West Owner IX, L.P.	Elevator	GRANT
35. 23-V-025	Glendale Studio I Owner, LLC	Elevator	GRANT
36. 23-V-026	2 SIOF 10811 S. Compton Ave, LLC	Elevator	GRANT
37. 23-V-027	Los Angeles World Airports	Elevator	GRANT
38. 23-V-028	WEK Hunter LLC	Elevator	GRANT
39. 23-V-029	Maderas CC, LP	Elevator	GRANT
40. 23-V-030	Southside LA Housing Partners, LP	Elevator	GRANT
41. 23-V-031	City of Indio	Elevator	GRANT

Docket Number	Applicant Name	Safety Order(s) at Issue	Proposed Decision Recommendation
42. 23-V-032	Mainline North 701 L.P.	Elevator	GRANT
43. 23-V-033	Greenbrier Village LP	Elevator	GRANT
44. 23-V-034	SRM Development	Elevator	GRANT
45. 23-V-035	Merge 56 Affordable, LP	Elevator	GRANT
46. 23-V-036	Hartsook Ownership LLC	Elevator	GRANT
47. 23-V-037	CY Pittsburg Investors LLC	Elevator	GRANT
48. 23-V-038	Contra Costa County	Elevator	GRANT
49. 23-V-039	SJN Hospitality, LLC	Elevator	GRANT
50. 23-V-040	RC Commercial Holdings, LLC.	Elevator	GRANT
51. 23-V-041	Saint Rest Baptist Church	Elevator	GRANT
52. 23-V-043	Mercy Housing California 99, L.P.	Elevator	GRANT
53. 23-V-044	HCP Forbes, LLC	Elevator	GRANT
54. 23-V-045	HCP Forbes, LLC	Elevator	GRANT
55. 23-V-046	Disney Vacation Development, Inc.	Elevator	GRANT
56. 23-V-047	Commune Porter Mar Vista, LLC	Elevator	GRANT
57. 23-V-048	BRE-BMR Chiron Lot LP	Elevator	GRANT
58. 23-V-049	BRE-BMR 4563 Horton LP	Elevator	GRANT
59. 23-V-050	Avalon 1355 Partners, LP	Elevator	GRANT
60. 23-V-051	TGC Moreno, LLC	Elevator	GRANT
61. 23-V-052	TGC Bellflower, LLC	Elevator	GRANT
62. 23-V-053	S.R. Palms Properties LLC	Elevator	GRANT
63. 23-V-054	Burbank Boyz II, LLC	Elevator	GRANT
64. 23-V-055	ARE-230 Adrian Road LLC	Elevator	GRANT
65. 23-V-056	Millbrae Partners LLC	Elevator	GRANT

Docket Number	Applicant Name	Safety Order(s) at Issue	Proposed Decision Recommendation
66. 23-V-057	Regents of the University of California	Elevator	GRANT
67. 23-V-058	Regents of the University of California	Elevator	GRANT
68. 23-V-059	Beech Street Housing Associates, L.P.	Elevator	GRANT
69. 23-V-060	Regents of the University of California	Elevator	GRANT
70. 23-V-061	3710 Dunn Venture, LLC	Elevator	GRANT
71. 23-V-062	Forever Green Investment, LLC	Elevator	GRANT
72. 23-V-063	Forever Green Investment, LLC	Elevator	GRANT
73. 23-V-064	Lake House LP	Elevator	GRANT
74. 23-V-065	The Salvation Army	Elevator	GRANT
75. 23-V-066	Regents of the University of California	Elevator	GRANT
76. 23-V-067	8377 Blackburn Owner LLC	Elevator	GRANT
77. 23-V-068	Mammoth Hotel Associates, LLC	Elevator	GRANT

STATE OF CALIFORNIA
DEPARTMENT OF INDUSTRIAL RELATIONS
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
2520 Venture Oaks Way, Suite 350
Sacramento, California 95833
(916) 274-5721

In the Matter of Application to Modify Permanent Variance by:

Chevron Products Company

OSHSB File No.: 13-V-249M1
1st Amended Proposed Decision
Dated: April 4, 2023

DECISION

The Occupational Safety and Health Standards Board hereby adopts the attached PROPOSED DECISION by Autumn Gonzalez, Hearing Officer.

_____
DAVID THOMAS, Chairman

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BARBARA BURGEL, Member

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KATHLEEN CRAWFORD, Member

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DAVID HARRISON, Member

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NOLA KENNEDY, Member

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CHRIS LASZCZ-DAVIS, Member

_____
LAURA STOCK, Member

OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

Date of Adoption: April 20, 2023

THE FOREGOING VARIANCE DECISION WAS ADOPTED ON THE DATE INDICATED ABOVE. IF YOU ARE DISSATISFIED WITH THE DECISION, A PETITION FOR REHEARING MAY BE FILED BY ANY PARTY WITH THE STANDARDS BOARD WITHIN TWENTY (20) DAYS AFTER SERVICE OF THE DECISION. YOUR PETITION FOR REHEARING MUST FULLY COMPLY WITH THE REQUIREMENTS OF CALIFORNIA CODE OF REGULATIONS, TITLE 8, SECTIONS 427, 427.1 AND 427.2.

Note: A copy of this Decision must be posted for the Applicant's employees to read, and/or a copy thereof must be provided to the employees' Authorized Representatives.

BEFORE THE
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
DEPARTMENT OF INDUSTRIAL RELATIONS
STATE OF CALIFORNIA

In the Matter of Application to Modify Permanent Variance by: Chevron Products Company	OSHSB File No: 13-V-249M1 1st AMENDED PROPOSED DECISION Hearing Date: March 22, 2023

A. Procedural Matters

1. The above named person or entity ("Applicant") has applied for a modification of permanent variance from provisions of the Elevator Safety Orders, found at title 8 of the California Code of Regulations. The subject permanent variance file, and preexisting variance holder of record therein, are as follows:

Preexisting OSHSB File Number	Preexisting Variance Holder of Record
13-V-249	Chevron Products Company

2. This proceeding is conducted in accordance with Labor Code section 143, and California Code of Regulations, title 8, section 401, et. seq.[1]

3. Applicant requests a permanent variance modification to replace the manufacturer and model designation of the rack & pinion SPPE specified within Permanent Variance Decision and Order 13-V-249.

4. This hearing was held on March 22, 2023, in Sacramento, California, via teleconference, by Occupational Safety and Health Standards Board ("Board"), with Hearing Officer Autumn Gonzalez, both presiding and hearing the matter on its merit, as a basis of proposed decision to be advanced to the Board for its consideration, in accordance with section 426.

5. At the hearing, Matt Singleton, with Century Elevators Inc., appeared on behalf of the Applicant; Dave Morris and Mark Wickens appeared on behalf of the Division of Occupational Safety and Health ("Division"), and Maryrose Chan appeared on behalf of Board staff, in a technical advisory role apart from the Board.

6. Oral evidence was received at the hearing, and by stipulation of all parties, documents were admitted into evidence:

[1] Unless otherwise noted, all references are to California Code of Regulations, title 8.

Exhibit Number	Description of Exhibit
PD-1	Permanent variance modification application per section A.1 table
PD-2	OSHSB Notice of Hearing
PD-3	Division Review of Variance Modification Application
PD-4	Board Staff Review of Variance ModificationApplication
PD-5	Review Draft-1 Proposed Decision

B. Applicable Regulation

1. Section 3141 [ASME A17.1-2004, Section 5.7.12.2] states:

> **5.7.12.2 Limitation of Load, Speed, and Platform Area.** The rated load shall not exceed 454 kg (1,000 lb). The inside net platform area shall not exceed 1.208 m^2 (13 ft^2). The minimum rated load shall not be less than that based on 3.35 kPa (70 lbf/ft^2) of inside net platform area or 113 kg (250 lb), whichever is greater. The rated speed shall not exceed 0.76 m/s (150 ft/min).

2. The intent of this code requirement is to provide a platform of sufficient strength, and to limit the use of the elevator to the transporting of maintenance personnel and their tools and equipment by limiting the platform size. The limiting of the net platform area also provides protection from the overloading of the elevator.

3. Section 3141 [ASME A17.1-2004, Sections 8.2.1] states, in part:

> **8.2.1 Minimum Rated Load for Passenger Elevators**
> The following formulas shall be used for determining the minimum rated load of passenger elevators (see also 2.16.1).
> **8.2.1.1,** For an elevator having an inside net platform area of not more than 4.65 m^2 (50 ft^2)
> *(SI Units)*
> $W = 35A^2 + 325A$
> *(Imperial Units)*
> $W = 0.667A^2 + 66.7A$
> Where:
> A = inside net platform area, m^2 (ft^2) as specified in Fig. 8.2.1.2
> W = minimum rated load, kg (lb)

In accordance with ASME A17.1-2004, section 8.2.1 an elevator with a platform area of 2.16 m^2 (23.2 ft^2) shall have a minimum rated capacity of 865 kg (1,907 lbs.) translating into a minimum platform loading of 3.934 kPa (82.17 lbf/ft^2). The "PEGA"® SPPE Class A platform loading of 5.08 kPa (106 lbf/ft^2) exceeds the minimum requirements of the Elevator Safety Orders (ESO).

C. Findings of Fact

1. The proposed platform is designed and constructed to support 907 kg (2,000 pounds), with a net inside area of approximately 2.16 m^2 (23.2 ft^2). The Applicant has provided technical data, specific to the "PEGA"® "PEGA"CE-1118-TD-VFC-EX SPPE, indicating a Class A platform loading of 5.08 kPa (106 lbf/ft^2), exceeding the minimum loading requirement of 3.35 kPa (70 lbf/ft^2).

2. The new "PEGA"® SPPE is equipped with a load detection system which will prevent the operation of the SPPE if the rated load is exceeded.

3. As SPPE's were not intended to have platforms in excess of 1.208 m^2 (13 ft^2), the proposed PEGA® SPPE platform loading is in conformance with the requirements of ASME A17.1-2004, section 8.2.1.

4. The use of the "PEGA"® CE-1118-TD-VFC-EX with a capacity of 907 kg (2000 pounds), in conjunction with a platform having a net inside area of 2.26 m^2 (23.2 ft^2) as proposed by the Applicant, along with the recommended conditions, provides equivalent safety.

D. Conclusive Findings

1. A preponderance of the evidence establishes that Applicant's proposal, subject to all conditions and limitations set forth in the below Decision and Order, will provide equivalent safety and health to that which would prevail upon full compliance with the requirements of the Elevator Safety Orders from which variance is being sought.

E. Decision and Order

1. The "PEGA"® CE-1118-TD-VFC-EX rack and pinion Special Purpose Personnel Elevator shall comply with all the requirements section 3141 [ASME A17.1-2004, Section 5.7, except Section 5.7.12.2] of the Elevator Safety Orders.

2. The inside net platform area and rated load shall be not more than 2.23 m^2 (24 ft^2) and 907 kg (2,000 lb), respectively.

3. This elevator shall be used only to transport authorized personnel and their tools and equipment, as specified in the definition of "Elevator, Special Purpose Personnel" contained in ASME A17.1-2004, Section 1.3 and as specified in ASME A17.1-2004, Section 5.7. This elevator shall not be used to transport freight.

4. Durable signs, with lettering not less than one inch high on a contrasting background, shall be permanently and conspicuously posted next to the lower landing elevator call station and near the car's control panel. Each sign shall read:

CAUTION

FREIGHT IS STRICTLY PROHIBITED.

THIS ELEVATOR IS FOR AUTHORIZED PERSONNEL AND THEIR TOOLS AND EQUIPMENT ONLY

5. Any Certified Qualified Conveyance Company (CQCC-elevator contractor) performing inspections, maintenance, servicing, or testing the elevators shall be provided a copy of this variance decision.

6. A load detection system shall be installed which will prevent the operation of the SPPE if the rated load is exceeded.

7. The Division shall be notified when the elevator is ready for inspection. The elevator shall be inspected by the Division, and all applicable requirements met, including conditions of this permanent variance, prior to a *Permit to Operate* the elevator being issued. The elevator shall not be placed in service prior to the Permit to Operate being issued by Division.

8. The Applicant shall notify its employees or their authorized representative(s), or both, of this order in the same way and to the same extent that employees and authorized representatives are to be notified of docketed permanent variance applications pursuant to sections 411.2, and 411.3.

9. This Decision and Order shall remain in effect unless modified or revoked upon application by the Applicant, affected employee(s), the Division, or by the Board on its own motion, in the manner prescribed for its issuance.

Pursuant to section 426(b), the above, duly completed Proposed Decision, is hereby submitted to the Occupational Safety and Health Standards Board for consideration of adoption.

DATED: April 4, 2023

_____
Autumn Gonzalez, Hearing Officer

STATE OF CALIFORNIA
DEPARTMENT OF INDUSTRIAL RELATIONS
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
2520 Venture Oaks Way, Suite 350
Sacramento, California 95833
(916) 274-5721

In the Matter of Application to Modify Permanent Variance by:

CLPF Artist Walk LP

OSHSB File No.: 16-V-212M1
Proposed Decision Dated: March 28, 2023

DECISION

The Occupational Safety and Health Standards Board hereby adopts the attached PROPOSED DECISION by Autumn Gonzalez, Hearing Officer.

_____
DAVID THOMAS, Chairman

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BARBARA BURGEL, Member

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KATHLEEN CRAWFORD, Member

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DAVID HARRISON, Member

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NOLA KENNEDY, Member

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CHRIS LASZCZ-DAVIS, Member

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LAURA STOCK, Member

OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

Date of Adoption: April 20, 2023

THE FOREGOING VARIANCE DECISION WAS ADOPTED ON THE DATE INDICATED ABOVE. IF YOU ARE DISSATISFIED WITH THE DECISION, A PETITION FOR REHEARING MAY BE FILED BY ANY PARTY WITH THE STANDARDS BOARD WITHIN TWENTY (20) DAYS AFTER SERVICE OF THE DECISION. YOUR PETITION FOR REHEARING MUST FULLY COMPLY WITH THE REQUIREMENTS OF CALIFORNIA CODE OF REGULATIONS, TITLE 8, SECTIONS 427, 427.1 AND 427.2.

Note: A copy of this Decision must be posted for the Applicant's employees to read, and/or a copy thereof must be provided to the employees' Authorized Representatives.

BEFORE THE
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
DEPARTMENT OF INDUSTRIAL RELATIONS
STATE OF CALIFORNIA

In the Matter of Application to Modify Permanent Variance by: CLPF Artist Walk LP	OSHSB File No.: 16-V-212M1 PROPOSED DECISION Hearing Date: March 22, 2023

A. Subject Matter and Jurisdiction:

1. The above named person or entity ("Applicant") has applied for a modification of permanent variance from provisions of the Elevator Safety Orders, found at title 8 of the California Code of Regulations. The subject permanent variance file, and preexisting variance holder of record therein, are as follows:

Preexisting OSHSB File No.	Preexisting Variance Holder of Record
16-V-212	Artist Walk Fremont, LLC

B. This proceeding is conducted in accordance with Labor Code section 143, and California Code of Regulations, title 8, section 401, et. seq.

C. Procedural Matters:

1. This hearing was held on March 22, 2023, in Sacramento, California, via teleconference, by Occupational Safety and Health Standards Board ("Board"), with Hearing Officer Autumn Gonzalez, both presiding and hearing the matter on its merit, as a basis of proposed decision to be advanced to the Board for its consideration, in accordance with California Code of Regulations, title 8, section 426.

2. At the hearing, Gustavo Fernandez, appeared on behalf of the Applicant; Mark Wickens and David Morris appeared on behalf of the Division of Occupational Safety and Health ("Division"); and Michael Nelmida appeared on behalf of Board staff, in a technical advisory role apart from the Board.

3. Documentary and oral evidence was received at the hearing, and by stipulation of all parties, documents were admitted into evidence:

Exhibit Number	Description of Exhibit
PD-1	Application for modification of Permanent Variance
PD-2	OSHSB Notice of Hearing
PD-3	Board Staff Review of Variance Application
PD-4	Division Review of Variance Application
PD-5	Review Draft-1 Proposed Decision

Official notice is taken of the Board's files, records, recordings and decisions concerning the Elevator Safety Order requirements from which variance shall issue. On March 22, 2023, the hearing and record closed, and the matter was taken under submission by the Hearing Officer.

D. Based on the record of this hearing, the Board makes the following findings of fact:

1. The Applicant requests modification of the variance holder specified within Board records for each elevator the subject of previously granted Permanent Variance No. 16-V-212.

2. Application Section 3, declared to be wholly truthful under penalty of perjury by Application signatory, states that the person or entity named in Application Section 1, CLPF Artist Walk LP, became the owner of the conveyance(s) subject to the existing variance referenced in Application Section 2, as the term conveyance owner is defined per California Code of Regulations, title 8, section 403(o).

3. The Division has evaluated the request for modification of person or entity of record holding Permanent Variance No. 16-V-212, finds no issue with it, and recommends that the application for modification be granted subject to the same conditions of the Decision and Order in OSHSB Permanent Variance File No. 16-V-212.

4. The Board finds the Application Section 3, declaratory statements of the Applicant signatory to be credible, uncontroverted, and consistent with available, sufficient facts, and of no bearing as to the finding of equivalent occupational health and safety upon which, in substantial part, grant of preexisting Permanent Variance No. 16-V-212 based.

5. The Board finds the current person or entity having custody of each elevator the subject of Permanent Variance No. 16-V-212 to be in fact:

CLPF Artist Walk LP

E. <u>Decision and Order:</u>

1. Variance application 16-V-212M1 is conditionally GRANTED, as specified below, such that, within Board records, the person or entity holding Permanent Variance No. 16-V-212 and Permanent Variance No. 16-V-212M1, shall be:

2. Permanent Variance No. 16-V-212 being only modified as specified in above Decision and Order section 1, is otherwise unchanged and remaining in full force and effect, as hereby incorporated by reference into this Decision and Order of Permanent Variance No. 16-V-212M1.

Pursuant to California Code of Regulations, title 8, section 426(b), the above, duly completed Proposed Decision, is hereby submitted to the Occupational Safety and Health Standards Board for consideration of adoption.

Dated: March 28, 2023

Autumn Gonzalez, Hearing Officer

STATE OF CALIFORNIA
DEPARTMENT OF INDUSTRIAL RELATIONS
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
2520 Venture Oaks Way, Suite 350
Sacramento, California 95833
(916) 274-5721

In the Matter of Application to Modify Permanent Variance by:

CLPF Artist Walk LP

OSHSB File No.: 16-V-213M1
Proposed Decision Dated: March 28, 2023

DECISION

The Occupational Safety and Health Standards Board hereby adopts the attached PROPOSED DECISION by Autumn Gonzalez, Hearing Officer.

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DAVID THOMAS, Chairman

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BARBARA BURGEL, Member

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KATHLEEN CRAWFORD, Member

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DAVID HARRISON, Member

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NOLA KENNEDY, Member

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CHRIS LASZCZ-DAVIS, Member

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LAURA STOCK, Member

OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

Date of Adoption: April 20, 2023

THE FOREGOING VARIANCE DECISION WAS ADOPTED ON THE DATE INDICATED ABOVE. IF YOU ARE DISSATISFIED WITH THE DECISION, A PETITION FOR REHEARING MAY BE FILED BY ANY PARTY WITH THE STANDARDS BOARD WITHIN TWENTY (20) DAYS AFTER SERVICE OF THE DECISION. YOUR PETITION FOR REHEARING MUST FULLY COMPLY WITH THE REQUIREMENTS OF CALIFORNIA CODE OF REGULATIONS, TITLE 8, SECTIONS 427, 427.1 AND 427.2.

Note: A copy of this Decision must be posted for the Applicant's employees to read, and/or a copy thereof must be provided to the employees' Authorized Representatives.

BEFORE THE
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
DEPARTMENT OF INDUSTRIAL RELATIONS
STATE OF CALIFORNIA

In the Matter of Application to Modify Permanent Variance by: CLPF Artist Walk LP	OSHSB File No.: 16-V-213M1 PROPOSED DECISION Hearing Date: March 22, 2023

A. Subject Matter and Jurisdiction:

1. The above named person or entity ("Applicant") has applied for a modification of permanent variance from provisions of the Elevator Safety Orders, found at title 8 of the California Code of Regulations. The subject permanent variance file, and preexisting variance holder of record therein, are as follows:

Preexisting OSHSB File No.	Preexisting Variance Holder of Record
16-V-213	Artist Walk Fremont, LLC

B. This proceeding is conducted in accordance with Labor Code section 143, and California Code of Regulations, title 8, section 401, et. seq.

C. Procedural Matters:

1. This hearing was held on March 22, 2023, in Sacramento, California, via teleconference, by Occupational Safety and Health Standards Board ("Board"), with Hearing Officer Autumn Gonzalez, both presiding and hearing the matter on its merit, as a basis of proposed decision to be advanced to the Board for its consideration, in accordance with California Code of Regulations, title 8, section 426.

2. At the hearing, Gustavo Fernandez, appeared on behalf of the Applicant; Mark Wickens and David Morris appeared on behalf of the Division of Occupational Safety and Health ("Division"); and Michael Nelmida appeared on behalf of Board staff, in a technical advisory role apart from the Board.

3. Documentary and oral evidence was received at the hearing, and by stipulation of all parties, documents were admitted into evidence:

Exhibit Number	Description of Exhibit
PD-1	Application for modification of Permanent Variance
PD-2	OSHSB Notice of Hearing
PD-3	Board Staff Review of Variance Application
PD-4	Division Review of Variance Application
PD-5	Review Draft-1 Proposed Decision

Official notice is taken of the Board's files, records, recordings and decisions concerning the Elevator Safety Order requirements from which variance shall issue. On March 22, 2023, the hearing and record closed, and the matter was taken under submission by the Hearing Officer.

D. Based on the record of this hearing, the Board makes the following findings of fact:

1. The Applicant requests modification of the variance holder specified within Board records for each elevator the subject of previously granted Permanent Variance No. 16-V-213.

2. Application Section 3, declared to be wholly truthful under penalty of perjury by Application signatory, states that the person or entity named in Application Section 1, CLPF Artist Walk LP, became the owner of the conveyance(s) subject to the existing variance referenced in Application Section 2, as the term conveyance owner is defined per California Code of Regulations, title 8, section 403(o).

3. The Division has evaluated the request for modification of person or entity of record holding Permanent Variance No. 16-V-213, finds no issue with it, and recommends that the application for modification be granted subject to the same conditions of the Decision and Order in OSHSB Permanent Variance File No. 16-V-213.

4. The Board finds the Application Section 3, declaratory statements of the Applicant signatory to be credible, uncontroverted, and consistent with available, sufficient facts, and of no bearing as to the finding of equivalent occupational health and safety upon which, in substantial part, grant of preexisting Permanent Variance No. 16-V-213 based.

5. The Board finds the current person or entity having custody of each elevator the subject of Permanent Variance No. 16-V-213 to be in fact:

CLPF Artist Walk LP

E. <u>Decision and Order:</u>

1. Variance application 16-V-213M1 is conditionally GRANTED, as specified below, such that, within Board records, the person or entity holding Permanent Variance No. 16-V-213 and Permanent Variance No. 16-V-213M1, shall be:

2. Permanent Variance No. 16-V-213 being only modified as specified in above Decision and Order section 1, is otherwise unchanged and remaining in full force and effect, as hereby incorporated by reference into this Decision and Order of Permanent Variance No. 16-V-213M1.

Pursuant to California Code of Regulations, title 8, section 426(b), the above, duly completed Proposed Decision, is hereby submitted to the Occupational Safety and Health Standards Board for consideration of adoption.

Dated: March 28, 2023

Autumn Gonzalez, Hearing Officer

STATE OF CALIFORNIA
DEPARTMENT OF INDUSTRIAL RELATIONS
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
2520 Venture Oaks Way, Suite 350
Sacramento, California 95833
(916) 274-5721

In the Matter of Application to Modify Permanent Variance by:

CLPF Artist Walk LP

OSHSB File No.: 16-V-214M1
Proposed Decision Dated: March 28, 2023

DECISION

The Occupational Safety and Health Standards Board hereby adopts the attached PROPOSED DECISION by Autumn Gonzalez, Hearing Officer.

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DAVID THOMAS, Chairman

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BARBARA BURGEL, Member

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KATHLEEN CRAWFORD, Member

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DAVID HARRISON, Member

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NOLA KENNEDY, Member

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CHRIS LASZCZ-DAVIS, Member

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LAURA STOCK, Member

OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

Date of Adoption: April 20, 2023

THE FOREGOING VARIANCE DECISION WAS ADOPTED ON THE DATE INDICATED ABOVE. IF YOU ARE DISSATISFIED WITH THE DECISION, A PETITION FOR REHEARING MAY BE FILED BY ANY PARTY WITH THE STANDARDS BOARD WITHIN TWENTY (20) DAYS AFTER SERVICE OF THE DECISION. YOUR PETITION FOR REHEARING MUST FULLY COMPLY WITH THE REQUIREMENTS OF CALIFORNIA CODE OF REGULATIONS, TITLE 8, SECTIONS 427, 427.1 AND 427.2.

Note: A copy of this Decision must be posted for the Applicant's employees to read, and/or a copy thereof must be provided to the employees' Authorized Representatives.

BEFORE THE
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
DEPARTMENT OF INDUSTRIAL RELATIONS
STATE OF CALIFORNIA

In the Matter of Application to Modify Permanent Variance by: CLPF Artist Walk LP	OSHSB File No.: 16-V-214M1 PROPOSED DECISION Hearing Date: March 22, 2023

A. Subject Matter and Jurisdiction:

1. The above named person or entity ("Applicant") has applied for a modification of permanent variance from provisions of the Elevator Safety Orders, found at title 8 of the California Code of Regulations. The subject permanent variance file, and preexisting variance holder of record therein, are as follows:

Preexisting OSHSB File No.	Preexisting Variance Holder of Record
16-V-214	Artist Walk Fremont, LLC

B. This proceeding is conducted in accordance with Labor Code section 143, and California Code of Regulations, title 8, section 401, et. seq.

C. Procedural Matters:

1. This hearing was held on March 22, 2023, in Sacramento, California, via teleconference, by Occupational Safety and Health Standards Board ("Board"), with Hearing Officer Autumn Gonzalez, both presiding and hearing the matter on its merit, as a basis of proposed decision to be advanced to the Board for its consideration, in accordance with California Code of Regulations, title 8, section 426.

2. At the hearing, Gustavo Fernandez, appeared on behalf of the Applicant; Mark Wickens and David Morris appeared on behalf of the Division of Occupational Safety and Health ("Division"); and Michael Nelmida appeared on behalf of Board staff, in a technical advisory role apart from the Board.

3. Documentary and oral evidence was received at the hearing, and by stipulation of all parties, documents were admitted into evidence:

Exhibit Number	Description of Exhibit
PD-1	Application for modification of Permanent Variance
PD-2	OSHSB Notice of Hearing
PD-3	Board Staff Review of Variance Application
PD-4	Division Review of Variance Application
PD-5	Review Draft-1 Proposed Decision

Official notice is taken of the Board's files, records, recordings and decisions concerning the Elevator Safety Order requirements from which variance shall issue. On March 22, 2023, the hearing and record closed, and the matter was taken under submission by the Hearing Officer.

D. Based on the record of this hearing, the Board makes the following findings of fact:

1. The Applicant requests modification of the variance holder specified within Board records for each elevator the subject of previously granted Permanent Variance No. 16-V-214.

2. Application Section 3, declared to be wholly truthful under penalty of perjury by Application signatory, states that the person or entity named in Application Section 1, CLPF Artist Walk LP, became the owner of the conveyance(s) subject to the existing variance referenced in Application Section 2, as the term conveyance owner is defined per California Code of Regulations, title 8, section 403(o).

3. The Division has evaluated the request for modification of person or entity of record holding Permanent Variance No. 16-V-214, finds no issue with it, and recommends that the application for modification be granted subject to the same conditions of the Decision and Order in OSHSB Permanent Variance File No. 16-V-214.

4. The Board finds the Application Section 3, declaratory statements of the Applicant signatory to be credible, uncontroverted, and consistent with available, sufficient facts, and of no bearing as to the finding of equivalent occupational health and safety upon which, in substantial part, grant of preexisting Permanent Variance No. 16-V-214 based.

5. The Board finds the current person or entity having custody of each elevator the subject of Permanent Variance No. 16-V-214 to be in fact:

CLPF Artist Walk LP

E. <u>Decision and Order:</u>

1. Variance application 16-V-214M1 is conditionally GRANTED, as specified below, such that, within Board records, the person or entity holding Permanent Variance No. 16-V-214 and Permanent Variance No. 16-V-214M1, shall be:

2. Permanent Variance No. 16-V-214 being only modified as specified in above Decision and Order section 1, is otherwise unchanged and remaining in full force and effect, as hereby incorporated by reference into this Decision and Order of Permanent Variance No. 16-V-214M1.

Pursuant to California Code of Regulations, title 8, section 426(b), the above, duly completed Proposed Decision, is hereby submitted to the Occupational Safety and Health Standards Board for consideration of adoption.

Dated: March 28, 2023

Autumn Gonzalez, Hearing Officer

STATE OF CALIFORNIA
DEPARTMENT OF INDUSTRIAL RELATIONS
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
2520 Venture Oaks Way, Suite 350
Sacramento, California 95833
(916) 274-5721

In the Matter of Application to Modify Permanent Variance by:

CLPF Artist Walk LP

OSHSB File No.: 16-V-215M1
Proposed Decision Dated: March 28, 2023

DECISION

The Occupational Safety and Health Standards Board hereby adopts the attached PROPOSED DECISION by Autumn Gonzalez, Hearing Officer.

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DAVID THOMAS, Chairman

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BARBARA BURGEL, Member

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KATHLEEN CRAWFORD, Member

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DAVID HARRISON, Member

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NOLA KENNEDY, Member

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CHRIS LASZCZ-DAVIS, Member

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LAURA STOCK, Member

OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

Date of Adoption: April 20, 2023

THE FOREGOING VARIANCE DECISION WAS ADOPTED ON THE DATE INDICATED ABOVE. IF YOU ARE DISSATISFIED WITH THE DECISION, A PETITION FOR REHEARING MAY BE FILED BY ANY PARTY WITH THE STANDARDS BOARD WITHIN TWENTY (20) DAYS AFTER SERVICE OF THE DECISION. YOUR PETITION FOR REHEARING MUST FULLY COMPLY WITH THE REQUIREMENTS OF CALIFORNIA CODE OF REGULATIONS, TITLE 8, SECTIONS 427, 427.1 AND 427.2.

Note: A copy of this Decision must be posted for the Applicant's employees to read, and/or a copy thereof must be provided to the employees' Authorized Representatives.

BEFORE THE
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
DEPARTMENT OF INDUSTRIAL RELATIONS
STATE OF CALIFORNIA

In the Matter of Application to Modify Permanent Variance by: CLPF Artist Walk LP	OSHSB File No.: 16-V-215M1 PROPOSED DECISION Hearing Date: March 22, 2023

A. Subject Matter and Jurisdiction:

1. The above named person or entity ("Applicant") has applied for a modification of permanent variance from provisions of the Elevator Safety Orders, found at title 8 of the California Code of Regulations. The subject permanent variance file, and preexisting variance holder of record therein, are as follows:

Preexisting OSHSB File No.	Preexisting Variance Holder of Record
16-V-215	Artist Walk Fremont, LLC

B. This proceeding is conducted in accordance with Labor Code section 143, and California Code of Regulations, title 8, section 401, et. seq.

C. Procedural Matters:

1. This hearing was held on March 22, 2023, in Sacramento, California, via teleconference, by Occupational Safety and Health Standards Board ("Board"), with Hearing Officer Autumn Gonzalez, both presiding and hearing the matter on its merit, as a basis of proposed decision to be advanced to the Board for its consideration, in accordance with California Code of Regulations, title 8, section 426.

2. At the hearing, Gustavo Fernandez, appeared on behalf of the Applicant; Mark Wickens and David Morris appeared on behalf of the Division of Occupational Safety and Health ("Division"); and Michael Nelmida appeared on behalf of Board staff, in a technical advisory role apart from the Board.

3. Documentary and oral evidence was received at the hearing, and by stipulation of all parties, documents were admitted into evidence:

Exhibit Number	Description of Exhibit
PD-1	Application for modification of Permanent Variance
PD-2	OSHSB Notice of Hearing
PD-3	Board Staff Review of Variance Application
PD-4	Division Review of Variance Application
PD-5	Review Draft-1 Proposed Decision

Official notice is taken of the Board's files, records, recordings and decisions concerning the Elevator Safety Order requirements from which variance shall issue. On March 22, 2023, the hearing and record closed, and the matter was taken under submission by the Hearing Officer.

D. Based on the record of this hearing, the Board makes the following findings of fact:

1. The Applicant requests modification of the variance holder specified within Board records for each elevator the subject of previously granted Permanent Variance No. 16-V-215.

2. Application Section 3, declared to be wholly truthful under penalty of perjury by Application signatory, states that the person or entity named in Application Section 1, CLPF Artist Walk LP, became the owner of the conveyance(s) subject to the existing variance referenced in Application Section 2, as the term conveyance owner is defined per California Code of Regulations, title 8, section 403(o).

3. The Division has evaluated the request for modification of person or entity of record holding Permanent Variance No. 16-V-215, finds no issue with it, and recommends that the application for modification be granted subject to the same conditions of the Decision and Order in OSHSB Permanent Variance File No. 16-V-215.

4. The Board finds the Application Section 3, declaratory statements of the Applicant signatory to be credible, uncontroverted, and consistent with available, sufficient facts, and of no bearing as to the finding of equivalent occupational health and safety upon which, in substantial part, grant of preexisting Permanent Variance No. 16-V-215 based.

5. The Board finds the current person or entity having custody of each elevator the subject of Permanent Variance No. 16-V-215 to be in fact:

CLPF Artist Walk LP

E. <u>Decision and Order:</u>

1. Variance application 16-V-215M1 is conditionally GRANTED, as specified below, such that, within Board records, the person or entity holding Permanent Variance No. 16-V-215 and Permanent Variance No. 16-V-215M1, shall be:

2. Permanent Variance No. 16-V-215 being only modified as specified in above Decision and Order section 1, is otherwise unchanged and remaining in full force and effect, as hereby incorporated by reference into this Decision and Order of Permanent Variance No. 16-V-215M1.

Pursuant to California Code of Regulations, title 8, section 426(b), the above, duly completed Proposed Decision, is hereby submitted to the Occupational Safety and Health Standards Board for consideration of adoption.

Dated: March 28, 2023

Autumn Gonzalez, Hearing Officer

STATE OF CALIFORNIA
DEPARTMENT OF INDUSTRIAL RELATIONS
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
2520 Venture Oaks Way, Suite 350
Sacramento, California 95833
(916) 274-5721

In the Matter of Application to Modify Permanent Variance by:

Camino 23, L.P.

OSHSB File No.: 18-V-325M1
Proposed Decision Dated: March 28, 2023

DECISION

The Occupational Safety and Health Standards Board hereby adopts the attached PROPOSED DECISION by Autumn Gonzalez, Hearing Officer.

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DAVID THOMAS, Chairman

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BARBARA BURGEL, Member

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KATHLEEN CRAWFORD, Member

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DAVID HARRISON, Member

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NOLA KENNEDY, Member

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CHRIS LASZCZ-DAVIS, Member

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LAURA STOCK, Member

OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

Date of Adoption: April 20, 2023

THE FOREGOING VARIANCE DECISION WAS ADOPTED ON THE DATE INDICATED ABOVE. IF YOU ARE DISSATISFIED WITH THE DECISION, A PETITION FOR REHEARING MAY BE FILED BY ANY PARTY WITH THE STANDARDS BOARD WITHIN TWENTY (20) DAYS AFTER SERVICE OF THE DECISION. YOUR PETITION FOR REHEARING MUST FULLY COMPLY WITH THE REQUIREMENTS OF CALIFORNIA CODE OF REGULATIONS, TITLE 8, SECTIONS 427, 427.1 AND 427.2.

Note: A copy of this Decision must be posted for the Applicant's employees to read, and/or a copy thereof must be provided to the employees' Authorized Representatives.

BEFORE THE
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
DEPARTMENT OF INDUSTRIAL RELATIONS
STATE OF CALIFORNIA

In the Matter of Application to Modify Permanent Variance by: Camino 23, L.P.	OSHSB File No.: 18-V-325M1 PROPOSED DECISION Hearing Date: March 22, 2023

A. The following person or entity ("Applicant") has applied for a modification of permanent variance from provisions of the Elevator Safety Orders, found at title 8 of the California Code of Regulations, for each elevator having the specified preexisting variance location address of record:

Preexisting OSHSB File No.	**Applicant Name**	**Preexisting Variance Address of Record**
18-V-325	Camino 23, L.P.	1233-1245 23rd Ave. Oakland, CA 94606

B. This proceeding is conducted in accordance with Labor Code section 143, and California Code of Regulations, title 8, section 401, et. seq.

C. Procedural Matters**:**

1. This hearing was held on March 22, 2023, in Sacramento, California, via teleconference, by Occupational Safety and Health Standards Board ("Board"), with Hearing Officer Autumn Gonzalez, both presiding and hearing the matter on its merit, as a basis of proposed decision to be advanced to the Board for its consideration, in accordance with California Code of Regulations, title 8, section 426.

2. At the hearing, Jennifer Linares, appeared on behalf of the Applicant's representative, the Schindler Elevator Corporation; Mark Wickens and David Morris appeared on behalf of the Division of Occupational Safety and Health ("Division"); and Michael Nelmida appeared on behalf of Board staff, in a technical advisory role apart from the Board.

3. Documentary and oral evidence was received at the hearing, and by stipulation of all parties, documents were admitted into evidence:

Exhibit Number	Description of Exhibit
PD-1	Application for modification of Permanent Variance
PD-2	OSHSB Notice of Hearing
PD-3	Board Staff Review of Variance Application
PD-4	Division Review of Variance Application
PD-5	Review Draft-1 Proposed Decision

Official notice is taken of the Board's files, records, recordings and decisions concerning the Elevator Safety Order requirements from which variance shall issue. On March 22, 2023, the hearing and record closed, and the matter was taken under submission by the Hearing Officer.

D. Based on the record of this hearing, the Board makes the following findings of fact:

1. The Applicant requests modification of the address of the unchanging variance location specified within Board records for each elevator the subject of previously granted Permanent Variance 18-V-325.

2. Application section 3, declared to be wholly truthful under penalty of perjury by Application signatory, states facts upon which reasonably may be based a finding that the address, specified in the records of the Board, at which Permanent Variance 18-V-325 is in effect, in fact is more completely, and correctly the different combination of addresses specified in below subsection D.5.

3. The Division has evaluated the request for modification of variance location address, finds no issue with it, and recommends that the application for modification be granted subject to the same conditions of the Decision and Order in OSHSB Permanent Variance File No. 18-V-325.

4. The Board finds the above subpart D.2 referenced declaration to be credible, uncontroverted, and consistent with available, sufficient facts, and of no bearing as to the finding of equivalent occupational health and safety upon which Grant of preexisting Permanent Variance 18-V-325 was, in part, based.

5. The Board finds the correct address by which to designate the location of each elevator the subject of Permanent Variance No. 18-V-325, to be:

1245 23rd Avenue
Oakland, CA

E. Decision and Order:

1. Permanent Variance Application No. 18-V-325M1 is conditionally GRANTED, thereby modifying Board records, such that, without change in variance location, each elevator being the subject of Permanent Variance Nos. 18-V-325, and 18-V-325M1, shall have the following address designation:

   1245 23rd Avenue
   Oakland, CA

2. Permanent Variance No. 18-V-325, being only modified as to the subject location address specified in above Decision and Order section 1, is otherwise unchanged and remaining in full force and effect, as hereby incorporated by reference into this Decision and Order of Permanent Variance No. 18-V-325M1.

Pursuant to California Code of Regulations, title 8, section 426(b), the above, duly completed Proposed Decision, is hereby submitted to the Occupational Safety and Health Standards Board for consideration of adoption.

Dated: March 28, 2023

Autumn Gonzalez, Hearing Officer

STATE OF CALIFORNIA
DEPARTMENT OF INDUSTRIAL RELATIONS
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
2520 Venture Oaks Way, Suite 350
Sacramento, California 95833
(916) 274-5721

In the Matter of Application to Modify Permanent Variance by:

8811 Sepulveda L.P.

OSHSB File No.: 20-V-355M1
Proposed Decision Dated: March 28, 2023

DECISION

The Occupational Safety and Health Standards Board hereby adopts the attached PROPOSED DECISION by Autumn Gonzalez, Hearing Officer.

_____
DAVID THOMAS, Chairman

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BARBARA BURGEL, Member

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KATHLEEN CRAWFORD, Member

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DAVID HARRISON, Member

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NOLA KENNEDY, Member

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CHRIS LASZCZ-DAVIS, Member

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LAURA STOCK, Member

OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

Date of Adoption: April 20, 2023

THE FOREGOING VARIANCE DECISION WAS ADOPTED ON THE DATE INDICATED ABOVE. IF YOU ARE DISSATISFIED WITH THE DECISION, A PETITION FOR REHEARING MAY BE FILED BY ANY PARTY WITH THE STANDARDS BOARD WITHIN TWENTY (20) DAYS AFTER SERVICE OF THE DECISION. YOUR PETITION FOR REHEARING MUST FULLY COMPLY WITH THE REQUIREMENTS OF CALIFORNIA CODE OF REGULATIONS, TITLE 8, SECTIONS 427, 427.1 AND 427.2.

Note: A copy of this Decision must be posted for the Applicant's employees to read, and/or a copy thereof must be provided to the employees' Authorized Representatives.

BEFORE THE
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
DEPARTMENT OF INDUSTRIAL RELATIONS
STATE OF CALIFORNIA

In the Matter of Application to Modify Permanent Variance by: 8811 Sepulveda L.P.	OSHSB File No.: 20-V-355M1 PROPOSED DECISION Hearing Date: March 22, 2023

A. The following person or entity ("Applicant") has applied for a modification of permanent variance from provisions of the Elevator Safety Orders, found at title 8 of the California Code of Regulations, for each elevator having the below specified preexisting variance location address of record:

Preexisting OSHSB File No.	Applicant Name	Variance Address of Record	Preexisting Number of Elevators
20-V-355	8811 Sepulveda, L.P.	8811 Sepulveda Blvd. North Hills, CA	6

B. This proceeding is conducted in accordance with Labor Code section 143, and California Code of Regulations, title 8, section 401, et. seq.

C. Procedural Matters:

1. This hearing was held on March 22, 2023, in Sacramento, California, and via teleconference, by Occupational Safety and Health Standards Board ("Board") with Hearing Officer Autumn Gonzalez, both presiding and hearing the matter on its merit, as a basis of proposed decision to be advanced to the Board for its consideration, in accordance with California Code of Regulations, title 8, section 426.

2. At the hearing, Jennifer Linares appeared on behalf of the Applicants' representative, the Schindler Elevator Corporation; Mark Wickens and David Morris appeared on behalf of the Division of Occupational Safety and Health ("Division"); and Michael Nelmida appeared on behalf of Board staff.

3. Documentary and oral evidence was received at the hearing, and by stipulation of all parties, documents were admitted into evidence: the subject modification of

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permanent variance application captioned above as Exhibit PD-1, Notice of Hearing as Exhibit PD-2, Board staff Pending Application(s) for Permanent Variance Opinion Letter as PD-3, Division evaluation as PD-4, Review Draft 1 Proposed Decision as PD-5, and official notice taken of the Board's files, records, recordings and decisions concerning the Elevator Safety Order requirements from which variance shall issue. On March 22, 2023, the hearing and record closed, and the matter was taken under submission by the Hearing Officer.

D. Findings and Basis:

1. The Applicant requests modification of the quantity of elevators the subject of previously granted Permanent Variance No. 20-V-355, to decrease the quantity of elevators from six (6) to four (4).

2. Application section 3, declared to be wholly truthful under penalty of perjury by the Applicant signatory, states facts upon which to reasonably find that additional requested subject elevator is to be of the same manufacturer model type and material technical characteristics and specifications, as the existing elevator the subject of Permanent Variance No. 20-V-355.

3. The Division has evaluated the immediate request for modification of variance, finds no issue with it, and recommends that the application for modification be granted subject to the same conditions of the Decision and Order in OSHSB Permanent Variance File No. 20-V-355.

4. The Board finds the section 2 referenced declaration to be credible, uncontroverted, and consistent with available, sufficient facts, and finds modification of Permanent Variance 20-V-355, decreasing the quantity of subject elevators from six (6) to four (4), to be of no bearing upon the finding of equivalent occupational health and safety upon which Grant of preexisting Permanent Variance 20-V-355 was, in part, based.

E. Decision and Order:

1. Application for Modification of Permanent Variance, No. 20-V-355M1, is conditionally GRANTED, as specified below, such that a total of four (4) elevators are the subject of Permanent Variance No. 20-V-355, as hereby modified.

2. Permanent Variance No. 20-V-355, being only modified as to the subject quantity of elevators specified in above Decision and Order section 1, is otherwise unchanged and remaining in full force and effect, as hereby incorporated by reference into Modification of Permanent Variance No. 20-V-355M1.

3. The applicant shall notify its employees or their authorized representative(s), or both, of

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this order in the same way that the Applicant was required to notify them of the application for permanent variance, per California Code of Regulations, title 8, sections 411.2 and 411.3.

4. This Decision and Order shall remain in effect unless modified or revoked upon application by the Applicant, affected employee(s), the Division, or by the Board on its own motion, in the manner prescribed for its issuance.

Pursuant to California Code of Regulations, title 8, section 426(b), the above, duly completed Proposed Decision, is hereby submitted to the Occupational Safety and Health Standards Board for consideration of adoption.

Dated: March 28, 2023

Autumn Gonzalez, Hearing Officer

STATE OF CALIFORNIA
DEPARTMENT OF INDUSTRIAL RELATIONS
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
2520 Venture Oaks Way, Suite 350
Sacramento, California 95833
(916) 274-5721

In the Matter of Application to Modify Permanent Variance by:

Gateway Millbrae Office, LLC

OSHSB File No.: 21-V-210M1
Proposed Decision Dated: March 28, 2023

DECISION

The Occupational Safety and Health Standards Board hereby adopts the attached PROPOSED DECISION by Autumn Gonzalez, Hearing Officer.

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DAVID THOMAS, Chairman

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BARBARA BURGEL, Member

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KATHLEEN CRAWFORD, Member

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DAVID HARRISON, Member

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NOLA KENNEDY, Member

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CHRIS LASZCZ-DAVIS, Member

_____
LAURA STOCK, Member

OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

Date of Adoption: April 20, 2023

THE FOREGOING VARIANCE DECISION WAS ADOPTED ON THE DATE INDICATED ABOVE. IF YOU ARE DISSATISFIED WITH THE DECISION, A PETITION FOR REHEARING MAY BE FILED BY ANY PARTY WITH THE STANDARDS BOARD WITHIN TWENTY (20) DAYS AFTER SERVICE OF THE DECISION. YOUR PETITION FOR REHEARING MUST FULLY COMPLY WITH THE REQUIREMENTS OF CALIFORNIA CODE OF REGULATIONS, TITLE 8, SECTIONS 427, 427.1 AND 427.2.

Note: A copy of this Decision must be posted for the Applicant's employees to read, and/or a copy thereof must be provided to the employees' Authorized Representatives.

BEFORE THE
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
DEPARTMENT OF INDUSTRIAL RELATIONS
STATE OF CALIFORNIA

In the Matter of Application to Modify Permanent Variance by: Gateway Millbrae Office, LLC	OSHSB File No.: 21-V-210M1 PROPOSED DECISION Hearing Date: March 22, 2023

A. The following person or entity ("Applicant") has applied for a modification of permanent variance from provisions of the Elevator Safety Orders, found at title 8 of the California Code of Regulations, for each elevator having the specified preexisting variance location address of record:

Preexisting OSHSB File No.	**Applicant Name**	**Preexisting Variance Address of Record**
21-V-210	Gateway Millbrae Office LLC	166 Rollins Rd. Millbrae, CA

B. This proceeding is conducted in accordance with Labor Code section 143, and California Code of Regulations, title 8, section 401, et. seq.

C. Procedural Matters**:**

1. This hearing was held on March 22, 2023, in Sacramento, California, via teleconference, by Occupational Safety and Health Standards Board ("Board"), with Hearing Officer Autumn Gonzalez, both presiding and hearing the matter on its merit, as a basis of proposed decision to be advanced to the Board for its consideration, in accordance with California Code of Regulations, title 8, section 426.

2. At the hearing, Justin Zoetewey, with TK Elevator, appeared on behalf of the Applicant; Mark Wickens and David Morris appeared on behalf of the Division of Occupational Safety and Health ("Division"); and Michael Nelmida appeared on behalf of Board staff, in a technical advisory role apart from the Board.

3. Documentary and oral evidence was received at the hearing, and by stipulation of all parties, documents were admitted into evidence:

Exhibit Number	Description of Exhibit
PD-1	Application for modification of Permanent Variance
PD-2	OSHSB Notice of Hearing
PD-3	Board Staff Review of Variance Application
PD-4	Division Review of Variance Application
PD-5	Review Draft-1 Proposed Decision

Official notice is taken of the Board's files, records, recordings and decisions concerning the Elevator Safety Order requirements from which variance shall issue. On March 22, 2023, the hearing and record closed, and the matter was taken under submission by the Hearing Officer.

D. Based on the record of this hearing, the Board makes the following findings of fact:

1. The Applicant requests modification of the address of the unchanging variance location specified within Board records for each elevator the subject of previously granted Permanent Variance 21-V-210.

2. Application section 3, declared to be wholly truthful under penalty of perjury by Application signatory, states facts upon which reasonably may be based a finding that the address, specified in the records of the Board, at which Permanent Variance 21-V-210 is in effect, in fact is more completely, and correctly the different combination of addresses specified in below subsection D.5.

3. The Division has evaluated the request for modification of variance location address, finds no issue with it, and recommends that the application for modification be granted subject to the same conditions of the Decision and Order in OSHSB Permanent Variance File No. 21-V-210.

4. The Board finds the above subpart D.2 referenced declaration to be credible, uncontroverted, and consistent with available, sufficient facts, and of no bearing as to the finding of equivalent occupational health and safety upon which Grant of preexisting Permanent Variance 21-V-210 was, in part, based.

5. The Board finds the correct address by which to designate the location of each elevator the subject of Permanent Variance No. 21-V-210, to be:

166 N. Rollins Rd.
Millbrae, CA

E. Decision and Order:

1. Permanent Variance Application No. 21-V-210M1 is conditionally GRANTED, thereby modifying Board records, such that, without change in variance location, each elevator being the subject of Permanent Variance Nos. 21-V-210, and 21-V-210M1, shall have the following address designation:

166 N. Rollins Rd.
Millbrae, CA

2. Permanent Variance No. 21-V-210, being only modified as to the subject location address specified in above Decision and Order section 1, is otherwise unchanged and remaining in full force and effect, as hereby incorporated by reference into this Decision and Order of Permanent Variance No. 21-V-210M1.

Pursuant to California Code of Regulations, title 8, section 426(b), the above, duly completed Proposed Decision, is hereby submitted to the Occupational Safety and Health Standards Board for consideration of adoption.

Dated: March 28, 2023

Autumn Gonzalez, Hearing Officer

STATE OF CALIFORNIA
DEPARTMENT OF INDUSTRIAL RELATIONS
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
2520 Venture Oaks Way, Suite 350
Sacramento, California 95833
(916) 274-5721

In the Matter of Application to Modify Permanent Variance by:

MPK Menlo Park Properties, LLC

OSHSB File No.: 22-V-142M1
Proposed Decision Dated: March 28, 2023

DECISION

The Occupational Safety and Health Standards Board hereby adopts the attached PROPOSED DECISION by Autumn Gonzalez, Hearing Officer.

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DAVID THOMAS, Chairman

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BARBARA BURGEL, Member

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KATHLEEN CRAWFORD, Member

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DAVID HARRISON, Member

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NOLA KENNEDY, Member

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CHRIS LASZCZ-DAVIS, Member

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LAURA STOCK, Member

OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

Date of Adoption: April 20, 2023

THE FOREGOING VARIANCE DECISION WAS ADOPTED ON THE DATE INDICATED ABOVE. IF YOU ARE DISSATISFIED WITH THE DECISION, A PETITION FOR REHEARING MAY BE FILED BY ANY PARTY WITH THE STANDARDS BOARD WITHIN TWENTY (20) DAYS AFTER SERVICE OF THE DECISION. YOUR PETITION FOR REHEARING MUST FULLY COMPLY WITH THE REQUIREMENTS OF CALIFORNIA CODE OF REGULATIONS, TITLE 8, SECTIONS 427, 427.1 AND 427.2.

Note: A copy of this Decision must be posted for the Applicant's employees to read, and/or a copy thereof must be provided to the employees' Authorized Representatives.

BEFORE THE
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
DEPARTMENT OF INDUSTRIAL RELATIONS
STATE OF CALIFORNIA

In the Matter of Application to Modify Permanent Variance by: MPK Menlo Park Properties, LLC	OSHSB File No.: 22-V-142M1 PROPOSED DECISION Hearing Date: March 22, 2023

A. The following person or entity ("Applicant") has applied for a modification of permanent variance from provisions of the Elevator Safety Orders, found at title 8 of the California Code of Regulations, for each elevator having the specified preexisting variance location address of record:

Preexisting OSHSB File No.	**Applicant Name**	**Preexisting Variance Address of Record**
22-V-142	MPK Menlo Park Properties, LLC	2 Facebook Way Menlo Park, CA

B. This proceeding is conducted in accordance with Labor Code section 143, and California Code of Regulations, title 8, section 401, et. seq.

C. Procedural Matters**:**

1. This hearing was held on March 22, 2023, in Sacramento, California, via teleconference, by Occupational Safety and Health Standards Board ("Board"), with Hearing Officer Autumn Gonzalez, both presiding and hearing the matter on its merit, as a basis of proposed decision to be advanced to the Board for its consideration, in accordance with California Code of Regulations, title 8, section 426.

2. At the hearing, Jennifer Linares, appeared on behalf of the Applicant's representative, the Schindler Elevator Corporation; Mark Wickens and David Morris appeared on behalf of the Division of Occupational Safety and Health ("Division"); and Michael Nelmida appeared on behalf of Board staff, in a technical advisory role apart from the Board.

3. Documentary and oral evidence was received at the hearing, and by stipulation of all parties, documents were admitted into evidence:

Exhibit Number	Description of Exhibit
PD-1	Application for modification of Permanent Variance
PD-2	OSHSB Notice of Hearing
PD-3	Board Staff Review of Variance Application
PD-4	Division Review of Variance Application
PD-5	Review Draft-1 Proposed Decision

Official notice is taken of the Board's files, records, recordings and decisions concerning the Elevator Safety Order requirements from which variance shall issue. On March 22, 2023, the hearing and record closed, and the matter was taken under submission by the Hearing Officer.

D. Based on the record of this hearing, the Board makes the following findings of fact:

1. The Applicant requests modification of the address of the unchanging variance location specified within Board records for each elevator the subject of previously granted Permanent Variance 22-V-142.

2. Application section 3, declared to be wholly truthful under penalty of perjury by Application signatory, states facts upon which reasonably may be based a finding that the address, specified in the records of the Board, at which Permanent Variance 22-V-142 is in effect, in fact is more completely, and correctly the different combination of addresses specified in below subsection D.5.

3. The Division has evaluated the request for modification of variance location address, finds no issue with it, and recommends that the application for modification be granted subject to the same conditions of the Decision and Order in OSHSB Permanent Variance File No. 22-V-142.

4. The Board finds the above subpart D.2 referenced declaration to be credible, uncontroverted, and consistent with available, sufficient facts, and of no bearing as to the finding of equivalent occupational health and safety upon which Grant of preexisting Permanent Variance 22-V-142 was, in part, based.

5. The Board finds the correct address by which to designate the location of each elevator the subject of Permanent Variance No. 22-V-142, to be:

2 Meta Way
Menlo Park, CA

E. Decision and Order:

1. Permanent Variance Application No. 22-V-142M1 is conditionally GRANTED, thereby modifying Board records, such that, without change in variance location, each elevator being the subject of Permanent Variance Nos. 22-V-142, and 22-V-142M1, shall have the following address designation:

2 Meta Way
Menlo Park, CA

2. Permanent Variance No. 22-V-142, being only modified as to the subject location address specified in above Decision and Order section 1, is otherwise unchanged and remaining in full force and effect, as hereby incorporated by reference into this Decision and Order of Permanent Variance No. 22-V-142M1.

Pursuant to California Code of Regulations, title 8, section 426(b), the above, duly completed Proposed Decision, is hereby submitted to the Occupational Safety and Health Standards Board for consideration of adoption.

Dated: March 28, 2023

Autumn Gonzalez, Hearing Officer

STATE OF CALIFORNIA
DEPARTMENT OF INDUSTRIAL RELATIONS
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
2520 Venture Oaks Way, Suite 350
Sacramento, California 95833
(916) 274-5721

In the Matter of Application to Modify Permanent Variance by:

Core Berkeley Bancroft LLC

OSHSB File No.: 22-V-230M1
Proposed Decision Dated: March 28, 2023

DECISION

The Occupational Safety and Health Standards Board hereby adopts the attached PROPOSED DECISION by Autumn Gonzalez, Hearing Officer.

_____
DAVID THOMAS, Chairman

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BARBARA BURGEL, Member

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KATHLEEN CRAWFORD, Member

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DAVID HARRISON, Member

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NOLA KENNEDY, Member

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CHRIS LASZCZ-DAVIS, Member

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LAURA STOCK, Member

OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

Date of Adoption: April 20, 2023

THE FOREGOING VARIANCE DECISION WAS ADOPTED ON THE DATE INDICATED ABOVE. IF YOU ARE DISSATISFIED WITH THE DECISION, A PETITION FOR REHEARING MAY BE FILED BY ANY PARTY WITH THE STANDARDS BOARD WITHIN TWENTY (20) DAYS AFTER SERVICE OF THE DECISION. YOUR PETITION FOR REHEARING MUST FULLY COMPLY WITH THE REQUIREMENTS OF CALIFORNIA CODE OF REGULATIONS, TITLE 8, SECTIONS 427, 427.1 AND 427.2.

Note: A copy of this Decision must be posted for the Applicant's employees to read, and/or a copy thereof must be provided to the employees' Authorized Representatives.

BEFORE THE
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
DEPARTMENT OF INDUSTRIAL RELATIONS
STATE OF CALIFORNIA

In the Matter of Application to Modify Permanent Variance by: Core Berkeley Bancroft LLC	OSHSB File No.: 22-V-230M1 PROPOSED DECISION Hearing Date: March 22, 2023

A. The following person or entity ("Applicant") has applied for a modification of permanent variance from provisions of the Elevator Safety Orders, found at title 8 of the California Code of Regulations, for each elevator having the specified preexisting variance location address of record:

Preexisting OSHSB File No.	**Applicant Name**	**Preexisting Variance Address of Record**
22-V-230	Core Berkeley Bancroft, LLC	2590 Bancroft Way Berkeley, CA

B. This proceeding is conducted in accordance with Labor Code section 143, and California Code of Regulations, title 8, section 401, et. seq.

C. Procedural Matters**:**

1. This hearing was held on March 22, 2023, in Sacramento, California, via teleconference, by Occupational Safety and Health Standards Board ("Board"), with Hearing Officer Autumn Gonzalez, both presiding and hearing the matter on its merit, as a basis of proposed decision to be advanced to the Board for its consideration, in accordance with California Code of Regulations, title 8, section 426.

2. At the hearing, Justin Zoetewey, with TK Elevator, appeared on behalf of the Applicant; Mark Wickens and David Morris appeared on behalf of the Division of Occupational Safety and Health ("Division"); and Michael Nelmida appeared on behalf of Board staff, in a technical advisory role apart from the Board.

3. Documentary and oral evidence was received at the hearing, and by stipulation of all parties, documents were admitted into evidence:

Exhibit Number	Description of Exhibit
PD-1	Application for modification of Permanent Variance
PD-2	OSHSB Notice of Hearing
PD-3	Board Staff Review of Variance Application
PD-4	Division Review of Variance Application
PD-5	Review Draft-1 Proposed Decision

Official notice is taken of the Board's files, records, recordings and decisions concerning the Elevator Safety Order requirements from which variance shall issue. On March 22, 2023, the hearing and record closed, and the matter was taken under submission by the Hearing Officer.

D. Based on the record of this hearing, the Board makes the following findings of fact:

1. The Applicant requests modification of the address of the unchanging variance location specified within Board records for each elevator the subject of previously granted Permanent Variance 22-V-230.

2. Application section 3, declared to be wholly truthful under penalty of perjury by Application signatory, states facts upon which reasonably may be based a finding that the address, specified in the records of the Board, at which Permanent Variance 22-V-230 is in effect, in fact is more completely, and correctly the different combination of addresses specified in below subsection D.5.

3. The Division has evaluated the request for modification of variance location address, finds no issue with it, and recommends that the application for modification be granted subject to the same conditions of the Decision and Order in OSHSB Permanent Variance File No. 22-V-230.

4. The Board finds the above subpart D.2 referenced declaration to be credible, uncontroverted, and consistent with available, sufficient facts, and of no bearing as to the finding of equivalent occupational health and safety upon which Grant of preexisting Permanent Variance 22-V-230 was, in part, based.

5. The Board finds the correct address by which to designate the location of each elevator the subject of Permanent Variance No. 22-V-230, to be:

2300 Bowditch St.
Berkeley, CA

E. Decision and Order:

1. Permanent Variance Application No. 22-V-230M1 is conditionally GRANTED, thereby modifying Board records, such that, without change in variance location, each elevator being the subject of Permanent Variance Nos. 22-V-230, and 22-V-230M1, shall have the following address designation:

2300 Bowditch St.
Berkeley, CA

2. Permanent Variance No. 22-V-230, being only modified as to the subject location address specified in above Decision and Order section 1, is otherwise unchanged and remaining in full force and effect, as hereby incorporated by reference into this Decision and Order of Permanent Variance No. 22-V-230M1.

Pursuant to California Code of Regulations, title 8, section 426(b), the above, duly completed Proposed Decision, is hereby submitted to the Occupational Safety and Health Standards Board for consideration of adoption.

Dated: March 28, 2023

Autumn Gonzalez, Hearing Officer

STATE OF CALIFORNIA
DEPARTMENT OF INDUSTRIAL RELATIONS
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
2520 Venture Oaks Way, Suite 350
Sacramento, California 95833
(916) 274-5721

In the Matter of Application for Permanent Variance regarding: KONE Monospace 500 Elevators (Group IV)	OSHSB File No.: See Section A.1 table of Proposed Decision Dated: March 28, 2023 DECISION

The Occupational Safety and Health Standards Board hereby adopts the attached PROPOSED DECISION by Autumn Gonzalez, Hearing Officer.

_____
DAVID THOMAS, Chairman

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BARBARA BURGEL, Member

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KATHLEEN CRAWFORD, Member

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DAVID HARRISON, Member

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NOLA KENNEDY, Member

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CHRIS LASZCZ-DAVIS, Member

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LAURA STOCK, Member

OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

Date of Adoption: April 20, 2023

THE FOREGOING VARIANCE DECISION WAS ADOPTED ON THE DATE INDICATED ABOVE. IF YOU ARE DISSATISFIED WITH THE DECISION, A PETITION FOR REHEARING MAY BE FILED BY ANY PARTY WITH THE STANDARDS BOARD WITHIN TWENTY (20) DAYS AFTER SERVICE OF THE DECISION. YOUR PETITION FOR REHEARING MUST FULLY COMPLY WITH THE REQUIREMENTS OF CALIFORNIA CODE OF REGULATIONS, TITLE 8, SECTIONS 427, 427.1 AND 427.2.

Note: A copy of this Decision must be posted for the Applicant's employees to read, and/or a copy thereof must be provided to the employees' Authorized Representatives.

BEFORE THE
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
DEPARTMENT OF INDUSTRIAL RELATIONS
STATE OF CALIFORNIA

In the Matter of Application for Permanent Variance Regarding: KONE Monospace 500 Elevators (Group IV)	OSHSB File Nos.: See Section A.1 Table Below PROPOSED DECISION Hearing Date: March 22, 2023

A. Subject Matter:

1. Each below listed applicant ("Applicant") applied for a permanent variance from provisions of the Elevator Safety Orders, found at title 8 of the California Code of Regulations, with respect to a conveyance, or conveyances, in the listed quantity, at the listed location:

Variance No.	Applicant Name	Variance Location Address	No. of Elevators
22-V-632	ARE/CAL-SD Region No. 62, LLC	9955 Barnes Canyon Rd. San Diego, CA	2
23-V-014	Intuitive Surgical, Inc.	932 Kifer Rd. Sunnyvale, CA	4
23-V-018	Intuitive Surgical, Inc.	950 Kifer Rd. Sunnyvale, CA	8
23-V-019	Bascom Station Residential LLC, a Delaware LLC	1350 S. Bascom Ave. San Jose, CA	5
23-V-021	Walmart Fulfillment Services, LLC	5150 East Mariposa Rd. Stockton, CA	1
23-V-022	150 Healthy Way Investor, LP	115 Healthy Way Folsom, CA	3
23-V-023	W-SW WBLS East Owner IX, L.P. W-SW WBLS West Owner IX, L.P.	2213 4th St. Berkeley, CA	1
23-V-044	HCP Forbes, LLC	480 Forbes Blvd. South San Francisco, CA	2
23-V-045	HCP Forbes, LLC	490 Forbes Blvd. South San Francisco, CA	2

23-V-048	BRE-BMR Chiron Lot LP	5555 Hollis St. Emeryville, CA	4
23-V-049	BRE-BMR 4563 Horton LP	4563 Horton St. Emeryville, CA	4
23-V-067	8377 Blackburn Owner LLC	8377 Blackburn Ave. Los Angeles, CA	2

2. The subject title 8, safety order requirements are set out within California Code of Regulations, title 8, section 3141 incorporated ASME A17.1-2004, Sections 2.18.5.1 and 2.20.4.

B. Procedural:

1. This hearing was held on March 22, 2023, in Sacramento, California, via teleconference, by delegation of the Occupational Safety and Health Standards Board ("Board"), with Hearing Officer Autumn Gonzalez, both presiding and hearing the matter on its merit, as a basis of proposed decision to be advanced to the Board for its consideration, in accordance with California Code of Regulations, title 8, section 426.

2. At the hearing, Fuei Saetern, with KONE, Inc., appeared on behalf of each Applicant; Mark Wickens and David Morris appeared on behalf of the Division of Occupational Safety and Health ("Division"), and Michael Nelmida appeared on behalf of Board staff in a technical advisory capacity apart from the Board.

3. Documentary and oral evidence was received at the hearing, and by stipulation of all parties, documents were admitted into evidence:

Exhibit Number	**Description of Exhibit**
PD-1	Application(s) for Permanent Variance per section A.1 table
PD-2	OSHSB Notice of Hearing
PD-3	Board Staff Review of Variance Application
PD-4	Division Review of Variance Application
PD-5	Review Draft-1 Proposed Decision

Official notice is taken of the Board's files, records, recordings and decisions concerning the Elevator Safety Order requirements from which variance shall issue. On March 22, 2023, the hearing and record closed, and the matter was taken under submission by the Hearing Officer.

C. Findings of Fact—Based on the record of this proceeding, the Board finds the following:

1. Each respective Applicant intends to utilize the KONE Inc. Monospace 500 type elevator, in the quantity, at the location, specified per the above Section A.1 table.

2. The installation contract for this elevator was or will be signed on or after May 1, 2008, thus making the elevator subject to the Group IV Elevator Safety Orders.

3. Each Applicant proposes to use hoisting ropes that are 8 mm in diameter which also consist of 0.51 mm diameter outer wires, in variance from the express requirements of ASME A17.1-2004, Section 2.20.4.

4. In relevant part, ASME A17.1-2004, Section 2.20.4 states:

> *2.20.4 Minimum Number and Diameter of Suspension Ropes*
>
> *…The minimum diameter of hoisting and counterweight ropes shall be 9.5 mm (0.375 in.). Outer wires of the ropes shall be not less than 0.56 mm (0.024 in.) in diameter.*

5. An intent of the afore cited requirement of ASME A17.1-2004, Section 2.20.4, is to ensure that the number, diameter, and construction of suspension ropes are adequate to provided safely robust and durable suspension means over the course of the ropes' foreseen service life.

6. KONE has represented to Division and Board staff, having established an engineering practice for purposes of Monospace 500 elevator design, of meeting or exceeding the minimum factor of safety of 12 for 8 mm suspension members, as required in ASME A17.1-2010, Section 2.20.3—under which, given that factor of safety, supplemental broken suspension member protection is not required.

7. Also, each Applicant proposes as a further means of maintaining safety equivalence, monitoring the rope in conformity with the criteria specified within the *Inspector's Guide to 6 mm Diameter Governor and 8 mm Diameter Suspension Ropes for KONE Elevators* (per Application attachment "B", or as thereafter revised by KONE subject to Division approval).

8. In addition, each Applicant has proposed to utilize 6 mm diameter governor ropes in variance from title 8, section 3141, incorporated ASME A17.1-2004, Section 2.18.5.1.

9. ASME A17.1-2004, Section 2.18.5.1, specifies, in relevant part:

> *2.18.5.1 Material and Factor of Safety.*
>
> *… [Governor ropes] not less than 9.5 mm (0.375 in.) in diameter. The factor of safety of governor ropes shall be not less than 5…*

10. The Board takes notice of title 8, Elevator Safety Order Section 3141.7, subpart (a)(10):

> *A reduced diameter governor rope of equivalent construction and material to that required by ASME A17.1-2004, is permissible if the factor of safety as related to the strength necessary to activate the safety is 5 or greater;*

11. Applicants propose use of 6mm governor rope having a safety factor of 5 or greater, in conformity with Section 3141.7(a)(10), the specific parameters of which, being expressly set out within title 8, Elevator Safety Orders, take precedence over more generally referenced governor rope diameter requirements per ASME A17.1-2004, Section 2.18.5.1. Accordingly, the governor rope specifications being presently proposed, inclusive of a factor of safety of 5 or greater, would comply with current title 8, Elevator Safety Orders requirements, and therefore not be subject to issuance of permanent variance.

12. Absent evident diminution in elevator safety, over the past decade the Board has issued numerous permanent variances for use in KONE (Ecospace) elevator systems of 8 mm diameter suspension rope materially similar to that presently proposed (e.g. OSHSB File Nos. 06-V-203, 08-V-245, and 13-V-303).

13. As noted by the Board in OSHSB File Nos. 18-V-044, and 18-V-045, Decision and Order Findings, subpart B.17 (hereby incorporated by reference), the strength of wire rope operating as an elevator's suspension means does not remain constant over its years of projected service life. With increasing usage cycles, a reduction in the cross-sectional area of the wire rope normally occurs, resulting in decreased residual strength. This characteristic is of particular relevance to the present matter because, as also noted by Board staff, decreasing wire rope diameter is associated with a higher rate of residual strength loss. This foreseeable reduction in cross-sectional area primarily results from elongation under sheave rounding load, as well as from wear, and wire or strand breaks. However, these characteristics need not compromise elevator safety when properly accounted for in the engineering of elevator suspension means, and associated components.

14. The presently proposed wire rope is Wuxi Universal steel rope Co LTD. 8 mm 8x19S+8x7+PP, with a manufacturer rated breaking strength of 35.8 kN, and an outer wire diameter of less than 0.56 mm, but not less than 0.51 mm. Both Board staff and Division safety engineers have scrutinized the material and structural specifications, and performance testing data, of this particular proposed rope, and conclude it will provide for safety equivalent to ESO compliant 9.5 mm wire rope, with 0.56 mm outer wire (under conditions of use included within the below Decision and Order).

15. The applicant supplies tabulated data regarding the "Maximum Static Load on All Suspension Ropes." To obtain the tabulated data, the applicant uses the following formula derived from ASME A17.1 2004, Section 2.20.3:

W = (S x N)/ f

where

W = maximum static load imposed on all car ropes with the car and its rated load at any position in the hoistway

N = number of runs of rope under load. For 2:1 roping, N shall be two times the number of ropes used, etc.

S = manufacturer's rated breaking strength of one rope

f = the factor of safety from Table 2.20.3

16. ASME A17.1-2010 Sections 2.20.3 and 2.20.4 utilize the same formula, but provide for use of suspension ropes having a diameter smaller than 9.5 mm, under specified conditions, key among them being that use of ropes having a diameter of between 8 mm to 9.5 mm be engineered with a factor of safety of 12 or higher. This is a higher minimum factor of safety than that proposed by Applicant, but a minimum recommended by both Board staff and Division as a condition of variance necessary to the achieving of safety equivalence to 9.5 mm rope.

17. Board staff and Division are in accord with Applicant, in proposing as a condition of safety equivalence, that periodic physical examination of the wire ropes be performed to confirm the ropes continue to meet the criteria set out in the (Application attachment) *Inspector's Guide to 6 mm Diameter Governor and 8 mm Diameter Suspension Ropes for KONE Elevators.* Adherence to this condition will provide an additional assurance of safety equivalence, regarding smaller minimum diameter suspension rope outer wire performance over the course of its service life.

18. Both Board staff, and Division, by way of written submissions to the record (Exhibits PD-3 and PD-4 respectively), and stated positions at hearing, are of the well informed opinion that grant of permanent variance, as limited and conditioned per the below Decision and Order will provide employment, places of employment, and subject conveyances, as safe and healthful as would prevail given non-variant conformity with the Elevator Safety Order requirements from which variance has been requested.

D. Conclusive Findings:

The above stated procedural prerequisites, legal authority, and factual findings, as further supported by the documentary record and hearing testimony in this matter, provide a substantive and reasonable basis of conclusion that: (1) Each Applicant has complied with the statutory and regulatory requirements that must be met before an application for permanent variance may be conditionally granted; and (2) a preponderance of the evidence establishes that each Applicants proposal, subject to all conditions and limitations set forth in the below Decision and Order, will provide equivalent safety and health to that which would prevail upon full compliance with the requirements of California Code of Regulation, title 8, Elevator Safety Orders from which variance is being sought.

E. Decision and Order:

Each Application being the subject of this proceeding, per above Section A.1 table, is conditionally GRANTED, to the extent that each such Applicant shall be issued permanent variance from California Code of Regulations, title 8, section 3141 incorporated ASME A17.1-2004, Section 2.20.4, in as much as it precludes use of suspension rope of between 8 mm and 9.5 mm, or outer wire of between 0.51 mm and 0.56 mm in diameter, at such locations and numbers of Group IV KONE Monospace 500 elevators identified in each respective Application, subject to the following conditions:

1. The diameter of the hoisting steel ropes shall be not less than 8 mm (0.315 in) diameter and the roping ratio shall be two to one (2:1).

2. The outer wires of the suspension ropes shall be not less than 0.51 mm (0.02 in.) in diameter.

3. The number of suspension ropes shall be not fewer than those specified per hereby incorporated Decision and Order Appendix 1 Table.

4. The ropes shall be inspected annually for wire damage (rouge, valley break etc.) in accordance with "KONE Inc. Inspector's Guide to 6 mm diameter and 8 mm diameter steel ropes for KONE Elevators" (per Application Exhibit B, or as thereafter amended by KONE subject to Division approval).

5. A rope inspection log shall be maintained and available in the elevator controller room / space at all times.

6. The elevator rated speed shall not exceed those speeds specified per the Decision and Order Appendix 1 Table.

7. The maximum suspended load shall not exceed those weights (plus 5%) specified per the Decision and Order Appendix 1 Table.

8. The opening to the hoistway shall be effectively barricaded when car top inspection, maintenance, servicing, or testing of the elevator equipment in the hoistway is required. If the service personnel must leave the area for any reason, the hoistway and control room doors shall be closed.

9. The installation shall meet the suspension wire rope factor of safety requirements of ASME A17.1-2013 Section 2.20.3.

10. Any Certified Qualified Conveyance Company performing inspections, maintenance, servicing or testing the elevators shall be provided a copy of this variance decision.

11. The Division shall be notified when the elevator is ready for inspection. The elevator shall be inspected by the Division and a "Permit to Operate" issued before the elevator is placed in service.

12. The Applicant shall comply with suspension means replacement reporting condition per hereby incorporated Decision and Order Appendix 2.

13. The Applicant shall notify its employees or their authorized representative(s), or both, of this order in the same way and to the same extent that employees and authorized representatives are to be notified of docketed permanent variance applications pursuant to California Code of Regulations, title 8, sections 411.2 and 411.3.

14. This Decision and Order shall remain in effect unless modified or revoked upon application by the Applicant, affected employee(s), the Division of Occupational Safety and Health, or by the Board on its own motion, in accordance with procedures per Title 8, Division 1, Chapter 3.5.

Pursuant to California Code of Regulations, title 8, section 426(b), the above, duly completed Proposed Decision, is hereby submitted to the Occupational Safety and Health Standards Board for consideration of adoption.

Dated: March 28, 2023

Autumn Gonzalez, Hearing Officer

Appendix 1

Monospace 500 Suspension Appendix 1 Table.

Variance Number	Elevator ID	Minimum Quantity of Ropes (per Condition 3)	Maximum Speed in Feet per Minute (per Condition 6)	Maximum Suspended Load (per Condition 7)
22-V-632	1	8	350	11706
22-V-632	3	8	350	11706
23-V-014	1A	8	200	13207
23-V-014	1B	8	200	13207
23-V-014	2A	8	200	13207
23-V-014	2B	8	200	13207
23-V-018	C	8	200	13207
23-V-018	D	8	200	13207
23-V-018	E	8	200	13207
23-V-018	G	8	200	13207
23-V-018	H	8	200	13207
23-V-018	I	8	200	13207
23-V-018	J	8	200	13207
23-V-018	M	8	200	13207
23-V-019	1	8	200	13207
23-V-019	2	8	200	13207
23-V-019	3	8	200	13207
23-V-019	4	8	200	13207
23-V-019	5	8	200	13207

23-V-021	3	7	150	12247
23-V-022	PASS 1	7	200	11556
23-V-022	PASS 2	7	200	11556
23-V-022	PASS 3	7	200	11556
23-V-023	1	7	200	11556
23-V-044	A	8	350	11706
23-V-044	B	8	350	11706
23-V-045	A	8	350	11706
23-V-045	B	8	350	11706
23-V-048	A	8	350	11706
23-V-048	B	8	350	11706
23-V-048	C	8	350	11706
23-V-048	D	8	350	11706
23-V-049	1	7	350	10243
23-V-049	2	7	350	10243
23-V-049	3	7	350	10243
23-V-049	4	7	350	10243
23-V-067	1	7	150	12247
23-V-067	2	7	150	12247

Appendix 2

Suspension Means Replacement Reporting Condition

Beginning on the date the Board adopts this Proposed Decision and continuing for a period of two years, the Applicant shall report to the Division within 30 days any and all replacement activity performed on the elevator(s) pursuant to the requirements of ASME A17.1-2004, Section 8.6.3 involving the suspension means or suspension means fastenings. Further:

1. A separate report for each elevator shall be submitted, in a manner acceptable to the Division, to the following address (or to such other address as the Division might specify in the future): DOSH Elevator Unit, 2 MacArthur Place, Suite 700, Santa Ana, CA 92707, Attn: Engineering Section.

2. Each such report shall contain, but not necessarily be limited to, the following information:

    a. The State-issued conveyance number, complete address, and OSHSB file number that identifies the permanent variance.

    b. The business name, complete address, telephone number, and contact person of the elevator responsible party (presumably the Applicant or the subsequent holder of this variance).

    c. The business name, complete address, telephone number, and Certified Qualified Conveyance Company (CQCC) certification number of the firm performing the replacement work.

    d. The name (as listed on certification), Certified Competent Conveyance Mechanic (CCCM) certification number, certification expiration date, and signature of each CCCM performing the replacement work.

    e. The date and time the elevator was removed from normal service for suspension replacement, the date and time the replacement work commenced, the date and time the replacement work was completed, and the date and time the elevator was returned to normal service.

    f. A detailed description of, and clear color photographs depicting, (1) all the conditions that existed in the suspension components requiring their replacement and (2) any conditions that existed to cause damage or distress to the suspension components being replaced.

    g. A detailed list of all elevator components adjusted, repaired, or replaced in conjunction with the suspension component replacement.

h. All information provided on the crosshead data plate per ASME A17.1-2004, Section 2.20.2.1, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

i. For the suspension means being replaced, all information provided on the data tag required per ASME A17.1-2004, Section 2.20.2.2, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

j. For the replacement suspension means, all information provided on the data tag required by ASME A17.1-2004, Section 2.20.2.2, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

k. Any other information requested by the Division regarding the replacement of the suspension means or fastenings.

3. In addition to the submission of the report to the Division, the findings of any testing, failure analysis, or other engineering evaluations performed on any portion of the replaced suspension components, or other elevator components replaced in conjunction therewith, shall be submitted to the Division referencing the information contained in above Appendix 2, Section 2, Subsection (a), above.

STATE OF CALIFORNIA
DEPARTMENT OF INDUSTRIAL RELATIONS
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
2520 Venture Oaks Way, Suite 350
Sacramento, California 95833
(916) 274-5721

In the Matter of Application for Permanent Variance regarding: Otis Gen2S/Gen3Edge Elevator & Medical Emergency Elevator Car Dimensions (Group IV)	OSHSB File No.: See section A table of Proposed Decision Dated: March 28, 2023 DECISION

The Occupational Safety and Health Standards Board hereby adopts the attached PROPOSED DECISION by Autumn Gonzalez, Hearing Officer.

_____
DAVID THOMAS, Chairman

_____
BARBARA BURGEL, Member

_____
KATHLEEN CRAWFORD, Member

_____
DAVID HARRISON, Member

_____
NOLA KENNEDY, Member

_____
CHRIS LASZCZ-DAVIS, Member

_____
LAURA STOCK, Member

OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

Date of Adoption: April 20, 2023

THE FOREGOING VARIANCE DECISION WAS ADOPTED ON THE DATE INDICATED ABOVE. IF YOU ARE DISSATISFIED WITH THE DECISION, A PETITION FOR REHEARING MAY BE FILED BY ANY PARTY WITH THE STANDARDS BOARD WITHIN TWENTY (20) DAYS AFTER SERVICE OF THE DECISION. YOUR PETITION FOR REHEARING MUST FULLY COMPLY WITH THE REQUIREMENTS OF CALIFORNIA CODE OF REGULATIONS, TITLE 8, SECTIONS 427, 427.1 AND 427.2.

Note: A copy of this Decision must be posted for the Applicant's employees to read, and/or a copy thereof must be provided to the employees' Authorized Representatives.

BEFORE THE
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
DEPARTMENT OF INDUSTRIAL RELATIONS
STATE OF CALIFORNIA

In the Matter of Application for Permanent Variance Regarding: Otis Gen2S/Gen3Edge Elevator & Medical Emergency Elevator Car Dimensions (Group IV)	OSHSB File Nos.: See section A table below PROPOSED DECISION Hearing Date: March 22, 2023

A. Subject Matter

1. Each below listed applicant ("Applicant") has applied for permanent variances from provisions of the Elevator Safety Orders, found at title 8 of the California Code of Regulations[1], with respect to the listed conveyance or conveyances, in the specified quantity, at the specified location:

Variance No.	Applicant Name	Variance Location Address	No. of Elevators
22-V-675	SFIII Reframe, LLC	4561 Colorado Blvd. Los Angeles, CA	1
23-V-004	1557 Orange Grove Apartments LLC	1557 S. Orange Grove Ave. Los Angeles, CA	1
23-V-005	Lodi Hospitality II, LLC	2855 Reynolds Ranch Pkwy. Lodi, CA	2
23-V-006	NDD on Washington, St., LLC	901 W. Washington St. San Diego, CA	2
23-V-007	SIOF 3 Properties, LLC	1451 W. Martin Luther King Jr. Blvd. Los Angeles, CA	1
23-V-010	Mercy Housing California 82, L.P.	Treasure Island C3.1 1 Avenue of the Palms San Francisco, CA	2
23-V-011	Ancora, L.P.	2255 International Blvd. Oakland, CA	2
23-V-034	SRM Development	22400 Second St. Hayward, CA	3

[1] Unless otherwise noted, all references are to title 8, California Code of Regulations.

23-V-035	Merge 56 Affordable, LP	8201 Merge Ave. San Diego, CA	1
23-V-039	SJN Hospitality, LLC	2112 Broadway Eureka, CA	2
23-V-057	Regents of the University of California	UCSD Pepper Canyon West Housing 9610 Gilman Dr. La Jolla, CA	2
23-V-066	Regents of the University of California	UCSD Pepper Canyon West Housing 9620 Gilman Dr. La Jolla, CA	2

2. The safety orders from which variance may issue, are enumerated in the portion of the below Decision and Order preceding the variance conditions.

B. Procedural

1. This proceeding is conducted in accordance with Labor Code section 143.

2. This hearing was held on March 22, 2023, in Sacramento, California, and via teleconference, by Occupational Safety and Health Standards Board ("Board"), with Hearing Officer Autumn Gonzalez, both presiding and hearing the matter on its merit, as a basis of proposed decision to be advanced to the Board for its consideration.

3. At the hearing, Dan Leacox of Leacox & Associates, and Wolter Geesink with Otis Elevator, appeared on behalf of each Applicant; Mark Wickens and David Morris appeared on behalf of the Division of Occupational Safety and Health ("Division"), and Michael Nelmida appeared on behalf of the Board.

4. Oral evidence was received at the hearing, and by stipulation of all parties, documents were admitted into evidence:

Exhibit Number	**Description of Exhibit**
PD-1	Permanent variance applications per Section A.1 table
PD-2	OSHSB Notice of Hearing
PD-3	Board Staff Reviews of Variance Application
PD-4	Division Reviews of Variance Application
PD-5	Review Draft-1 Proposed Decision

5. Official notice is taken of the Board's rulemaking records, and variance files and decisions, concerning the Elevator Safety Order standards at issue. At close of hearing on March 22, 2023, the record was closed, and the matter taken under submission by the Hearing Officer.

C. Findings and Basis:

Based on the record of this hearing, the Board makes the following findings of fact:

1. Each Applicant intends to utilize Otis Gen3 Edge/Gen2S elevators at the locations and in the numbers stated in the above section A table.

2. The installation contracts for these elevators were or will be signed on or after May 1, 2008, making the elevators subject to the Group IV Elevator Safety Orders.

3. The Board incorporates by reference the relevant findings in previous Board decisions:

    a. Items D.3 through D.9 of the Proposed Decision adopted by the Board on July 18, 2013 for OSHSB File No. 12-V-093;

    b. Item D.4 of the Proposed Decision adopted by the Board on September 25, 2014 for OSHSB File No. 14-V-206; and

    c. Item B of the Proposed Decision adopted by the Board on September 15, 2022 for OSHSB File No. 22-V-302 regarding medical emergency car dimensions.

4. Both Board staff and Division, by way of written submissions to the record (Exhibits PD-3 and PD-4 respectively), and positions stated at hearing, are of the well informed opinion that grant of requested permanent variance, as limited and conditioned per the below Decision and Order will provide employment, places of employment, and subject conveyances, as safe and healthful as would prevail given non-variant conformity with the Elevator Safety Order requirements from which variance has been requested.

D. Conclusive Findings:

The above stated procedural prerequisites, legal authority, and factual findings, as further supported by the documentary record and hearing testimony in this matter, provide a substantive and reasonable basis of conclusion that:

1. Each Applicant has complied with the statutory and regulatory requirements that must be met before an application for permanent variance may be conditionally granted; and

2. a preponderance of the evidence establishes that each Applicants proposal, subject to all conditions and limitations set forth in the below Decision and Order, will provide equivalent safety and health to that which would prevail upon full compliance with the requirements of Elevator Safety Orders from which variance is being sought.

E. Decision and Order:

Each permanent variance application the subject of this proceeding is conditionally GRANTED as specified below, and to the extent, as of the date the Board adopts this Proposed Decision, each Applicant listed in the above section A table shall have permanent variances from the following sections of ASME A17.1-2004 that section 3141 makes applicable to the elevators the subject of those applications:

- Car top railing: sections 2.14.1.7.1 (only to the extent necessary to permit an inset car top railing, if, in fact, the car top railing is inset);

- Speed governor over-speed switch: 2.18.4.2.5(a) (only insofar as is necessary to permit the use of the speed reducing system proposed by the Applicants, where the speed reducing switch resides in the controller algorithms, rather than on the governor, with the necessary speed input supplied by the main encoder signal from the motor);

- Governor rope diameter: 2.18.5.1 (only to the extent necessary to allow the use of reduced diameter governor rope);

- Pitch diameter: 2.18.7.4 (to the extent necessary to use the pitch diameter specified in Condition No. 13.c);

- Suspension means: 2.20.1, 2.20.2.1, 2.20.2.2(a), 2.20.2.2(f), 2.20.3, 2.20.4, 2.20.9.3.4 and 2.20.9.5.4—the variances from these "suspension means" provisions are only to the extent necessary to permit the use of Otis Gen2 flat coated steel suspension belts in lieu of conventional steel suspension ropes;

- Inspection transfer switch: 2.26.1.4.4(a) (only to the extent necessary to allow the inspection transfer switch to reside at a location other than a machine room, if, in fact, it does not reside in the machine room); and

- Seismic reset switch: 8.4.10.1.1(a)(2)(b) (only to the extent necessary to allow the seismic reset switch to reside at a location other than a machine room, if, in fact, it does not reside in the machine room).

- Minimum Inside Car Platform Dimensions: 3041(e)(1)(C) and 3141.7(b) (Only to the extent necessary to comply with the performance-based requirements of the 2019 California Building Code Section 3002.4.1a)

These variances apply to the locations and numbers of elevators stated in the section A table (so long as the elevators are Gen3 Edge/Gen2S Group IV devices that are designed, equipped, and installed in accordance with, and are otherwise consistent with, the representations made in the Otis Master File [referred to in previous proposed decisions as the "Gen2 Master File") maintained

by the Board, as that file was constituted at the time of this hearing) and are subject to the following conditions:

1. The suspension system shall comply with the following:

    a. The coated steel belt and connections shall have factors of safety equal to those permitted for use by section 3141 [ASME A17.1-2004, section 2.20.3] on wire rope suspended elevators.

    b. Steel coated belts that have been installed and used on another installation shall not be reused.

    c. The coated steel belt shall be fitted with a monitoring device which has been accepted by the Division and which will automatically stop the car if the residual strength of any single belt drops below 60 percent. If the residual strength of any single belt drops below 60 percent, the device shall prevent the elevator from restarting after a normal stop at a landing.

    d. Upon initial inspection, the readings from the monitoring device shall be documented and submitted to the Division.

    e. A successful test of the monitoring device's functionality shall be conducted at least once a year (the record of the annual test of the monitoring device shall be a maintenance record subject to ASME A17.1-2004, section 8.6.1.4).

    f. The coated steel belts used shall be accepted by the Division.

2. With respect to each elevator subject to this variance, the applicant shall comply with Division Circular Letter E-10-04, the substance of which is attached hereto as Addendum 1 and incorporated herein by this reference.

3. The Applicant shall not utilize the elevator unless the manufacturer has written procedures for the installation, maintenance, inspection, and testing of the belts and monitoring device and criteria for belt replacement, and the applicant shall make those procedures and criteria available to the Division upon request.

4. The flat coated steel belts shall be provided with a metal data tag that is securely attached to one of those belts. This data tag shall bear the following flat steel coated belt data:

    a. The width and thickness in millimeters or inches;

    b. The manufacturer's rated breaking strength in (kN) or (lbf);

    c. The name of the person or organization that installed the flat coated steel belts;

d. The month and year the flat coated steel belts were installed;

e. The month and year the flat coated steel belts were first shortened;

f. The name or trademark of the manufacturer of the flat coated steel belts; and

g. Lubrication information.

5. There shall be a crosshead data plate of the sort required by section 2.20.2.1, and that plate shall bear the following flat steel coated belt data:

   a. The number of belts;

   b. The belt width and thickness in millimeters or inches; and

   c. The manufacturer's rated breaking strength per belt in (kN) or (lbf).

6. The opening to the hoistway shall be effectively barricaded when car top inspection, maintenance, servicing, or testing of elevator equipment in the hoistway is required. If service personnel must leave the area for any reason, the hoistway and control room doors shall be closed.

7. If there is an inset car top railing:

   a. Serviceable equipment shall be positioned so that mechanics and inspectors do not have to climb on railings to perform adjustment, maintenance, repairs or inspections. The applicant shall not permit anyone to stand on or climb over the car top railing.

   b. The distance that the car top railing may be inset shall be limited to no more than 6 inches.

   c. All exposed areas outside the car top railing shall preclude standing or placing objects or persons which may fall and shall be beveled from the mid- or top rail to the outside of the car top.

   d. The top of the beveled area and/or car top outside the railing, shall be clearly marked. The markings shall consist of alternating 4 inch diagonal red and white stripes.

   e. The applicant shall provide durable signs with lettering not less than ½ inch on a contrasting background on each inset railing; each sign shall state:

CAUTION
DO NOT STAND ON OR CLIMB OVER RAILING

   f. The Group IV requirements for car top clearances shall be maintained (car top clearances outside the railing shall be measured from the car top and not from the required bevel).

8. If the seismic reset switch does not reside in a machine room, that switch shall not reside in the elevator hoistway. The switch shall reside in the inspection and test control panel located in one upper floor hoistway door jamb or in the control space (outside the hoistway) used by the motion controller.

9. If the inspection transfer switch required by ASME A17.1, rule 2.26.1.4.4(a) does not reside in a machine room, that switch shall not reside in the elevator hoistway. The switch shall reside in the inspection and test control panel located in one upper floor hoistway door jamb or in the control space (outside the hoistway) used by the motion controller.

10. When the inspection and testing panel is located in the hoistway door jamb, the inspection and test control panel shall be openable only by use of a Security Group I restricted key.

11. The governor speed-reducing switch function shall comply with the following:

    a. It shall be used only with direct drive machines; i.e., no gear reduction is permitted between the drive motor and the suspension means.

    b. The velocity encoder shall be coupled to the driving machine motor shaft. The “C” channel of the encoder shall be utilized for velocity measurements required by the speed reducing system. The signal from “C” channel of the encoder shall be verified with the “A” and “B” channels for failure. If a failure is detected then an emergency stop shall be initiated.

    c. Control system parameters utilized in the speed-reducing system shall be held in non-volatile memory.

    d. It shall be used in conjunction with approved car-mounted speed governors only.

    e. It shall be used in conjunction with an effective traction monitoring system that detects a loss of traction between the driving sheave and the suspension means. If a loss of traction is detected, then an emergency stop shall be initiated.

    f. A successful test of the speed-reducing switch system’s functionality shall be conducted at least once a year (the record of the annual test of the speed-reducing switch system shall be a maintenance record subject to ASME A17.1-2004, section 8.6.1.4).

    g. A successful test of the traction monitoring system’s functionality shall be conducted at least once a year (the record of the annual test of the traction monitoring system shall be a maintenance record subject to ASME A17.1-2004, section 8.6.1.4).

    h. The Applicant shall not utilize the elevator unless the manufacturer has written procedures for the maintenance, inspection, and testing of the speed-reducing switch and traction monitoring systems. The Applicant shall make the procedures available to the Division upon request.

12. The speed governor rope and sheaves shall comply with the following:

    a. The governor shall be used in conjunction with a 6 mm (0.25 in.) diameter steel governor rope with 6-strand, regular lay construction.

    b. The governor rope shall have a factor of safety of 8 or greater as related to the strength necessary to activate the safety.

    c. The governor sheaves shall have a pitch diameter of not less than 180 mm (7.1 in.).

13. All medical emergency service elevators shall comply with the following:

    a. The requirements of the 2019 California Building Code (CBC), Section 3002.4.1a;

    > *The medical emergency service elevator shall accommodate the loading and transport of two emergency personnel, each requiring a minimum clear 21-inch (533 mm) diameter circular area and an ambulance gurney or stretcher [minimum size 24 inches by 84 inches (610 mm by 2134 mm) with not less than 5-inch (127 mm) radius corners] in the horizontal, open position."*

    b. All medical emergency service elevators shall be identified in the building construction documents in accordance with the 2019 CBC, Section 3002.4a.

    c. Dimensional drawings and other information necessary to demonstrate compliance with these conditions shall be provided to the Division, at the time of inspection, for all medical emergency service elevator(s).

14. The elevator shall be serviced, maintained, adjusted, tested, and inspected only by Certified Competent Conveyance Mechanics who have been trained to, and are competent to, perform those tasks on the Gen3 Edge/Gen2S elevator system in accordance with the written procedures and criteria required by Condition No. 3 and in accordance with the terms of this permanent variance.

15. Any Certified Qualified Conveyance Company performing inspections, maintenance, servicing, or testing of the elevators shall be provided a copy of this variance decision.

16. The Division shall be notified when the elevator is ready for inspection. The elevator shall be inspected by the Division, and a Permit to Operate shall be issued before the elevator is placed in service.

17. The Applicant shall be subject to the Suspension Means – Replacement Reporting Condition stated in Addendum 2, as hereby incorporated by this reference.

18. The Applicant shall notify its employees or their authorized representative(s), or both, of this order in the same way and to the same extent that employees and authorized representatives are to be notified of docketed permanent variance applications.

19. This Decision and Order shall remain in effect unless modified or revoked upon application by the Applicant, affected employee(s), the Division of Occupational Safety and Health, or by the Board on its own motion, in accordance with the Board's procedural regulations at section 426, subdivision (b).

Pursuant to section 426(b) of the Board's procedural regulations, the above, Proposed Decision, is hereby submitted to the Occupational Safety and Health Standards Board for consideration of adoption.

Dated: March 28, 2023

Autumn Gonzalez, Hearing Officer

ADDENDUM 1

October 6, 2010

CIRCULAR LETTER E-10-04

TO: Installers, Manufacturers of Conveyances and Related Equipment and, Other Interested Parties

SUBJECT: Coated Steel Belt Monitoring

The Elevator Safety Orders require routine inspection of the suspension means of an elevator to assure its safe operation.

The California Labor Code section 7318 allows the Division to promulgate special safety orders in the absence of regulation.

As it is not possible to see the steel cable suspension means of a Coated Steel Belt, a monitoring device which has been accepted by the Division is required on all Coated Steel Belts which will automatically stop the car if the residual strength of any belt drops below 60%. The Device shall prevent the elevator from restarting after a normal stop at a landing.

The monitoring device must be properly installed and functional. A functioning device may be removed only after a determination has been made that the residual strength of each belt exceeds 60%. These findings and the date of removal are to be conspicuously documented in the elevator machine room. The removed device must be replaced or returned to proper service within 30 days.

If upon routine inspection, the monitoring device is found to be in a non-functional state, the date and findings are to be conspicuously documented in the elevator machine room.

If upon inspection by the Division, the monitoring device is found to be non-functional or removed, and the required documentation is not in place, the elevator will be removed from service.

If the device is removed to facilitate belt replacement, it must be properly installed and functional before the elevator is returned to service.

A successful test of the device's functionality shall be conducted once a year.

This circular does not preempt the Division from adopting regulations in the future, which may address the monitoring of Coated Steel Belts or any other suspension means.

This circular does not create an obligation on the part of the Division to permit new conveyances utilizing Coated Steel Belts.

Debra Tudor
Principal Engineer
DOSH-Elevator Unit HQS

ADDENDUM 2

Suspension Means – Replacement Reporting Condition

Beginning on the date the Board adopts this Proposed Decision and continuing for a period of two years, the Applicant shall report to the Division within 30 days any and all replacement activity performed on the elevator(s) pursuant to the requirements of ASME A17.1-2004, section 8.6.3 involving the suspension means or suspension means fastenings.

Further:

1. A separate report for each elevator shall be submitted, in a manner acceptable to the Division, to the following address (or to such other address as the Division might specify in the future): DOSH Elevator Unit, 2 MacArthur Place, Suite 700, Santa Ana, CA 92707, Attn: Engineering Section.

2. Each such report shall contain, but not necessarily be limited to, the following information:

    a. The State-issued conveyance number, complete address, and OSHSB file number that identifies the permanent variance.

    b. The business name, complete address, telephone number, and contact person of the elevator responsible party (presumably the Applicant or the subsequent holder of this variance).

    c. The business name, complete address, telephone number, and Certified Qualified Conveyance Company (CQCC) certification number of the firm performing the replacement work.

    d. The name (as listed on certification), Certified Competent Conveyance Mechanic (CCCM) certification number, certification expiration date, and signature of each CCCM performing the replacement work.

    e. The date and time the elevator was removed from normal service for suspension replacement, the date and time the replacement work commenced, the date and time the replacement work was completed, and the date and time the elevator was returned to normal service.

    f. A detailed description of, and clear color photographs depicting, (1) all the conditions that existed in the suspension components requiring their replacement and (2) any conditions that existed to cause damage or distress to the suspension components being replaced.

g. A detailed list of all elevator components adjusted, repaired, or replaced in conjunction with the suspension component replacement.

h. All information provided on the crosshead data plate per ASME A17.1-2004, section 2.20.2.1, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

i. For the suspension means being replaced, all information provided on the data tag required per ASME A17.1-2004, section 2.20.2.2, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

j. For the replacement suspension means, all information provided on the data tag required by ASME A17.1-2004, section 2.20.2.2, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

k. Any other information requested by the Division regarding the replacement of the suspension means or fastenings.

3. In addition to the submission of the report to the Division, the findings of any testing, failure analysis, or other engineering evaluations performed on any portion of the replaced suspension components, or other elevator components replaced in conjunction therewith, shall be submitted to the Division referencing the information contained in item 2a above.

STATE OF CALIFORNIA
DEPARTMENT OF INDUSTRIAL RELATIONS
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
2520 Venture Oaks Way, Suite 350
Sacramento, California 95833
(916) 274-5721

In the Matter of Application for Permanent Variance regarding:

TK Elevator Evolution (Group IV)

OSHSB File No.: See Section A.1 table of Proposed Decision Dated: March 28, 2023

DECISION

The Occupational Safety and Health Standards Board hereby adopts the attached PROPOSED DECISION by Autumn Gonzalez, Hearing Officer.

_____
DAVID THOMAS, Chairman

_____
BARBARA BURGEL, Member

_____
KATHLEEN CRAWFORD, Member

_____
DAVID HARRISON, Member

_____
NOLA KENNEDY, Member

_____
CHRIS LASZCZ-DAVIS, Member

_____
LAURA STOCK, Member

OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

Date of Adoption: April 20, 2023

THE FOREGOING VARIANCE DECISION WAS ADOPTED ON THE DATE INDICATED ABOVE. IF YOU ARE DISSATISFIED WITH THE DECISION, A PETITION FOR REHEARING MAY BE FILED BY ANY PARTY WITH THE STANDARDS BOARD WITHIN TWENTY (20) DAYS AFTER SERVICE OF THE DECISION. YOUR PETITION FOR REHEARING MUST FULLY COMPLY WITH THE REQUIREMENTS OF CALIFORNIA CODE OF REGULATIONS, TITLE 8, SECTIONS 427, 427.1 AND 427.2.

Note: A copy of this Decision must be posted for the Applicant's employees to read, and/or a copy thereof must be provided to the employees' Authorized Representatives.

BEFORE THE
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
DEPARTMENT OF INDUSTRIAL RELATIONS
STATE OF CALIFORNIA

In the Matter of Application for Permanent Variance Regarding: TK Elevator Evolution (Group IV)	OSHSB File Nos.: Per Section A.1 table PROPOSED DECISION Hearing Date: March 22, 2023

A. Procedural Matters

1. The below listed Applicants ("Applicant") have applied for permanent variance from certain provisions of the Elevator Safety Orders, found at title 8 of the California Code of Regulations[1], with respect to a conveyance, or conveyances, in the listed quantity, at the listed location:

Variance No.	Applicant Name	Variance Location Address	No. of Elevators
23-V-002	TP Heritage Inn of Pleasanton, LLC	7260 Johnson Dr. Pleasanton, CA	2
23-V-025	Glendale Studio I Owner, LLC	1233 S. Glendale Ave. Glendale, CA	2
23-V-038	Contra Costa County	1026 Escobar St. Martinez, CA	2
23-V-047	Commune Porter Mar Vista, LLC	12767 Mitchel Ave. Los Angeles, CA	1

2. These proceedings are conducted in accordance with Labor Code section 143, and section 401, et. seq.

3. This hearing was held on March 22, 2023, in Sacramento, California via teleconference, by delegation of the Occupational Safety and Health Standards Board ("Board"), with Hearing Officer Autumn Gonzalez, both presiding and hearing the matter on its merit, as a basis of proposed decision to be advanced to the Board for its consideration, in accordance with California Code of Regulations, Title 8, Section 426.

4. At the hearing, Justin Zoetewey with TK Elevator appeared on behalf of the Applicant, Mark Wickens and David Morris appeared on behalf of the Division of

[1] Unless otherwise noted, references are to the California Code of Regulations, title 8.

Occupational Safety and Health ("Division"), and Michael Nelmida appeared on behalf of Board staff acting in a technical advisory role apart from the Board.

5. Documentary and oral evidence was received at the hearing, and by stipulation of all parties, documents were admitted into evidence:

Exhibit Number	Description of Exhibit
PD-1	Application(s) for Permanent Variance per section A.1 table
PD-2	OSHSB Notice of Hearing
PD-3	Board Staff Review of Variance Application
PD-4	Division Review of Variance Application
PD-5	Review Draft-1 Proposed Decision

6. Official notice is taken of the Board's files, records, recordings and decisions concerning the Elevator Safety Order requirements from which variance shall issue. On March 22, 2023, the hearing and record closed, and the matter was taken under submission by the Hearing Officer.

B. Relevant Safety Orders

Variance Request No. 1 (ASME A17.1-2004, Section 2.14.1.7.1)

2.14.1.7.1 A standard railing conforming to 2.10.2 shall be provided on the outside perimeter of the car top on all sides where the perpendicular distance between the edges of the car top and the adjacent hoistway enclosure exceeds 300 mm (12 in.) horizontal clearance.

Variance Request No. 2A (ASME A17.1-2004, section 2.20.1)

2.20.1 Suspension Means

Elevator cars shall be suspended by steel wire ropes attached to the car frame or passing around sheaves attached to the car frame specified in 2.15.1. Ropes that have previously been installed and used on another installation shall not be reused.

Only iron (low-carbon steel) or steel wire ropes, having the commercial classification "Elevator Wire Rope," or wire rope specifically constructed for elevator use, shall be used for the suspension of elevator cars and for the suspension of counterweights. The wire material for ropes shall be manufactured by the open-hearth or electric furnace process or their equivalent.

Variance Request No. 2B (ASME A17.1-2004, section 2.20.2[.1])

2.20.2.1 On Crosshead Data Plate.

The crosshead data plate required by 2.16.3 shall bear the following wire-rope data:

(a) the number of ropes

(b) the diameter in millimeters (mm) or inches (in.)

(c) the manufacturer's rated breaking strength per rope in kilo Newton (kN) or pounds (lb)

Variance Request No. 2C (ASME A17.1-2004, section 2.20.2.2)

2.20.2.2 On Rope Data Tag.

A metal data tag shall be securely attached to one of the wire-rope fastenings. This data tag shall bear the following wire-rope data:

(a) the diameter in millimeters (mm) or inches (in.)

[…]

(f) whether the ropes were nonpreformed or preformed

[…]

Variance Request No. 2D. (ASME A17.1-2004, section 2.20.3)

2.20.3 Factor of Safety

The factor of safety of the suspension wire ropes shall be not less than shown in Table 2.20.3. Figure 8.2.7 gives the minimum factor of safety for intermediate rope speeds. The factor of safety shall be based on the actual rope speed corresponding to the rated speed of the car.

The factor of safety shall be calculated by the following formula:

$$f = \frac{S \times N}{W}$$

where

N = number of runs of rope under load. For 2:1 roping, N shall be two times the number of ropes used, etc.

S = manufacturer's rated breaking strength of one rope

W = maximum static load imposed on all car ropes with the car and its rated load at any position in the hoistway

Variance Request No. 2E (ASME A17.1-2004, section 2.20.4)

2.20.4 Minimum Number and Diameter of Suspension Ropes

The minimum number of hoisting ropes used shall be three for traction elevators and two for drum-type elevators.

Where a car counterweight is used, the number of counterweight ropes used shall be not less than two.

The term" diameter," where used in reference to ropes, shall refer to the nominal diameter as given by the rope manufacturer.

The minimum diameter of hoisting and counterweight ropes shall be 9.5 mm (0.375 in.). Outer wires of the ropes shall be not less than 0.56 mm (0.024 in.) in diameter.

Variance Request No. 2F (ASME A17.1-2004, section 2.20.9[.1])

2.20.9 Suspension-Rope Fastening

2.20.9.1 Type of Rope Fastenings. The car and counterweight ends of suspension wire ropes, or the stationary hitch-ends where multiple roping is used, shall be fastened in such a manner that all portions of the rope, except the portion inside the rope sockets, shall be readily visible.

Fastening shall be

(a) by individual tapered rope sockets (see 2.20.9.4) or other types of rope fastenings that have undergone adequate tensile engineering tests, provided that

(1) such fastenings conform to 2.20.9.2 and 2.20.9.3;

(2) the rope socketing is such as to develop at least 80% of the ultimate breaking strength of the strongest rope to be used in such fastenings; or

(b) by individual wedge rope sockets (see 2.20.9.5); and

(c) U-bolt-type rope clamps or similar devices shall not be used for suspension rope fastenings.

Variance Request No. 3 (ASME A17.1-2004, section 2.26.9.4)

2.26.9.4 Redundant devices used to satisfy 2.26.9.3 in the determination of the occurrence of a single ground, or the failure of any single magnetically operated switch, contactor or relay, or of any single solid state device, or any single device that limits the leveling or truck zone, or a software system failure, shall be checked prior to each start of the elevator from a landing, when on automatic operation. When a single ground or failure, as specified in 2.26.9.3, occurs, the car shall not be permitted to restart. Implementation of redundancy by a software system is permitted, provided that the removal of power from the driving-machine motor and brake shall not be solely dependent on software-controlled means.

Variance Request No. 4 (ASME A17.1-2004, section 2.26.9.6.1)

2.26.9.6.1 Two separate means shall be provided to independently inhibit the flow of alternating-current through the solid state devices that connect the direct-current power source to the alternating-current driving motor. At least one of the means shall be an electromechanical relay.

Variance Request No. 5 (ASME A17.1-2004, section 2.26.1.4[.1](a))

2.26.1.4.1 General Requirements

(a) Operating devices for inspection operation shall be provided on the top of the car and shall also be permitted in the car and in the machine room.

Variance Request No. 6 (ASME A17.1-2004, section 8.4.10.1.1(a)(2)(b))

8.4.10.1.1 Earthquake Equipment (See Also Fig. 8.4.10.1.1)

(a) All traction elevators operating at a rated speed of 0.75 m/s (150 ft/min) or more and having counterweights located in the same hoistway shall be provided with the following:

(1) seismic zone 3 or greater: a minimum of one seismic switch per building

(2) seismic zone 2 or greater:

(a) a displacement switch for each elevator

(b) an identified momentary reset button or switch for each elevator, located in the control panel in the elevator machine room [see 8.4.10.1.3(i)]

C. Findings

1. Applicant proposes to utilize inset car top railings and guards in compliance with ASME 17.1-2013, section 2.14.1.7.1 and the *Vivante Westside, LLC* File No. 18-V-364 (Nov. 20, 2020) decision (*Vivante*). Applicant further claims that the request is consistent with the *Vivante*, the *Mack Urban, LLC*, File No. 15-V-349 (Nov. 17, 2016), and the *Patton Equities, LLC* File No. 20-V-128 (Nov. 12, 2020) decisions (*Patton Equities*).

2. Applicant proposes to utilize noncircular elastomeric-coated steel belts ("ECSBs") rather than steel ropes in a machine room-less ("MRL") elevator installation, with updated data plates, data tags, and wedge sockets designed for use with ECSBs, as well as the appropriate factor of safety criteria conforming to ASME 17.1-2013, with a continuous residual strength detection device ("RSDD") compliant with the *San Francisco Public Works (File No. 21-V-061, et al.)* decisions.

3. The installation shall utilize the TK Elevator Model 104DP001 RSDD, accepted by the Division on May 4, 2021.

4. Applicant proposes to comply with ASME A17.1-2013 sections 2.26.9.3, "Protection Against Failures", rather than the requirements of 2.26.9.3 and 2.26.9.4 in the ASME 2004 code.

5. Applicant proposes to use TKE's control systems, using the TKE TAC32T Controller with SIL3 rated elements, to provide equivalent safety to ASME A17.1-2004, section 2.26.9.4 as a means to inhibit flow of Alternating Current to the Driving Motor in compliance with ASME A17.1-2013, section 2.26.9.6.

6. Applicant proposes to locate the Inspection Transfer Switch within the machinery/control room/space in the MRL installation, in compliance with ASME 17.1-2013, section 2.26.1.4.

7. Applicant proposes to locate the Seismic-Operation Reset Switch in the machinery/control room/space in the MRL installation.

D. Decision and Order

Applicant is hereby conditionally GRANTED Permanent Variance as specified below, and to the limited extent, as of the date the Board adopts this Proposed Decision, with respect to the section A specified number of TKE EVO 200 elevator(s), at the specified location, each shall conditionally hold permanent variance from the following subparts of ASME A17.1-2004, currently incorporated by reference into section 3141 of the Elevator Safety Orders:

- Car-Top Railing: 2.14.1.7.1 (Limited to the extent necessary to permit the use of an inset car-top railing)

- Suspension Means: 2.20.1, 2.20.2.1, 2.20.2.2(a), 2.20.2.2(f), 2.20.3, 2.20.4, and 2.20.9.1 (Limited to the extent necessary to permit the use of the elastomeric-coated steel belts in lieu of circular steel suspension ropes)

- Inspection transfer switch: 2.26.1.4.4(a) (Limited to the extent necessary to permit the inspection transfer switch to reside at a location other than the machine room)

- Software Reliant Means to Remove Power: 2.26.9.4 (Limited to the extent necessary to permit the exclusive use of SIL-rated software systems as a means to remove power from the driving machine motor and brake)

- SIL-Rated Circuitry to Inhibit Current Flow: 2.26.9.6.1 (Limited to the extent necessary to permit the use of SIL-rated circuitry in place of an electromechanical relay to inhibit current flow to the drive motor)

- Seismic reset switch: 8.4.10.1.1(a)(2)(b) (Limited to the extent necessary to permit the seismic reset switch to reside at a location other than the machine room)

Inset Car Top Railing (Variance Request No. 1):

1.0 Any and all inset car top railings shall comply with the following:

1.1 Serviceable equipment shall be positioned so that mechanics and inspectors do not have to stand on or climb over the railings to perform adjustments, maintenance, repairs or inspections. The Applicant shall not permit trained elevator mechanics or elevator service personnel to stand or climb over the car top railing.

1.2 The distance that the railing can be inset shall be limited to not more than six inches (6”).

1.3 All exposed areas of the car top outside the car top railing where the distance from the railing to the edge of the car top exceeds two inches (2”), shall be beveled with metal, at an angle of not less than 75 degrees with the horizontal, from the mid or top rail to the outside of the car top, such that no person or object can stand, sit, kneel, rest, or be placed in the exposed areas.

1.4 The top surface of the beveled area and/or car top outside the railing, shall be clearly marked. The markings shall consist of alternating 4” diagonal red and white stripes.

1.5 The Applicant shall provide durable signs with lettering not less than 1/2 inch on a contrasting background on each inset railing; each sign shall state:

CAUTION
STAY INSIDE RAILING
NO LEANING BEYOND RAILING
NO STEPPING ON, OR BEYOND, RAILING

1.6 The Group IV requirements for car top clearances shall be maintained (car top clearances outside the railing will be measured from the car top and not from the required bevel).

Suspension Means (Variance Request No. 2):

2.0 The elevator suspension system shall comply with the following:

2.1 The elastomeric coated steel belts (ECSBs) and their associated fastenings shall conform to the applicable requirements of ASME A17.1-2013, sections:

2.20.4.3 – Minimum Number of Suspension Members
2.20.3 – Factor of Safety
2.20.9 – Suspension Member Fastening

2.2 Additionally, ECSBs shall meet or exceed all requirements of ASME A17.6 2010, Standard for Elevator Suspension, Compensation, and Governor Systems, Part 3 Noncircular Elastomeric Coated Steel Suspension Members for Elevators.

2.3 The Applicant shall not utilize the elevator unless the manufacturer has written procedures for the installation, maintenance, inspection and testing of the ECSBs and fastenings and related monitoring and detection systems and criteria for ECSB replacement, and the Applicant shall make those procedures and criteria available to the Certified Competent Conveyance Mechanic (CCCM) at the location of the elevator, and to the Division of Occupational Safety and Health (Division) upon request.

2.4 ECSB mandatory replacement criteria shall include:

2.4.1. Any exposed wire, strand or cord;

2.4.2. Any wire, strand or cord breaks through the elastomeric coating;

2.4.3. Any evidence of rouging (steel tension element corrosion) on any part of the elastomeric coated steel suspension member;

2.4.4. Any deformation in the elastomeric suspension member such as, but not limited to, kinks or bends.

2.5 Traction drive sheaves must have a minimum diameter of 112 mm. The maximum speed of ECSBs running on 112 mm drive sheaves shall be no greater than 6.1 m/s.

2.6 If any one (1) ECSB needs replacement, the complete set of suspension members on the elevator shall be replaced. Exception: If a new suspension member is damaged during installation, and prior to any contemporaneously installed ECSB having been placed into service, it is permissible to replace the individual damaged suspension member. ECSBs that have been installed on another installation shall not be re used.

2.7 A traction loss detection means shall be provided that conforms to the requirements of ASME A17.1-2013, section 2.20.8.1. The means shall be tested for correct function annually in accordance with ASME A17.1-2013, section 8.6.4.19.12.

2.8 A broken suspension member detection means shall be provided that conforms to the requirements of ASME A17.1-2013, section 2.20.8.2. The means shall be tested for correct function annually in accordance with ASME A17.1-2013, section 8.6.4.19.13(a).

2.9 An elevator controller integrated bend cycle monitoring system shall monitor actual ECSB bend cycles, by means of continuously counting, and storing in nonvolatile memory, the number of trips that the ECSB makes traveling, and thereby being bent, over the elevator sheaves. The bend cycle limit monitoring means shall automatically stop the car normally at the next available landing before the bend cycle correlated residual strength of any single ECSB member drops below (60%)

sixty percent of full rated strength. The monitoring means shall prevent the car from restarting. Notwithstanding any less frequent periodic testing requirement per Addendum 2 (Division Circular Letter), the bend cycle monitoring system shall be tested semiannually in accordance with the procedures required per above Conditions 2.3 and 2.4.

2.10 The elevator crosshead data plate shall comply with the requirements of ASME A17.1-2013, section 2.20.2.1.

2.11 A suspension means data tag shall be provided that complies with the requirements of ASME A17.1-2013, section 2.20.2.2.

2.12 Comprehensive visual inspections of the entire length of each and all installed suspension members, in conformity with above Conditions 2.3 and 2.4 specified criteria, shall be conducted and documented every six (6) months by a CCCM.

2.13 The Applicant shall be subject to the requirements per hereto attached, and inhere incorporated, Addendum 1, "Suspension Means Replacement Reporting Condition."

2.14 Records of all tests and inspections shall be maintenance records subject to ASME A17.1-2004, sections 8.6.1.2, and 8.6.1.4, respectively.

2.15 The subject elevators(s) shall be equipped with a TK Elevator Model 104DP001 Residual Strength Detection Device accepted by the Division on May 4, 2021 or Division accepted equivalent device.

Control and Operating Circuits
Combined Software Redundant Devices with Software Removal of Power from Driving Motor and Brake (Variance Request No. 3)
Removal of Power from Driving Motor Without Electro-mechanical Switches (Variance Request No. 4)

3.0 The SIL rated circuitry used to provide device/circuit redundancy and to inhibit electrical current flow in accordance with ASME A17.1-2004, sections 2.26.9.4 and 2.26.9.6.1 shall comply with the following:

3.1 The SIL rated systems and related circuits shall consist of:

3.1.1. ELGO LIMAX33 RED, (aka LIMAX3R-03-050-0500-CNXTG-RJU), Safe Magnetic Absolute Shaft Information System, labeled or marked with the SIL rating (not less than SIL 3), the name or mark of the certifying organization, and the SIL certification number (968/A 163), followed by the applicable revision number (as in 968/A 163.07/19).

3.1.2 Printed circuit board assembly SSOA (6300 AHE001), labeled or marked with the SIL rating (not less than SIL 3), the name or mark of the certifying organization, and the SIL certification number (968/FSP 1347), followed by the applicable revision number (as in 968/FSP 1347.00/16).

3.1.3 Two circuit board components (Serializer S3I and S3O), each labeled or marked with the SIL rating (not less than SIL 3), the name or mark of the certifying organization and the SIL certification number (968/A 162), followed by the applicable revision number (as in 968/A 162.04/18)

3.2 The software system and related circuits shall be certified for compliance with the applicable requirements of ASME A17.1-2013, section 2.26.4.3.2.

3.3 The access door or cover of the enclosures containing the SIL rated components shall be clearly labeled or tagged on their exterior with the statement:

Assembly contains SIL rated devices.
Refer to maintenance Control Program and wiring diagrams
prior to performing work.

3.4 Unique maintenance procedures or methods required for the inspection, testing, or replacement of the SIL rated circuits shall be developed and a copy maintained in the elevator machine/control room/space. The procedures or methods shall include clear color photographs of each SIL rated component, with notations identifying parts and locations.

3.5 Wiring diagrams that include part identification, SIL, and certification information shall be maintained in the elevator machine/control room/space.

3.6 A successful test of the SIL rated circuits shall be conducted initially and not less than annually in accordance with the testing procedure. The test shall demonstrate that SIL rated devices, safety functions, and related circuits operate as intended.

3.7 Any alterations to the SIL rated circuits shall be made in compliance with the Elevator Safety Orders. If the Elevator Safety Orders do not contain specific provisions for the alteration of SIL rated devices, the alterations shall be made in conformance with ASME A17.1-2013, section 8.7.1.9.

3.8 Any replacement of the SIL rated circuits shall be made in compliance with the Elevator Safety Orders. If the Elevator Safety Orders do not contain specific provisions for the replacement of SIL rated devices, the replacement shall be made in conformance with ASME A17.1-2013, section 8.6.3.14.

3.9 Any repairs to the SIL rated circuits shall be made in compliance with the Elevator Safety Orders. If the Elevator Safety Orders do not contain specific provisions for the repair of SIL rated devices, the repairs shall be made in conformance with ASME A17.1-2013, section 8.6.2.6.

3.10 Any space containing SIL rated circuits shall be maintained within the temperature and humidity range specified by TKE. The temperature and humidity range shall be posted on each enclosure containing SIL rated software or circuits.

3.11 Field software changes to the SIL rated system are not permitted. Any changes to the SIL rated system's circuitry will require recertification and all necessary updates to the documentation and diagrams required by Conditions 3.4 and 3.5 above.

Inspection Transfer Switch and Seismic Reset Switch (Variance Request Nos. 5 and 6):

4.0 Inspection Transfer switch and Seismic Reset switch placement and enclosure shall comply with the following:

4.1 If the inspection transfer switch required by ASME A17.1-2004, section 2.26.1.4.4, does not reside in a machine room, that switch shall not reside in the elevator hoistway. The switch shall reside in the control/machinery room/space containing the elevator's control equipment in an enclosure secured by a lock openable by a Group 1 security key. The enclosure is to remain locked at all times when not in use.

4.2 If the seismic reset switch does not reside in the machine room, that switch shall not reside in the elevator hoistway. The switch shall reside in the control/machinery room/space containing the elevator's control equipment in an enclosure secured by a lock openable by a Group 1 security key. The enclosure is to remain locked at all times when not in use.

5.0 The elevator shall be serviced, maintained, adjusted, tested, and inspected only by CCCM having been trained, and competent, to perform those tasks on the TKE EVO 200 elevator system in accordance with written procedures and criteria, including as required per above Conditions 2.3, and 2.4.

6.0 The Division shall be notified when the elevator is ready for inspection. The elevator shall be inspected by the Division, and all applicable requirements met, including conditions of this permanent variance, prior to a Permit to Operate the elevator being issued. The elevator shall not be placed in full service prior to the Permit to Operate being issued by Division.

7.0 The Applicant shall notify its employees or their authorized representative(s), or both, of this order in the same way and to the same extent that employees and authorized representatives are to be notified of docketed permanent variance applications pursuant to California Code of Regulations, Title 8, sections 411.2, and 411.3.

8.0 This Decision and Order shall remain in effect unless modified or revoked upon application by the Applicant, affected employee(s), the Division, or by the Board on its own motion, in the manner prescribed for its issuance.

Pursuant to California Code of Regulations, Title 8, Section 426(b), the above, duly completed Proposed Decision, is hereby submitted to the Occupational Safety and Health Standards Board for consideration of adoption.

DATED: March 28, 2023

Autumn Gonzalez, Hearing Officer

ADDENDUM 1

SUSPENSION MEANS REPLACEMENT REPORTING REQUIREMENTS

Beginning on the date the Board adopts this Proposed Decision and continuing for a period of two years, the Applicant shall report to the Division within 30 days any and all replacement activity performed on the elevator(s) pursuant to the requirements of ASME A17.1-2004, Section 8.6.3 involving the suspension means or suspension means fastenings.

Further:

(1) A separate report for each elevator shall be submitted, in a manner acceptable to the Division, to the following address (or to such other address as the Division might specify in the future): DOSH Elevator Unit, Attn: Engineering Section, 2 MacArthur Place Suite 700, Santa Ana, CA 92707.

(2) Each such report shall contain, but not necessarily be limited to, the following information:

(a) The State-issued conveyance number, complete address, and OSHSB file number that identifies the permanent variance.

(b) The business name, complete address, telephone number, and contact person of the elevator responsible party (presumably the Applicant or the subsequent holder of this variance).

(c) The business name, complete address, telephone number, and Certified Qualified Conveyance Company (CQCC) certification number of the firm performing the replacement work.

(d) The name (as listed on certification), Certified Competent Conveyance Mechanic (CCCM) certification number, and certification expiration date of each CCCM performing the replacement work.

(e) The date and time the elevator was removed from normal service for suspension replacement, the date and time the replacement work commenced, the date and time the replacement work was completed, and the date and time the elevator was returned to normal service.

(f) A detailed description of, and clear color photographs depicting, (1) all the conditions that existed in the suspension components requiring their replacement and (2) any conditions that existed to cause damage or distress to the suspension components being replaced.

(g) A detailed list of all elevator components adjusted, repaired, or replaced in conjunction with the suspension component replacement.

(h) All information provided on the crosshead data plate per ASME A17.1-2004, Section 2.20.2.1, unless that ASME requirement is modified by the conditions of a variance

that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

(i) For the suspension means being replaced, all information provided on the data tag required per ASME A17.1-2004, Section 2.20.2.2, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

(j) For the replacement suspension means, all information provided on the data tag required by ASME A17.1-2004, Section 2.20.2.2, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

(k) Any other information requested by the Division regarding the replacement of the suspension means or fastenings.

In addition to the submission of the report to the Division, the findings of any testing, failure analysis, or other engineering evaluations performed on any portion of the replaced suspension components, or other elevator components replaced in conjunction therewith, shall be submitted to the Division referencing the information contained in item 2(a) above.

ADDENDUM 2

CIRCULAR LETTER E-10-04, October 6, 2010

TO: Installers, Manufacturers of Conveyances and Related Equipment and, Other Interested Parties

SUBJECT: Coated Steel Belt Monitoring

The Elevator Safety Orders require routine inspection of the suspension means of an elevator to assure its safe operation.

The California Labor Code Section 7318 allows the Division to promulgate special safety orders in the absence of regulation.

As it is not possible to see the steel cable suspension means of a Coated Steel Belt, a monitoring device which has been accepted by the Division is required on all Coated Steel Belts which will automatically stop the car if the residual strength of any belt drops below 60%. The Device shall prevent the elevator from restarting after a normal stop at a landing.

The monitoring device must be properly installed and functional. A functioning device may be removed only after a determination has been made that the residual strength of each belt exceeds 60%. These findings and the date of removal are to be conspicuously documented in the elevator machine room. The removed device must be replaced or returned to proper service within 30 days.

If upon routine inspection, the monitoring device is found to be in a non-functional state, the date and findings are to be conspicuously documented in the elevator machine room.

If upon inspection by the Division, the monitoring device is found to be non-functional or removed, and the required documentation is not in place, the elevator will be removed from service.

If the device is removed to facilitate belt replacement, it must be properly installed and functional before the elevator is returned to service.

A successful test of the device's functionality shall be conducted once a year.

This circular does not preempt the Division from adopting regulations in the future, which may address the monitoring of Coated Steel Belts or any other suspension means.

This circular does not create an obligation on the part of the Division to permit new conveyances utilizing Coated Steel Belts.

Debra Tudor
Principal Engineer
DOSH-Elevator Unit HQ

ADDENDUM 3

(A) A Residual Strength Detection Device (RSDD) shall continuously monitor all Elastomeric Coated Steel Belt suspension members (ECSB), automatically stopping the car if the residual strength of any belt drops below 60%. The RSDD shall prevent the elevator from restarting after a normal stop at a landing. The RSDD shall device shall apply a form of electrical current and/or signal through the entire length of the steel tension elements of the ECSB and measure the current and/or signal on its return. The values measured shall be continuously compared to values that have been correlated to the remaining residual strength of the ECSB through testing. The required RSDD shall not rely upon giant magnetoresistance technology, or other magnetic measurement means, for residual strength detection or monitoring.

The RSDD must be properly installed and functional. A functioning device may be removed only after a determination has been made that the residual strength of each belt exceeds 60%. These findings and the date of removal are to be conspicuously documented in the elevator machine room or controller location. The removed RSDD must be replaced or returned to proper service within 30 days. If upon routine inspection, the RSDD device is found to be in a non-functional state, the date and findings are to be conspicuously documented in the elevator machine room or controller location.

If upon inspection by the Division, the RSDD is found to be non-functional or removed, and the required documentation is not in place, the elevator will be removed from service. If the device is removed to facilitate belt replacement, it must be properly installed and functional before the elevator is returned to service.

(B) On or before November 21 2021, and thereafter, the above specified and documented RSDD shall be installed and operational on the subject elevator.

(C) A successful functionality test of each RSDD shall be conducted once a year, and a copy of completed testing documentation conspicuously located in the machine room or within proximity of the controller.

STATE OF CALIFORNIA
DEPARTMENT OF INDUSTRIAL RELATIONS
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
2520 Venture Oaks Way, Suite 350
Sacramento, California 95833
(916) 274-5721

In the Matter of Application for Permanent Variance regarding:

Schindler 3300 with SIL-Rated Drive to De-energize Drive Motor (Group IV)

OSHSB File No.: See table in Item 1 of Proposed Decision Dated: March 28, 2023

DECISION

The Occupational Safety and Health Standards Board hereby adopts the attached PROPOSED DECISION by Autumn Gonzalez, Hearing Officer.

_____
DAVID THOMAS, Chairman

_____
BARBARA BURGEL, Member

_____
KATHLEEN CRAWFORD, Member

_____
DAVID HARRISON, Member

_____
NOLA KENNEDY, Member

_____
CHRIS LASZCZ-DAVIS, Member

_____
LAURA STOCK, Member

OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

Date of Adoption: April 20, 2023

THE FOREGOING VARIANCE DECISION WAS ADOPTED ON THE DATE INDICATED ABOVE. IF YOU ARE DISSATISFIED WITH THE DECISION, A PETITION FOR REHEARING MAY BE FILED BY ANY PARTY WITH THE STANDARDS BOARD WITHIN TWENTY (20) DAYS AFTER SERVICE OF THE DECISION. YOUR PETITION FOR REHEARING MUST FULLY COMPLY WITH THE REQUIREMENTS OF CALIFORNIA CODE OF REGULATIONS, TITLE 8, SECTIONS 427, 427.1 AND 427.2.

Note: A copy of this Decision must be posted for the Applicant's employees to read, and/or a copy thereof must be provided to the employees' Authorized Representatives.

BEFORE THE
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
DEPARTMENT OF INDUSTRIAL RELATIONS
STATE OF CALIFORNIA

In the Matter of Application for Permanent Variance Regarding: Schindler 3300 with SIL-Rated Drive to De-energize Drive Motor (Group IV)	OSHSB File Nos.: Per table, in Jurisdictional and Procedural Matters below PROPOSED DECISION Hearing Date: March 22, 2023

Jurisdictional and Procedural Matters

1. Each below listed applicant ("Applicant") has applied for permanent variance from certain provisions of the Elevator Safety Orders, found at title 8, of the California Code of Regulations, with respect to a conveyance, or conveyances, in the listed quantity, at the listed location:

Variance No.	Applicant Name	Variance Location Address	No. of Elevators
23-V-003	Gelastopoulos Trust	4566 30th St. San Diego, CA	1
23-V-012	Georgia Modern, LLC	4222 Georgia St. San Diego, CA	1
23-V-013	Woaraputt LLC	1915 S Street Sacramento, CA	1
23-V-026	2 SIOF 10811 S. Compton Ave, LLC	10811 S. Compton Ave. Los Angeles, CA	1
23-V-028	WEK Hunter LLC	523 N. Hunter St. Stockton, CA	1
23-V-030	Southside LA Housing Partners, LP	1623 West Manchester Ave. Los Angeles, CA	1
23-V-031	City of Indio	46835 Bristol St. Indio, CA	1
23-V-032	Mainline North 701 L.P.	2302 Calle Del Mundo Santa Clara, CA	2
23-V-033	Greenbrier Village LP	563 Greenbrier Dr. Oceanside, CA	1
23-V-036	Hartsook Ownership LLC	11013 Hartsook St. North Hollywood, CA	1

23-V-037	CY Pittsburg Investors LLC	1001 Center Drive Pittsburg, CA	2
23-V-041	Saint Rest Baptist Church	2322 S. Elm Ave. Fresno, CA	1
23-V-050	Avalon 1355 Partners, LP	1355 N. Avalon Blvd. Los Angeles, CA	1
23-V-051	TGC Moreno, LLC	24455 Hemlock Ave. Moreno Valley, CA	1
23-V-052	TGC Bellflower, LLC	8827 Artesia Blvd. Bellflower, CA	1
23-V-053	S.R. Palms Properties LLC	4015 Richmond St. San Diego, CA	1
23-V-059	Beech Street Housing Associates, L.P.	901 Beech Street San Diego, CA	1

2. This proceeding is conducted in accordance with Labor Code section 143, and California Code of Regulations, title 8, section 401, et. seq.

3. This hearing was held on March 22, 2023, in Sacramento, California, via teleconference, by Occupational Safety and Health Standards Board ("Board"), with Hearing Officer Autumn Gonzalez, both presiding and hearing the matter on its merit, as a basis of proposed decision to be advanced to the Board for its consideration, in accordance with California Code of Regulations, title 8, section 426.

4. At the hearing, Jennifer Linares, with the Schindler Elevator Corporation, appeared on behalf of each Applicant; Mark Wickens and David Morris appeared on behalf of the Division of Occupational Safety and Health ("Division"), and Michael Nelmida appeared on behalf of Board staff, in a technical advisory role apart from the Board.

5. Oral evidence was received at the hearing, and by stipulation of all parties, documents were admitted into evidence:

Exhibit Number	**Description of Exhibit**
PD-1	Permanent variance applications per section A.1 table
PD-2	OSHSB Notice of Hearing
PD-3	Board Staff Reviews of Variance Application
PD-4	Division Reviews of Variance Application
PD-5	Review Draft-1 Proposed Decision

Official notice taken of the Board's rulemaking records, and variance decisions concerning the safety order requirements from which variance is requested. At close of hearing on March 22, 2023, the record was closed, and the matter taken under submission by the Hearing Officer.

Relevant Safety Order Provisions

Applicant seeks a permanent variance from section 3141 [ASME A17.1-2004, sections 2.20.1, 2.20.2.1, 2.20.2.2(a), 2.20.2.2(f), 2.20.3, 2.20.4, 2.20.9.5.4, 2.26.1.4.4(a), 8.4.10.1.1(a)(2)(B), 2.14.1.7.1, and 2.26.9.6.1]. The relevant language of those sections are below.

1. Suspension Means

Section 3141 [ASME A17.1-2004, section 2.20.1, Suspension Means] states in part:

> Elevator cars shall be suspended by steel wire ropes attached to the car frame or passing around sheaves attached to the car frame specified in 2.15.1. Ropes that have previously been installed and used on another installation shall not be reused. Only iron (low-carbon steel) or steel wire ropes, having the commercial classification "Elevator Wire Rope," or wire rope specifically constructed for elevator use, shall be used for the suspension of elevator cars and for the suspension of counterweights. The wire material for ropes shall be manufactured by the open-hearth or electric furnace process, or their equivalent.

Section 3141 [ASME A17.1-2004, section 2.20.2.1(b), On Crosshead Data Plate] states in part:

> The crosshead data plate required by 2.16.3 shall bear the following wire-rope data:
>
> (b) the diameter in millimeters (mm) or inches (in.)

Section 3141 [ASME A17.1-2004, section 2.20.2.2(a) and (f) On Rope Data Tag] states in part:

> A metal data tag shall be securely attached-to-one of the wire-rope fastenings. This data tag shall bear the following wire-rope data:
>
> (a) the diameter in millimeters (mm) or inches (in.)
>
> […]
>
> (f) whether the ropes were non preformed or preformed

Section 3141 [ASME A17.1-2004, section 2.20.3, Factor of Safety] states:

> The factor of safety of the suspension wire ropes shall be not less than shown in Table 2.20.3. Figure 8.2.7 gives the minimum factor of safety for intermediate rope speeds. The factor of safety shall be based on the actual rope speed corresponding to the rated speed of the car.
>
> The factor of safety shall be calculated by the following formula:

$$f = \frac{S\ x\ N}{W}$$

where:

N= number of runs of rope under load. For 2:1 roping, N shall be two times the number of ropes used, etc.

S= manufacturer's rated breaking strength of one rope

W= maximum static load imposed on all car ropes with the car and its rated load at any position in the hoistway

Section 3141 [ASME A17.1-2004, section 2.20.4, Minimum Number and Diameter of Suspension Ropes] states:

> The minimum number of hoisting ropes used shall be three for traction elevators and two for drum-type elevators.
>
> Where a car counterweight is used, the number of counterweight ropes used shall be not less than two.
>
> The term "diameter," where used in reference to ropes, shall refer to the nominal diameter as given by the rope manufacturer.
>
> The minimum diameter of hoisting and counterweight ropes shall be 9.5 mm (0.375 in.). Outer wires of the ropes shall be not less than 0.56 mm (0.024 in.) in diameter.

Section 3141 [ASME A17.1-2004, section 2.20.9.3.4] states:

> Cast or forged steel rope sockets, shackle rods, and their connections shall be made of unwelded steel, having an elongation of not less than 20% in a gauge length of 50 mm (2 in.), when measured in accordance with ASTM E 8, and conforming to ASTM A 668, Class B for forged steel, and ASTM A 27, Grade 60/30 for cast steel, and shall be stress relieved. Steels of greater strength shall be permitted, provided they have an elongation of not less than 20% in a length of 50 mm (2 in.).

Section 3141 [ASME A17.1-2004, section 2.20.9.5.4] states:

> When the rope has been seated in the wedge socket by the load on the rope, the wedge shall be visible, and at least two wire-rope retaining clips shall be provided to attach the termination side to the load-carrying side of the rope (see Fig. 2.20.9.5). The first clip shall be placed a maximum of 4 times the rope diameter above the socket, and the second clip shall be located within 8 times the rope diameter above the first clip. The purpose of the two clips is to retain the

wedge and prevent the rope from slipping in the socket should the load on the rope be removed for any reason. The clips shall be designed and installed so that they do not distort or damage the rope in any manner.

2. Inspection Transfer Switch

Section 3141[ASME A17.1-2004, section 2.26.1.4.4(a), Machine Room Inspection Operation] states:

> When machine room inspection operation is provided, it shall conform to 2.26.1.4.1, and the transfer switch shall be
>
> (a) located in the machine room[.]

3. Seismic Reset Switch

Section 3141[ASME A17.1-2004, section 8.4.10.1.1(a)(2)(b), Earthquake Equipment] states:

> *(a)* All traction elevators operating at a rated speed of 0.75 m/s (150 ft/min) or more and having counterweights located in the same hoistway shall be provided with the following:
>
> *(1)* seismic zone 3 or greater: a minimum of one seismic switch per building
>
> *(2)* seismic zone 2 or greater:
>
> > *(a)* a displacement switch for each elevator
> >
> > *(b)* an identified momentary reset button or switch for each elevator, located in the control panel in the elevator machine room

4. Car-top Railings

Section 3141[ASME A17.1-2004, section 2.14.1.7.1] states:

> A standard railing conforming to 2.10.2 shall be provided on the outside perimeter of the car top on all sides where the perpendicular distance between the edges of the car top and the adjacent hoistway enclosure exceeds 300 mm (12 in.) horizontal clearance.

5. SIL-Rated System to Inhibit Current Flow to AC Drive Motor

Section 3141[ASME A17.1-2004, section 2.26.9.6.1] states:

> Two separate means shall be provided to independently inhibit the flow of alternating current through the solid state devices that connect the direct current power source to the alternating-current driving motor. At least one of the means shall be an electromechanical relay.

Based on the record of this proceeding, the Board finds the following:

1. Applicant intends to utilize Schindler model 3300 MRL elevator cars at the locations listed in Jurisdictional and Procedural Matters, section 1.

2. The installation contract for these elevator was or will be signed on or after May 1, 2008, thus making the elevator subject to the Group IV Elevator Safety Orders.

3. The Schindler model 3300 MRL elevator cars are not supported by circular steel wire ropes, as required by the Elevator Safety Orders (ESO). They utilize non-circular elastomeric-coated steel belts and specialized suspension means fastenings.

4. No machine room is provided, preventing the inspection transfer switch from being located in the elevator machine room. The lack of machine room also prevents the seismic reset switch from being located in the elevator machine room.

5. Applicant proposes to relocate the inspection transfer switch and seismic reset switch in an alternative enclosure.

6. The driving machine and governor are positioned in the hoistway and restrict the required overhead clearance to the elevator car top.

7. Applicant proposes to insert the car-top railings at the perimeter of the car top.

8. Applicant intends to use an elevator control system, model CO NX100NA, with a standalone, solid-state motor control drive system that includes devices and circuits having a Safety Integrity Level (SIL) rating to execute specific elevator safety functions.

Conclusive Findings:

The above-stated procedural prerequisites, legal authority, and factual findings, as further supported by the documentary record and hearing testimony in this matter, provide a substantive and reasonable basis of conclusion that: (1) Applicant has complied with the statutory and regulatory requirements that must be met before an application for permanent variance may be conditionally granted; and (2) a preponderance of the evidence establishes that Applicant's proposal, subject to all conditions and limitations set forth in the below Decision and Order, will provide equivalent safety and health to that which would prevail upon full compliance with the requirements of California Code of Regulation, title 8, Elevator Safety Orders from which variance is being sought.

Decision and Order:

Each Application being the subject of this proceeding, per the table in Jurisdictional and Procedural Matters, section 1 above, is conditionally GRANTED, to the extent that each such Applicant shall be issued permanent variance from California Code of Regulations, title 8, section 3141 shall be GRANTED subject to the following conditions and limitations:

Elevator Safety Orders:

• Suspension Means: 2.20.1, 2.20.2.1, 2.20.2.2(a), 2.20.2.2(f), 2.20.3, 2.20.4, 2.20.9.3.4, and 2.20.9.5.4 (Only to the extent necessary to permit the use of the Elastomeric-coated Steel Belts proposed by the Applicant, in lieu of circular steel suspension ropes.);

• Inspection transfer switch: 2.26.1.4.4(a) (Only to the extent necessary to permit the inspection transfer switch to reside at a location other than the machine room);

• Seismic reset switch: 8.4.10.1.1(a)(2)(b) (Only to the extent necessary to permit the seismic reset switch to reside at a location other than the machine room. room);

• Car-Top Railing: 2.14.1.7.1 (Only to the extent necessary to permit the use of the car-top railing system proposed by the Applicant, where the railing system is located inset from the elevator car top perimeter);

• Means of Removing Power: 2.26.9.6.1 (Only to the extent necessary to permit the use of SIL-rated devices and circuits as a means to remove power from the AC driving motor, where the redundant monitoring of electrical protective devices is required by the Elevator Safety Orders).

Conditions:

1. The elevator suspension system shall comply to the following:

    a. The suspension traction media (STM) members and their associated fastenings shall conform to the applicable requirements of ASME A17.1-2013, sections:

        2.20.4.3 – Minimum Number of Suspension Members
        2.20.3 – Factor of Safety
        2.20.9 – Suspension Member Fastening

    b. The Applicant shall not utilize the elevator unless the manufacturer has written procedures for the installation, maintenance, inspection and testing of the STM members and fastenings and related monitoring and detection systems and criteria for STM replacement, and the Applicant shall make those procedures and criteria available to the Certified Competent Conveyance Mechanic (CCCM) at the location of the elevator, and to the Division upon request.

        STM member mandatory replacement criteria shall include:

        i. Any exposed wire, strand or cord;
        ii. Any wire, strand or cord breaks through the elastomeric coating;
        iii. Any evidence of rouging (steel tension element corrosion) on any part of the elastomeric-coated steel suspension member;
        iv. Any deformation in the elastomeric suspension member such as, but not limited to, kinks or bends;

c. Traction drive sheaves must have a minimum diameter of 72 mm. The maximum speed of STM members running on 72 mm, 87 mm and 125 mm drive sheaves shall be no greater than 2.5 m/s, 6.0 m/s and 8.0 m/s respectively.

d. If any one STM member needs replacement, the complete set of suspension members on the elevator shall be replaced. Exception: if a new suspension member is damaged during installation, and prior to any contemporaneously installed STM having been placed into service, it is permissible to replace the individual damaged suspension member. STM members that have been installed on another installation shall not be re-used.

e. A traction loss detection means shall be provided that conforms to the requirements of ASME A17.1-2013, section 2.20.8.1. The means shall be tested for correct function annually in accordance with ASME A17.1-2013, section 8.6.4.19.12.

f. A broken suspension member detection means shall be provided that conforms to the requirements of ASME A17.1-2013, section 2.20.8.2. The means shall be tested for correct function annually in accordance with ASME A17.1-2013, section 8.6.4.19.13(a).

g. An elevator controller integrated bend cycle monitoring system shall monitor actual STM bend cycles, by means of continuously counting, and storing in nonvolatile memory, the number of trips that the STM makes traveling, and thereby being bent, over the elevator sheaves. The bend cycle limit monitoring means shall automatically stop the car normally at the next available landing before the bend cycle correlated residual strength of any single STM member drops below 80 percent of full rated strength. The monitoring means shall prevent the car from restarting. The bend cycle monitoring system shall be tested annually in accordance with the procedures required by condition 1b above.

h. The elevator shall be provided with a device to monitor the remaining residual strength of each STM member. The device shall conform to the requirements of Division Circular Letter E-10-04, a copy of which is attached hereto as Exhibit 1 and incorporated herein by reference.

i. The elevator crosshead data plate shall comply with the requirements of ASME A17.1-2013, section 2.20.2.1.

j. A suspension means data tag shall be provided that complies with the requirements of ASME A17.1-2013, section 2.20.2.2.

k. Comprehensive visual inspections of the entire length of each and all installed suspension members, to the criteria developed in condition 1b, shall be conducted and documented every six months by a CCCM.

l. The Applicant shall be subject to the requirements set out in Exhibit 2 of this Decision and Order, “Suspension Means Replacement Reporting Condition,” Incorporated herein by this reference.

m. Records of all tests and inspections shall be maintenance records subject to ASME A17.1-2004, sections 8.6.1.2 and 8.6.1.4, respectively.

2. If the inspection transfer switch required by ASME A17.1-2004, section 2.26.1.4.4 does not reside in a machine room, that switch shall not reside in the elevator hoistway. The switch shall reside in the control/machinery room/space containing the elevator's control equipment in an enclosure secured by a lock openable by a Group 1 security key. The enclosure is to remain locked at all times when not in use.

3. If the seismic reset switch does not reside in the machine room, that switch shall not reside in the elevator hoistway. The switch shall reside in the control/machinery room/space containing the elevator's control equipment in an enclosure secured by a lock openable by a Group 1 security key. The enclosure is to remain locked at all times when not in use.

4. If there is an inset car-top railing:

    a. Serviceable equipment shall be positioned so that mechanics and inspectors do not have to climb on the railings to perform adjustments, maintenance, repairs or inspections. The Applicant shall not permit anyone to stand or climb over the car-top railing.

    b. The distance that the railing can be inset shall be limited to not more than 6 inches.

    c. All exposed areas of the car top outside the car-top railing where the distance from the railing to the edge of the car top exceeds 2 inches, shall be beveled with metal, at an angle of not less than 75 degrees with the horizontal, from the mid or top rail to the outside of the car top, such that no person or object can stand, sit, kneel, rest, or be placed in the exposed areas.

    d. The top of the beveled area and/or car top outside the railing shall be clearly marked. The markings shall consist of alternating 4-inch diagonal red and white stripes.

    e. The applicant shall provide durable signs with lettering not less than 1/2 inch on a contrasting background on each inset railing. Each sign shall state:

CAUTION
STAY INSIDE RAILING
NO LEANING BEYOND RAILING
NO STEPPING ON, OR BEYOND, RAILING

    f. The Group IV requirements for car-top clearances shall be maintained (car-top clearances outside the railing will be measured from the car top and not from the required bevel).

5. The SIL-rated devices and circuits used to inhibit electrical current flow in accordance with ASME A17.1-2004, section 2.26.9.6.1 shall comply with the following:

a. The SIL-rated devices and circuits shall consist of a Variodyn SIL-3 rated Regenerative, Variable Voltage Variable Frequency (VVVF) motor drive unit, model VAF013 or VAF023, labeled or marked with the SIL rating (not less than SIL 3), the name or mark of the certifying organization, and the SIL certification number (968/FSP 1556.00), and followed by the applicable revision number (as in 968/FSP 1556.00/19).

b. The devices and circuits shall be certified for compliance with the applicable requirements of ASME A17.1-2013, section 2.26.4.3.2.

c. The access door or cover of the enclosures containing the SIL-rated components shall be clearly labeled or tagged on their exterior with the statement:

Assembly contains SIL-rated devices.
Refer to Maintenance Control Program and
wiring diagrams prior to performing work.

d. Unique maintenance procedures or methods required for the inspection, testing, or replacement of the SIL-rated circuits shall be developed and a copy maintained in the elevator machine/control room/space. The procedures or methods shall include clear color photographs of each SIL-rated component, with notations identifying parts and locations.

e. Wiring diagrams that include part identification, SIL, and certification information shall be maintained in the elevator machine/control room/space.

f. A successful test of the SIL-rated devices and circuits shall be conducted initially and not less than annually in accordance with the testing procedure. The test shall demonstrate that SIL-rated devices, safety functions, and related circuits operate as intended.

g. Any alterations to the SIL-rated devices and circuits shall be made in compliance with the Elevator Safety Orders. If the Elevator Safety Orders do not contain specific provisions for the alteration of SIL-rated devices, the alterations shall be made in conformance with ASME A17.1-2013, section 8.7.1.9.

h. Any replacement of the SIL-rated devices and circuits shall be made in compliance with the Elevator Safety Orders. If the Elevator Safety Orders do not contain specific provisions for the replacement of SIL-rated devices, the replacement shall be made in conformance with ASME A17.1-2013, section 8.6.3.14.

i. Any repairs to the SIL-rated devices and circuits shall be made in compliance with the Elevator Safety Orders. If the Elevator Safety Orders do not contain specific provisions for the repair of SIL-rated devices, the repairs shall be made in conformance with ASME A17.1-2013, section 8.6.2.6.

j. Any space containing SIL-rated devices and circuits shall be maintained within the temperature and humidity range specified by Schindler Elevator Corporation. The

temperature and humidity range shall be posted on each enclosure containing SIL-rated devices and circuits.

k. Field changes to the SIL-rated system are not permitted. Any changes to the SIL-rated system's devices and circuitry will require recertification and all necessary updates to the documentation and diagrams required by conditions d. and e. above.

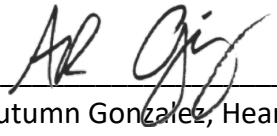
6. The Division shall be notified when the elevator is ready for inspection. The elevator shall be inspected by the Division, and all applicable requirements met, including conditions of this permanent variance, prior to a Permit to Operate the elevator being issued. The elevator shall not be placed in service prior to the Permit to Operate being issued by Division.

7. The Applicant shall notify its employees or their authorized representative(s), or both, of this order in the same way that the Applicant was required to notify them of the docketed application for permanent variance per California Code of Regulations, title 8, sections 411.2 and 411.3.

8. This Decision and Order shall remain in effect unless modified or revoked upon application by the Applicant, affected employee(s), the Division of Occupational Safety and Health, or by the Board on its own motion, in the procedural manner prescribed per title 8, Chapter 3.5, Subchapter 1.

Pursuant to California Code of Regulations, title 8, section 426(b), the above, duly completed Proposed Decision, is hereby submitted to the Occupational Safety and Health Standards Board for consideration of adoption.

DATED: March 28, 2023



Autumn Gonzalez, Hearing Officer

EXHIBIT 1

October 6, 2010

CIRCULAR LETTER E-10-04

TO: Installers, Manufacturers of Conveyances and Related Equipment and Other Interested Parties

SUBJECT: Coated Steel Belt Monitoring

The Elevator Safety Orders require routine inspection of the suspension means of an elevator to assure its safe operation.

The California Labor Code section 7318 allows the Division to promulgate special safety orders in the absence of regulation.

As it is not possible to see the steel cable suspension means of a Coated Steel Belt, a monitoring device which has been accepted by the Division is required on all Coated Steel Belts which will automatically stop the car if the residual strength of any belt drops below 60%. The Device shall prevent the elevator from restarting after a normal stop at a landing.

The monitoring device must be properly installed and functional. A functioning device may be removed only after a determination has been made that the residual strength of each belt exceeds 60%. These findings and the date of removal are to be conspicuously documented in the elevator machine room. The removed device must be replaced or returned to proper service within 30 days.

If upon routine inspection, the monitoring device is found to be in a non-functional state, the date and findings are to be conspicuously documented in the elevator machine room.

If upon inspection by the Division, the monitoring device is found to be non-functional or removed, and the required documentation is not in place, the elevator will be removed from service.

If the device is removed to facilitate belt replacement, it must be properly installed and functional before the elevator is returned to service.

A successful test of the device's functionality shall be conducted once a year.

This circular does not preempt the Division from adopting regulations in the future, which may address the monitoring of Coated Steel Belts or any other suspension means.

This circular does not create an obligation on the part of the Division to permit new conveyances utilizing Coated Steel Belts.

Debra Tudor
Principal Engineer
DOSH-Elevator Unit HQS

EXHIBIT 2

Suspension Means – Replacement Reporting Condition

Beginning on the date the Board adopts this Proposed Decision and continuing for a period of two years, the Applicant shall report to the Division within 30 days any and all replacement activity performed on the elevator(s) pursuant to the requirements of ASME A17.1-2004, section 8.6.3 involving the suspension means or suspension means fastenings. Further:

1. A separate report for each elevator shall be submitted, in a manner acceptable to the Division, to the following address (or to such other address as the Division might specify in the future): DOSH Elevator Unit, 2 MacArthur Pl., Suite 700, Santa Ana, CA 92707, Attn: Engineering section.

2. Each such report shall contain, but not necessarily be limited to, the following information:

    a. The State-issued conveyance number, complete address, and OSHSB file number that identifies the permanent variance.

    b. The business name, complete address, telephone number, and contact person of the elevator responsible party (presumably the Applicant or the subsequent holder of this variance).

    c. The business name, complete address, telephone number, and Certified Qualified Conveyance Company (CQCC) certification number of the firm performing the replacement work.

    d. The name (as listed on certification), Certified Competent Conveyance Mechanic (CCCM) certification number, certification expiration date, and signature of each CCCM performing the replacement work.

    e. The date and time the elevator was removed from normal service for suspension replacement, the date and time the replacement work commenced, the date and time the replacement work was completed, and the date and time the elevator was returned to normal service.

    f. A detailed description of, and clear color photographs depicting, (1) all the conditions that existed in the suspension components requiring their replacement and (2) any conditions that existed to cause damage or distress to the suspension components being replaced.

    g. A detailed list of all elevator components adjusted, repaired, or replaced in conjunction with the suspension component replacement.

    h. All information provided on the crosshead data plate per ASME Al7.l-2004, section 2.20.2.1, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

i. For the suspension means being replaced, all information provided on the data tag required per ASME A17.1-2004, section 2.20.2.2, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

j. For the replacement suspension means, all information provided on the data tag required by ASME A17.1-2004, section 2.20.2.2, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

k. Any other information requested by the Division regarding the replacement of the suspension means or fastenings.

3. In addition to the submission of the report to the Division, the findings of any testing, failure analysis, or other engineering evaluations performed on any portion of the replaced suspension components, or other elevator components replaced in conjunction therewith, shall be submitted to the Division referencing the information contained in item 2a above.

STATE OF CALIFORNIA
DEPARTMENT OF INDUSTRIAL RELATIONS
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
2520 Venture Oaks Way, Suite 350
Sacramento, California 95833
(916) 274-5721

In the Matter of Application for Permanent Variance regarding: Otis Gen2S/Gen3Edge Elevator (Group IV)	OSHSB File No.: See section A.1 table of Proposed Decision Dated: March 28, 2023 DECISION

The Occupational Safety and Health Standards Board hereby adopts the attached PROPOSED DECISION by Autumn Gonzalez, Hearing Officer.

_____
DAVID THOMAS, Chairman

_____
BARBARA BURGEL, Member

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KATHLEEN CRAWFORD, Member

_____
DAVID HARRISON, Member

_____
NOLA KENNEDY, Member

_____
CHRIS LASZCZ-DAVIS, Member

_____
LAURA STOCK, Member

OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

Date of Adoption: April 20, 2023

THE FOREGOING VARIANCE DECISION WAS ADOPTED ON THE DATE INDICATED ABOVE. IF YOU ARE DISSATISFIED WITH THE DECISION, A PETITION FOR REHEARING MAY BE FILED BY ANY PARTY WITH THE STANDARDS BOARD WITHIN TWENTY (20) DAYS AFTER SERVICE OF THE DECISION. YOUR PETITION FOR REHEARING MUST FULLY COMPLY WITH THE REQUIREMENTS OF CALIFORNIA CODE OF REGULATIONS, TITLE 8, SECTIONS 427, 427.1 AND 427.2.

Note: A copy of this Decision must be posted for the Applicant's employees to read, and/or a copy thereof must be provided to the employees' Authorized Representatives.

BEFORE THE
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
DEPARTMENT OF INDUSTRIAL RELATIONS
STATE OF CALIFORNIA

In the Matter of Application for Permanent Variance Regarding: Otis Gen2S/Gen3Edge Elevator (Group IV)	OSHSB File Nos.: See section A.1 table below PROPOSED DECISION Hearing Date: March 22, 2023

A. Subject Matter

1. Each below listed applicant ("Applicant") has applied for permanent variances from provisions of the Elevator Safety Orders, found at title 8 of the California Code of Regulations, with respect to the listed conveyance or conveyances, in the specified quantity, at the specified location:

Variance No.	Applicant Name	Variance Location Address	No. of Elevators
23-V-008	Central 180 LLC	1120 E. 25th St. Los Angeles, CA	1
23-V-055	ARE-230 Adrian Road LLC	ACLS Millbrae, Building 3 230 Harriet Tubman Way Millbrae, CA	6
23-V-056	Millbrae Partners LLC	ACLS Millbrae, Amenities Building 6 Rollins Road Millbrae, CA	1
23-V-061	3710 Dunn Venture, LLC	9958 W. Regent St. 1-24 Los Angeles, CA	1
23-V-062	Forever Green Investment, LLC	176 N. Catalina Ave. Pasadena, CA	1
23-V-064	Lake House LP	437 S. Westlake Ave. Los Angeles, CA	1
23-V-068	Mammoth Hotel Associates, LLC	Mammoth Creek Inn 663 Old Mammoth Rd. Mammoth Lakes, CA	2

2. The safety orders from which variance may issue, are enumerated in the portion of the below Decision and Order preceding the variance conditions.

B. Procedural

1. This proceeding is conducted in accordance with Labor Code section 143, and California Code of Regulations, title 8, section 401, et. seq.

2. This hearing was held on March 22, 2023, in Sacramento, California, and via teleconference, by Occupational Safety and Health Standards Board ("Board"), with Hearing Officer Autumn Gonzalez, both presiding and hearing the matter on its merit, as a basis of proposed decision to be advanced to the Board for its consideration, in accordance with California Code of Regulations, title 8, section 426.

3. At the hearing, Dan Leacox of Leacox & Associates, and Wolter Geesink with Otis Elevator, appeared on behalf of each Applicant; Mark Wickens and David Morris appeared on behalf of the Division of Occupational Safety and Health ("Division"), and Michael Nelmida appeared on behalf of Board staff, in a technical advisory role apart from the Board.

4. Oral evidence was received at the hearing, and by stipulation of all parties, documents were admitted into evidence:

Exhibit Number	**Description of Exhibit**
PD-1	Permanent variance applications per Section A.1 table
PD-2	OSHSB Notice of Hearing
PD-3	Board Staff Reviews of Variance Application
PD-4	Division Reviews of Variance Application
PD-5	Review Draft-1 Proposed Decision

Official notice is taken of the Board's rulemaking records, and variance files and decisions, concerning the Elevator Safety Order standards at issue. At close of hearing on March 22, 2023, the record was closed, and the matter taken under submission by the Hearing Officer.

C. Findings and Basis:

Based on the record of this hearing, the Board makes the following findings of fact:

1. Each Applicant intends to utilize Otis Gen3 Edge/Gen2S elevators at the locations and in the numbers stated in the above section A table.

2. The installation contracts for these elevators were or will be signed on or after May 1, 2008, making the elevators subject to the Group IV Elevator Safety Orders.

3. The Board incorporates by reference Items (i.e. sections) D.3 through D.9 of the Proposed Decision adopted by the Board on July 18, 2013 regarding OSHSB File No. 12-V-093 and Item

D.4 of the Proposed Decision adopted by the Board on September 25, 2014 in OSHSB File No. 14-V-206.

4. Both Board staff and Division, by way of written submissions to the record (Exhibits PD-3 and PD-4 respectively), and positions stated at hearing, are of the well informed opinion that grant of requested permanent variance, as limited and conditioned per the below Decision and Order will provide employment, places of employment, and subject conveyances, as safe and healthful as would prevail given non-variant conformity with the Elevator Safety Order requirements from which variance has been requested.

D. Conclusive Findings:

The above stated procedural prerequisites, legal authority, and factual findings, as further supported by the documentary record and hearing testimony in this matter, provide a substantive and reasonable basis of conclusion that: (1) Each Applicant has complied with the statutory and regulatory requirements that must be met before an application for permanent variance may be conditionally granted; and (2) a preponderance of the evidence establishes that each Applicants proposal, subject to all conditions and limitations set forth in the below Decision and Order, will provide equivalent safety and health to that which would prevail upon full compliance with the requirements of California Code of Regulation, title 8, Elevator Safety Orders from which variance is being sought.

E. Decision and Order:

Each permanent variance application the subject of this proceeding is conditionally GRANTED as specified below, and to the extent, as of the date the Board adopts this Proposed Decision, each Applicant listed in the above section A table shall have permanent variances from California Code of Regulations, title 8, section 3141 and from the following sections of ASME A17.1-2004 that section 3141 makes applicable to the elevators the subject of those applications:

- Car top railing: sections 2.14.1.7.1 (only to the extent necessary to permit an inset car top railing, if, in fact, the car top railing is inset);

- Speed governor over-speed switch: 2.18.4.2.5(a) (only insofar as is necessary to permit the use of the speed reducing system proposed by the Applicants, where the speed reducing switch resides in the controller algorithms, rather than on the governor, with the necessary speed input supplied by the main encoder signal from the motor);

- Governor rope diameter: 2.18.5.1 (only to the extent necessary to allow the use of reduced diameter governor rope);

- Pitch diameter: 2.18.7.4 (to the extent necessary to use the pitch diameter specified in Condition No. 13.c);

- Suspension means: 2.20.1, 2.20.2.1, 2.20.2.2(a), 2.20.2.2(f), 2.20.3, 2.20.4, 2.20.9.3.4 and 2.20.9.5.4—the variances from these "suspension means" provisions are only to the extent necessary to permit the use of Otis Gen2 flat coated steel suspension belts in lieu of conventional steel suspension ropes;

- Inspection transfer switch: 2.26.1.4.4(a) (only to the extent necessary to allow the inspection transfer switch to reside at a location other than a machine room, if, in fact, it does not reside in the machine room); and

- Seismic reset switch: 8.4.10.1.1(a)(2)(b) (only to the extent necessary to allow the seismic reset switch to reside at a location other than a machine room, if, in fact, it does not reside in the machine room).

These variances apply to the locations and numbers of elevators stated in the section A table (so long as the elevators are Gen3 Edge/Gen2S Group IV devices that are designed, equipped, and installed in accordance with, and are otherwise consistent with, the representations made in the Otis Master File [referred to in previous proposed decisions as the "Gen2 Master File") maintained by the Board, as that file was constituted at the time of this hearing) and are subject to the following conditions:

1. The suspension system shall comply with the following:

    a. The coated steel belt and connections shall have factors of safety equal to those permitted for use by section 3141 [ASME A17.1-2004, section 2.20.3] on wire rope suspended elevators.

    b. Steel coated belts that have been installed and used on another installation shall not be reused.

    c. The coated steel belt shall be fitted with a monitoring device which has been accepted by the Division and which will automatically stop the car if the residual strength of any single belt drops below 60 percent. If the residual strength of any single belt drops below 60 percent, the device shall prevent the elevator from restarting after a normal stop at a landing.

    d. Upon initial inspection, the readings from the monitoring device shall be documented and submitted to the Division.

    e. A successful test of the monitoring device's functionality shall be conducted at least once a year (the record of the annual test of the monitoring device shall be a maintenance record subject to ASME A17.1-2004, section 8.6.1.4).

    f. The coated steel belts used shall be accepted by the Division.

2. With respect to each elevator subject to this variance, the applicant shall comply with Division Circular Letter E-10-04, the substance of which is attached hereto as Addendum 1 and incorporated herein by this reference.

3. The Applicant shall not utilize the elevator unless the manufacturer has written procedures for the installation, maintenance, inspection, and testing of the belts and monitoring device and criteria for belt replacement, and the applicant shall make those procedures and criteria available to the Division upon request.

4. The flat coated steel belts shall be provided with a metal data tag that is securely attached to one of those belts. This data tag shall bear the following flat steel coated belt data:

    a. The width and thickness in millimeters or inches;

    b. The manufacturer's rated breaking strength in (kN) or (lbf);

    c. The name of the person or organization that installed the flat coated steel belts;

    d. The month and year the flat coated steel belts were installed;

    e. The month and year the flat coated steel belts were first shortened;

    f. The name or trademark of the manufacturer of the flat coated steel belts; and

    g. Lubrication information.

5. There shall be a crosshead data plate of the sort required by section 2.20.2.1, and that plate shall bear the following flat steel coated belt data:

    a. The number of belts;

    b. The belt width and thickness in millimeters or inches; and

    c. The manufacturer's rated breaking strength per belt in (kN) or (lbf).

6. The opening to the hoistway shall be effectively barricaded when car top inspection, maintenance, servicing, or testing of elevator equipment in the hoistway is required. If service personnel must leave the area for any reason, the hoistway and control room doors shall be closed.

7. If there is an inset car top railing:

    a. Serviceable equipment shall be positioned so that mechanics and inspectors do not have to climb on railings to perform adjustment, maintenance, repairs or inspections. The applicant shall not permit anyone to stand on or climb over the car top railing.

b. The distance that the car top railing may be inset shall be limited to no more than 6 inches.

c. All exposed areas outside the car top railing shall preclude standing or placing objects or persons which may fall and shall be beveled from the mid- or top rail to the outside of the car top.

d. The top of the beveled area and/or car top outside the railing, shall be clearly marked. The markings shall consist of alternating 4 inch diagonal red and white stripes.

e. The applicant shall provide durable signs with lettering not less than ½ inch on a contrasting background on each inset railing; each sign shall state:

CAUTION
DO NOT STAND ON OR CLIMB OVER RAILING

f. The Group IV requirements for car top clearances shall be maintained (car top clearances outside the railing shall be measured from the car top and not from the required bevel).

8. If the seismic reset switch does not reside in a machine room, that switch shall not reside in the elevator hoistway. The switch shall reside in the inspection and test control panel located in one upper floor hoistway door jamb or in the control space (outside the hoistway) used by the motion controller.

9. If the inspection transfer switch required by ASME A17.1, rule 2.26.1.4.4(a) does not reside in a machine room, that switch shall not reside in the elevator hoistway. The switch shall reside in the inspection and test control panel located in one upper floor hoistway door jamb or in the control space (outside the hoistway) used by the motion controller.

10. When the inspection and testing panel is located in the hoistway door jamb, the inspection and test control panel shall be openable only by use of a Security Group I restricted key.

11. The governor speed-reducing switch function shall comply with the following:

a. It shall be used only with direct drive machines; i.e., no gear reduction is permitted between the drive motor and the suspension means.

b. The velocity encoder shall be coupled to the driving machine motor shaft. The “C” channel of the encoder shall be utilized for velocity measurements required by the speed reducing system. The signal from “C” channel of the encoder shall be verified with the “A” and “B” channels for failure. If a failure is detected then an emergency stop shall be initiated.

c. Control system parameters utilized in the speed-reducing system shall be held in non-volatile memory.

d. It shall be used in conjunction with approved car-mounted speed governors only.

e. It shall be used in conjunction with an effective traction monitoring system that detects a loss of traction between the driving sheave and the suspension means. If a loss of traction is detected, then an emergency stop shall be initiated.

f. A successful test of the speed-reducing switch system's functionality shall be conducted at least once a year (the record of the annual test of the speed-reducing switch system shall be a maintenance record subject to ASME A17.1-2004, section 8.6.1.4).

g. A successful test of the traction monitoring system's functionality shall be conducted at least once a year (the record of the annual test of the traction monitoring system shall be a maintenance record subject to ASME A17.1-2004, section 8.6.1.4).

h. The Applicant shall not utilize the elevator unless the manufacturer has written procedures for the maintenance, inspection, and testing of the speed-reducing switch and traction monitoring systems. The Applicant shall make the procedures available to the Division upon request.

12. The speed governor rope and sheaves shall comply with the following:

    a. The governor shall be used in conjunction with a 6 mm (0.25 in.) diameter steel governor rope with 6-strand, regular lay construction.

    b. The governor rope shall have a factor of safety of 8 or greater as related to the strength necessary to activate the safety.

    c. The governor sheaves shall have a pitch diameter of not less than 180 mm (7.1 in.).

13. The elevator shall be serviced, maintained, adjusted, tested, and inspected only by Certified Competent Conveyance Mechanics who have been trained to, and are competent to, perform those tasks on the Gen3 Edge/Gen2S elevator system in accordance with the written procedures and criteria required by Condition No. 3 and in accordance with the terms of this permanent variance.

14. Any Certified Qualified Conveyance Company performing inspections, maintenance, servicing, or testing of the elevators shall be provided a copy of this variance decision.

15. The Division shall be notified when the elevator is ready for inspection. The elevator shall be inspected by the Division, and a Permit to Operate shall be issued before the elevator is placed in service.

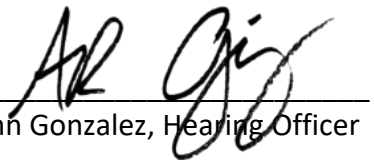
16. The Applicant shall be subject to the Suspension Means – Replacement Reporting Condition stated in Addendum 2, as hereby incorporated by this reference.

17. The Applicant shall notify its employees or their authorized representative(s), or both, of this order in the same way and to the same extent that employees and authorized representatives are to be notified of docketed permanent variance applications pursuant to California Code of Regulations, title 8, sections 411.2 and 411.3.

18. This Decision and Order shall remain in effect unless modified or revoked upon application by the Applicant, affected employee(s), the Division of Occupational Safety and Health, or by the Board on its own motion, in accordance with procedures per title 8, Division 1, Chapter 3.5.

Pursuant to California Code of Regulations, title 8, section 426(b), the above, duly completed Proposed Decision, is hereby submitted to the Occupational Safety and Health Standards Board for consideration of adoption.

Dated: March 28, 2023



Autumn Gonzalez, Hearing Officer

ADDENDUM 1

October 6, 2010

CIRCULAR LETTER E-10-04

TO: Installers, Manufacturers of Conveyances and Related Equipment and, Other Interested Parties

SUBJECT: Coated Steel Belt Monitoring

The Elevator Safety Orders require routine inspection of the suspension means of an elevator to assure its safe operation.

The California Labor Code section 7318 allows the Division to promulgate special safety orders in the absence of regulation.

As it is not possible to see the steel cable suspension means of a Coated Steel Belt, a monitoring device which has been accepted by the Division is required on all Coated Steel Belts which will automatically stop the car if the residual strength of any belt drops below 60%. The Device shall prevent the elevator from restarting after a normal stop at a landing.

The monitoring device must be properly installed and functional. A functioning device may be removed only after a determination has been made that the residual strength of each belt exceeds 60%. These findings and the date of removal are to be conspicuously documented in the elevator machine room. The removed device must be replaced or returned to proper service within 30 days.

If upon routine inspection, the monitoring device is found to be in a non-functional state, the date and findings are to be conspicuously documented in the elevator machine room.

If upon inspection by the Division, the monitoring device is found to be non-functional or removed, and the required documentation is not in place, the elevator will be removed from service.

If the device is removed to facilitate belt replacement, it must be properly installed and functional before the elevator is returned to service.

A successful test of the device's functionality shall be conducted once a year.

This circular does not preempt the Division from adopting regulations in the future, which may address the monitoring of Coated Steel Belts or any other suspension means.

This circular does not create an obligation on the part of the Division to permit new conveyances utilizing Coated Steel Belts.

Debra Tudor
Principal Engineer
DOSH-Elevator Unit HQS

ADDENDUM 2

Suspension Means – Replacement Reporting Condition

Beginning on the date the Board adopts this Proposed Decision and continuing for a period of two years, the Applicant shall report to the Division within 30 days any and all replacement activity performed on the elevator(s) pursuant to the requirements of ASME A17.1-2004, section 8.6.3 involving the suspension means or suspension means fastenings.

Further:

1. A separate report for each elevator shall be submitted, in a manner acceptable to the Division, to the following address (or to such other address as the Division might specify in the future): DOSH Elevator Unit, 2 MacArthur Place, Suite 700, Santa Ana, CA 92707, Attn: Engineering Section.

2. Each such report shall contain, but not necessarily be limited to, the following information:

    a. The State-issued conveyance number, complete address, and OSHSB file number that identifies the permanent variance.

    b. The business name, complete address, telephone number, and contact person of the elevator responsible party (presumably the Applicant or the subsequent holder of this variance).

    c. The business name, complete address, telephone number, and Certified Qualified Conveyance Company (CQCC) certification number of the firm performing the replacement work.

    d. The name (as listed on certification), Certified Competent Conveyance Mechanic (CCCM) certification number, certification expiration date, and signature of each CCCM performing the replacement work.

    e. The date and time the elevator was removed from normal service for suspension replacement, the date and time the replacement work commenced, the date and time the replacement work was completed, and the date and time the elevator was returned to normal service.

    f. A detailed description of, and clear color photographs depicting, (1) all the conditions that existed in the suspension components requiring their replacement and (2) any conditions that existed to cause damage or distress to the suspension components being replaced.

g. A detailed list of all elevator components adjusted, repaired, or replaced in conjunction with the suspension component replacement.

h. All information provided on the crosshead data plate per ASME A17.1-2004, section 2.20.2.1, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

i. For the suspension means being replaced, all information provided on the data tag required per ASME A17.1-2004, section 2.20.2.2, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

j. For the replacement suspension means, all information provided on the data tag required by ASME A17.1-2004, section 2.20.2.2, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

k. Any other information requested by the Division regarding the replacement of the suspension means or fastenings.

3. In addition to the submission of the report to the Division, the findings of any testing, failure analysis, or other engineering evaluations performed on any portion of the replaced suspension components, or other elevator components replaced in conjunction therewith, shall be submitted to the Division referencing the information contained in item 2a above.

STATE OF CALIFORNIA
DEPARTMENT OF INDUSTRIAL RELATIONS
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
2520 Venture Oaks Way, Suite 350
Sacramento, California 95833
(916) 274-5721

In the Matter of Application for Permanent Variance regarding: Otis Medical Emergency Elevator Car Dimensions (Group IV)	OSHSB File No.: See section A.1 table of Proposed Decision Dated: March 28, 2023 DECISION

The Occupational Safety and Health Standards Board hereby adopts the attached PROPOSED DECISION by Autumn Gonzalez, Hearing Officer.

_____
DAVID THOMAS, Chairman

_____
BARBARA BURGEL, Member

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KATHLEEN CRAWFORD, Member

_____
DAVID HARRISON, Member

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NOLA KENNEDY, Member

_____
CHRIS LASZCZ-DAVIS, Member

_____
LAURA STOCK, Member

OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

Date of Adoption: April 20, 2023

THE FOREGOING VARIANCE DECISION WAS ADOPTED ON THE DATE INDICATED ABOVE. IF YOU ARE DISSATISFIED WITH THE DECISION, A PETITION FOR REHEARING MAY BE FILED BY ANY PARTY WITH THE STANDARDS BOARD WITHIN TWENTY (20) DAYS AFTER SERVICE OF THE DECISION. YOUR PETITION FOR REHEARING MUST FULLY COMPLY WITH THE REQUIREMENTS OF CALIFORNIA CODE OF REGULATIONS, TITLE 8, SECTIONS 427, 427.1 AND 427.2.

Note: A copy of this Decision must be posted for the Applicant's employees to read, and/or a copy thereof must be provided to the employees' Authorized Representatives.

BEFORE THE
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
DEPARTMENT OF INDUSTRIAL RELATIONS
STATE OF CALIFORNIA

In the Matter of Application for Permanent Variance regarding: Otis Medical Emergency Elevator Car Dimensions (Group IV)	OSHSB File No.: See section A.1 table below PROPOSED DECISION Hearing Date: March 22, 2023

A. Jurisdictional and Procedural Matters

1. Each below listed applicant ("Applicant") has applied for permanent variances from provisions of the Elevator Safety Orders, found at title 8 of the California Code of Regulations[1], with respect to the listed conveyance or conveyances, at the specified location:

Variance No.	Applicant Name	Variance Location Address
23-V-009	Central 180 LLC	1120 E. 25th St. Los Angeles, CA
23-V-063	Forever Green Investment, LLC	176 N. Catalina Ave. Pasadena, CA

2. This proceeding is conducted in accordance with Labor Code section 143, and section 401, et. seq. of the Board's rules of practice and procedure.

3. This hearing was held on March 22, 2023, in Sacramento, California, and via teleconference, by Occupational Safety and Health Standards Board ("Board"), with Hearing Officer Autumn Gonzalez, both presiding and hearing the matter on its merit, as a basis of proposed decision to be advanced to the Board for its consideration, in accordance with section 426.

4. At the hearing, Dan Leacox of Leacox & Associates, and Wolter Geesink with Otis Elevator, appeared on behalf of each Applicant; Mark Wickens and David Morris appeared on behalf of the Division of Occupational Safety and Health ("Division"), and Michael Nelmida appeared on behalf of the Board.

5. Oral evidence was received at the hearing, and by stipulation of all parties, documents were admitted into evidence:

[1] Unless otherwise noted, all references are to the California Code of Regulations, title 8.

Exhibit Number	Description of Exhibit
PD-1	Permanent variance applications per Section A.1 table
PD-2	OSHSB Notice of Hearing
PD-3	Board Staff Reviews of Variance Application
PD-4	Division Reviews of Variance Application
PD-5	Review Draft-1 Proposed Decision

Official notice is taken of the Board's rulemaking records, and variance files and decisions, concerning the Elevator Safety Order standards at issue. At close of hearing on March 22, 2023, the record was closed, and the matter taken under submission by the Hearing Officer.

B. Findings of Fact and Applicable Regulations

Based upon the record of this proceeding, the Board finds the following:

1. Applicant requests a permanent variance from section 3041, subdivision (e)(1)(C), which states:

> (1) All buildings and structures constructed after the effective date of this order that are provided with one or more passenger elevators shall be provided with not less than one passenger elevator designed and designated to accommodate the loading and transport of an ambulance gurney or stretcher maximum size 22 ½ in. (572 mm) by 75 in. (1.90 m) in its horizontal position and arranged to serve all landings in conformance with the following:
>
> …
>
> (C) The elevator car shall have a minimum inside car platform of 80 in. (2.03 m) wide by 51 in. (1.30 m) deep.

The intent of this language is to ensure that there is enough space to accommodate the access and egress of a gurney and medical personnel inside of a medical service elevator.

This standard is made applicable to Group IV by section 3141.7, subdivision (b), which reads, "Elevators utilized to provide medical emergency service shall comply with Group II, section 3041(e)."

2. Applicant proposes to comply with the requirements of the 2019 California Building Code, section 3002.4.1a in the design of its medical emergency service elevator. That section requires:

> The medical emergency service elevator shall accommodate the loading and transport of two emergency personnel, each requiring a minimum clear 21-inch (533 mm) diameter circular area and an

> ambulance gurney or stretcher [minimum size 24 inches by 84 inches (610 mm by 2134 mm) with not less than 5-inch (127 mm) radius corners] in the horizontal, open position.

The purpose of this requirement is to ensure that an elevator designated for emergency medical service will accommodate a minimum of two emergency personnel with an ambulance gurney or stretcher.

C. Conclusive Findings

The above-stated procedural prerequisites, legal authority, and factual findings, as further supported by the documentary record and hearing testimony in this matter, provide a substantive and reasonable basis of conclusion that: (1) Each Applicant has complied with the statutory and regulatory requirements that must be met before an application for permanent variance may be conditionally granted; and (2) a preponderance of the evidence establishes that each Applicants' proposal, subject to all conditions and limitations set forth in the below Decision and Order, will provide equivalent safety and health to that which would prevail upon full compliance with the requirements of the Elevator Safety Orders from which variance is being sought.

D. Decision and Order

Each permanent variance application the subject of this proceeding is conditionally GRANTED as specified below, and to the extent, as of the date the Board adopts this Proposed Decision, each Applicant listed in the above section A.1 table shall have permanent variances from sections 3041, subdivision (e)(1)(C) and 3141.7, subdivision (b) subject of the following conditions:

1. All medical emergency service elevator(s) shall comply with the requirements of the 2019 California Building Code section 3002.4.1a:

   > The medical emergency service elevator shall accommodate the loading and transport of two emergency personnel, each requiring a minimum clear 21-inch (533 mm) diameter circular area and an ambulance gurney or stretcher [minimum size 24 inches by 84 inches (610 mm by 2134 mm) with not less than 5-inch (127 mm) radius corners] in the horizontal, open position.

2. All medical emergency service elevator(s) shall be identified in the building construction documents in accordance with the 2019 California Building Code, section 3002.4a.

3. Dimensional drawings and other information necessary to demonstrate compliance with the conditions of this permanent variance decision shall be provided to the Division, at the time of inspection, for all medical emergency service elevator(s).

4. Any Certified Qualified Conveyance Company performing inspections, maintenance, servicing, or testing the elevators shall be provided a copy of this variance decision.

5. The Division shall be notified when the elevator is ready for inspection. The elevator shall be inspected by the Division, and all applicable requirements met, including conditions of this permanent variance, prior to a Permit to Operate the elevator being issued. The elevator shall not be placed in service prior to the Permit to Operate being issued by Division.

6. Applicant shall notify its employees and their authorized representative, of this order in the same way and to the same extent that employees and authorized representatives are to be notified of docketed permanent variance applications pursuant to sections 411.2 and 411.3.

7. This Decision and Order shall remain in effect unless duly modified or revoked upon application by Applicant, affected employee(s), the Division, or by the Board on its own motion, in accordance with then in effect administrative procedures of the Board.

Pursuant to section 426, subdivision (b) of the Board's procedural regulations, the above, Proposed Decision, is hereby submitted to the Occupational Safety and Health Standards Board for consideration of adoption.

DATED: March 28, 2023

Autumn Gonzalez, Hearing Officer

STATE OF CALIFORNIA
DEPARTMENT OF INDUSTRIAL RELATIONS
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
2520 Venture Oaks Way, Suite 350
Sacramento, California 95833
(916) 274-5721

In the Matter of Application for Permanent Variance regarding: KONE Monospace 300 Elevators (Group IV)	OSHSB File No.: See Section A.1 table of Proposed Decision Dated: March 28, 2023 DECISION

The Occupational Safety and Health Standards Board hereby adopts the attached PROPOSED DECISION by Autumn Gonzalez, Hearing Officer.

_____
DAVID THOMAS, Chairman

_____
BARBARA BURGEL, Member

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KATHLEEN CRAWFORD, Member

_____
DAVID HARRISON, Member

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NOLA KENNEDY, Member

_____
CHRIS LASZCZ-DAVIS, Member

_____
LAURA STOCK, Member

OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

Date of Adoption: April 20, 2023

THE FOREGOING VARIANCE DECISION WAS ADOPTED ON THE DATE INDICATED ABOVE. IF YOU ARE DISSATISFIED WITH THE DECISION, A PETITION FOR REHEARING MAY BE FILED BY ANY PARTY WITH THE STANDARDS BOARD WITHIN TWENTY (20) DAYS AFTER SERVICE OF THE DECISION. YOUR PETITION FOR REHEARING MUST FULLY COMPLY WITH THE REQUIREMENTS OF CALIFORNIA CODE OF REGULATIONS, TITLE 8, SECTIONS 427, 427.1 AND 427.2.

Note: A copy of this Decision must be posted for the Applicant's employees to read, and/or a copy thereof must be provided to the employees' Authorized Representatives.

BEFORE THE
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
DEPARTMENT OF INDUSTRIAL RELATIONS
STATE OF CALIFORNIA

In the Matter of Application for Permanent Variance Regarding: KONE Monospace 300 Elevators (Group IV)	OSHSB File Nos.: See Section A.1 Table Below PROPOSED DECISION Hearing Date: March 22, 2023

A. Subject Matter:

1. Each below listed applicant ("Applicant") applied for a permanent variance from provisions of the Elevator Safety Orders, found at Title 8 of the California Code of Regulations, with respect to a conveyance, or conveyances, in the listed quantity, at the listed location:

Variance No.	Applicant Name	Variance Location Address	No. of Elevators
23-V-015	City of Pacifica City Hall	170 Santa Maria Ave. Pacifica, CA	1
23-V-016	Siesta Senior Apartments, LP	171 Siesta Way Sonoma, CA	1
23-V-020	College for Certain LLC	2410 Belleview Ave. Stockton, CA	1
23-V-029	Maderas CC, LP	17750 Old Coach Rd. Poway, CA	1
23-V-040	RC Commercial Holdings, LLC.	951 Seacoast Dr. Imperial Beach, CA	1
23-V-043	Mercy Housing California 99, L.P.	4995 Stockton Blvd. Sacramento, CA	1

2. The subject Title 8, safety order requirements are set out within California Code of Regulations, Title 8, Section 3141 incorporated ASME A17.1-2004, Sections 2.18.5.1 and 2.20.4.

B. Procedural:

1. This hearing was held on March 22, 2023, in Sacramento, California, via teleconference, by delegation of the Occupational Safety and Health Standards Board ("Board"), with Hearing Officer Autumn Gonzalez, both presiding and hearing the matter on its merit, as a basis of proposed decision to be advanced to the Board for its consideration, in accordance with California Code of Regulations, Title 8, Section 426.

2. At the hearing, Fuei Saetern, with KONE, Inc., appeared on behalf of each Applicant; Mark Wickens and David Morris appeared on behalf of the Division of Occupational Safety and Health ("Division"), and Michael Nelmida appeared on behalf of Board staff in a technical advisory capacity apart from the Board.

3. Documentary and oral evidence was received at the hearing, and by stipulation of all parties, documents were admitted into evidence:

Exhibit Number	**Description of Exhibit**
PD-1	Application(s) for Permanent Variance per section A.1 table
PD-2	OSHSB Notice of Hearing
PD-3	Board Staff Review of Variance Application
PD-4	Division Review of Variance Application
PD-5	Review Draft-1 Proposed Decision

Official notice is taken of the Board's files, records, recordings and decisions concerning the Elevator Safety Order requirements from which variance shall issue. On March 22, 2023, the hearing and record closed, and the matter was taken under submission by the Hearing Officer.

C. Findings of Fact—Based on the record of this proceeding, the Board finds the following:

1. Each respective Applicant intends to utilize the KONE Inc. Monospace 300 type elevator, in the quantity, at the location, specified per the above Section A.1 table.

2. The installation contract for this elevator was or will be signed on or after May 1, 2008, thus making the elevator subject to the Group IV Elevator Safety Orders.

3. Each Applicant proposes to use hoisting ropes that are 8 mm in diameter which also consist of 0.51 mm diameter outer wires, in variance from the express requirements of ASME A17.1-2004, Section 2.20.4.

4. In relevant part, ASME A17.1-2004, Section 2.20.4 states:

2.20.4 Minimum Number and Diameter of Suspension Ropes

…The minimum diameter of hoisting and counterweight ropes shall be 9.5 mm (0.375 in.). Outer wires of the ropes shall be not less than 0.56 mm (0.024 in.) in diameter.

5. An intent of the afore cited requirement of ASME A17.1-2004, Section 2.20.4, is to ensure that the number, diameter, and construction of suspension ropes are adequate to provided safely robust and durable suspension means over the course of the ropes' foreseen service life.

6. KONE has represented to Division and Board staff, having established an engineering practice for purposes of Monospace 300 elevator design, of meeting or exceeding the minimum factor of safety of 12 for 8 mm suspension members, as required in ASME A17.1-2010, Section 2.20.3—under which, given that factor of safety, supplemental broken suspension member protection is not required.

7. Also, each Applicant proposes as a further means of maintaining safety equivalence, monitoring the rope in conformity with the criteria specified within the *Inspector's Guide to 6 mm Diameter Governor and 8 mm Diameter Suspension Ropes for KONE Elevators* (per Application attachment "B", or as thereafter revised by KONE subject to Division approval).

8. In addition, each Applicant has proposed to utilize 6 mm diameter governor ropes in variance from Title 8, Section 3141, incorporated ASME A17.1-2004, Section 2.18.5.1.

9. ASME A17.1-2004, Section 2.18.5.1, specifies, in relevant part:

2.18.5.1 Material and Factor of Safety.

… [Governor ropes] not less than 9.5 mm (0.375 in.) in diameter. The factor of safety of governor ropes shall be not less than 5…

10. The Board takes notice of Title 8, Elevator Safety Order Section 3141.7, subpart (a)(10):

A reduced diameter governor rope of equivalent construction and material to that required by ASME A17.1-2004, is permissible if the factor of safety as related to the strength necessary to activate the safety is 5 or greater;

11. Applicants propose use of 6mm governor rope having a safety factor of 5 or greater, in conformity with Section 3141.7(a)(10), the specific parameters of which, being expressly set out within Title 8, Elevator Safety Orders, take precedence over more generally referenced governor rope diameter requirements per ASME A17.1-2004, Section 2.18.5.1. Accordingly, the governor rope specifications being presently proposed, inclusive of a factor of safety of 5 or greater, would comply with current Title 8, Elevator Safety Orders requirements, and therefore not be subject to issuance of permanent variance.

12. Absent evident diminution in elevator safety, over the past decade the Board has issued numerous permanent variances for use in KONE (Ecospace) elevator systems of 8 mm diameter suspension rope materially similar to that presently proposed (e.g. OSHSB File Nos. 06-V-203, 08-V-245, and 13-V-303).

13. As noted by the Board in OSHSB File Nos. 18-V-044, and 18-V-045, Decision and Order Findings, subpart B.17 (hereby incorporated by reference), the strength of wire rope operating as an elevator's suspension means does not remain constant over its years of projected service life. With increasing usage cycles, a reduction in the cross-sectional area of the wire rope normally occurs, resulting in decreased residual strength. This characteristic is of particular relevance to the present matter because, as also noted by Board staff, decreasing wire rope diameter is associated with a higher rate of residual strength loss. This foreseeable reduction in cross-sectional area primarily results from elongation under sheave rounding load, as well as from wear, and wire or strand breaks. However, these characteristics need not compromise elevator safety when properly accounted for in the engineering of elevator suspension means, and associated components.

14. The presently proposed wire rope is Wuxi Universal steel rope Co LTD. 8 mm 8x19S+8x7+PP, with a manufacturer rated breaking strength of 35.8 kN, and an outer wire diameter of less than 0.56 mm, but not less than 0.51 mm. Both Board staff and Division safety engineers have scrutinized the material and structural specifications, and performance testing data, of this particular proposed rope, and conclude it will provide for safety equivalent to ESO compliant 9.5 mm wire rope, with 0.56 mm outer wire (under conditions of use included within the below Decision and Order).

15. The applicant supplies tabulated data regarding the "Maximum Static Load on All Suspension Ropes." To obtain the tabulated data, the applicant uses the following formula derived from ASME A17.1 2004, Section 2.20.3:

W = (S x N)/ f

where

W = maximum static load imposed on all car ropes with the car and its rated load at any position in the hoistway

N = number of runs of rope under load. For 2:1 roping, N shall be two times the number of ropes used, etc.

S = manufacturer's rated breaking strength of one rope

f = the factor of safety from Table 2.20.3

16. ASME A17.1-2010 Sections 2.20.3 and 2.20.4 utilize the same formula, but provide for use of suspension ropes having a diameter smaller than 9.5 mm, under specified conditions, key among them being that use of ropes having a diameter of between 8 mm to 9.5 mm be engineered with a factor of safety of 12 or higher. This is a higher

minimum factor of safety than that proposed by Applicant, but a minimum recommended by both Board staff and Division as a condition of variance necessary to the achieving of safety equivalence to 9.5 mm rope.

17. Board staff and Division are in accord with Applicant, in proposing as a condition of safety equivalence, that periodic physical examination of the wire ropes be performed to confirm the ropes continue to meet the criteria set out in the (Application attachment) *Inspector's Guide to 6 mm Diameter Governor and 8 mm Diameter Suspension Ropes for KONE Elevators.* Adherence to this condition will provide an additional assurance of safety equivalence, regarding smaller minimum diameter suspension rope outer wire performance over the course of its service life.

18. Both Board staff, and Division, by way of written submissions to the record (Exhibits PD-3 and PD-4 respectively), and stated positions at hearing, are of the well informed opinion that grant of permanent variance, as limited and conditioned per the below Decision and Order will provide employment, places of employment, and subject conveyances, as safe and healthful as would prevail given non-variant conformity with the Elevator Safety Order requirements from which variance has been requested.

D. Conclusive Findings:

The above stated procedural prerequisites, legal authority, and factual findings, as further supported by the documentary record and hearing testimony in this matter, provide a substantive and reasonable basis of conclusion that: (1) Each Applicant has complied with the statutory and regulatory requirements that must be met before an application for permanent variance may be conditionally granted; and (2) a preponderance of the evidence establishes that each Applicants proposal, subject to all conditions and limitations set forth in the below Decision and Order, will provide equivalent safety and health to that which would prevail upon full compliance with the requirements of California Code of Regulation, Title 8, Elevator Safety Orders from which variance is being sought.

E. Decision and Order:

Each Application being the subject of this proceeding, per above Section A.1 table, is conditionally GRANTED, to the extent that each such Applicant shall be issued permanent variance from California Code of Regulations, Title 8, Section 3141 incorporated ASME A17.1-2004, Section 2.20.4, in as much as it precludes use of suspension rope of between 8 mm and 9.5 mm, or outer wire of between 0.51 mm and 0.56 mm in diameter, at such locations and numbers of Group IV KONE Monospace 300 elevators identified in each respective Application, subject to the following conditions:

1. The diameter of the hoisting steel ropes shall be not less than 8 mm (0.315 in) diameter and the roping ratio shall be two to one (2:1).

2. The outer wires of the suspension ropes shall be not less than 0.51 mm (0.02 in.) in diameter.

3. The number of suspension ropes shall be not fewer than those specified per hereby incorporated Decision and Order Appendix 1 Table.

4. The ropes shall be inspected annually for wire damage (rouge, valley break etc.) in accordance with "KONE Inc. Inspector's Guide to 6 mm diameter and 8 mm diameter steel ropes for KONE Elevators" (per Application Exhibit B, or as thereafter amended by KONE subject to Division approval).

5. A rope inspection log shall be maintained and available in the elevator controller room / space at all times.

6. The elevator rated speed shall not exceed those speeds specified per the Decision and Order Appendix 1 Table.

7. The maximum suspended load shall not exceed those weights (plus 5%) specified per the Decision and Order Appendix 1 Table.

8. The opening to the hoistway shall be effectively barricaded when car top inspection, maintenance, servicing, or testing of the elevator equipment in the hoistway is required. If the service personnel must leave the area for any reason, the hoistway and control room doors shall be closed.

9. The installation shall meet the suspension wire rope factor of safety requirements of ASME A17.1-2013 Section 2.20.3.

10. Any Certified Qualified Conveyance Company performing inspections, maintenance, servicing or testing the elevators shall be provided a copy of this variance decision.

11. The Division shall be notified when the elevator is ready for inspection. The elevator shall be inspected by the Division and a "Permit to Operate" issued before the elevator is placed in service.

12. The Applicant shall comply with suspension means replacement reporting condition per hereby incorporated Decision and Order Appendix 2.

13. The Applicant shall notify its employees or their authorized representative(s), or both, of this order in the same way and to the same extent that employees and authorized representatives are to be notified of docketed permanent variance applications pursuant to California Code of Regulations, Title 8, Sections 411.2 and 411.3.

14. This Decision and Order shall remain in effect unless modified or revoked upon application by the Applicant, affected employee(s), the Division of Occupational Safety

and Health, or by the Board on its own motion, in accordance with procedures per Title 8, Division 1, Chapter 3.5.

Pursuant to California Code of Regulations, Title 8, Section 426(b), the above, duly completed Proposed Decision, is hereby submitted to the Occupational Safety and Health Standards Board for consideration of adoption.

Dated: March 28, 2023

_____
Autumn Gonzalez, Hearing Officer

Appendix 1

Monospace 300 Suspension Ropes Appendix 1 Table

Variance Number	Elevator ID	Minimum Quantity of Ropes (per Condition 3)	Maximum Speed in Feet per Minute (per Condition 6)	Maximum Suspended Load (per Condition 7)
23-V-015	1	7	150	12,247
23-V-016	1	7	150	12,247
23-V-020	1	7	150	12,247
23-V-029	1	5	150	8,748
23-V-040	1	7	150	12,247
23-V-043	1	7	150	12,247

Appendix 2

Suspension Means Replacement Reporting Condition

Beginning on the date the Board adopts this Proposed Decision and continuing for a period of two years, the Applicant shall report to the Division within 30 days any and all replacement activity performed on the elevator(s) pursuant to the requirements of ASME A17.1-2004, Section 8.6.3 involving the suspension means or suspension means fastenings. Further:

1. A separate report for each elevator shall be submitted, in a manner acceptable to the Division, to the following address (or to such other address as the Division might specify in the future): DOSH Elevator Unit, 2 MacArthur Place, Suite 700, Santa Ana, CA 92707, Attn: Engineering Section.

2. Each such report shall contain, but not necessarily be limited to, the following information:

    a. The State-issued conveyance number, complete address, and OSHSB file number that identifies the permanent variance.

    b. The business name, complete address, telephone number, and contact person of the elevator responsible party (presumably the Applicant or the subsequent holder of this variance).

    c. The business name, complete address, telephone number, and Certified Qualified Conveyance Company (CQCC) certification number of the firm performing the replacement work.

    d. The name (as listed on certification), Certified Competent Conveyance Mechanic (CCCM) certification number, certification expiration date, and signature of each CCCM performing the replacement work.

    e. The date and time the elevator was removed from normal service for suspension replacement, the date and time the replacement work commenced, the date and time the replacement work was completed, and the date and time the elevator was returned to normal service.

    f. A detailed description of, and clear color photographs depicting, (1) all the conditions that existed in the suspension components requiring their replacement and (2) any conditions that existed to cause damage or distress to the suspension components being replaced.

    g. A detailed list of all elevator components adjusted, repaired, or replaced in conjunction with the suspension component replacement.

h. All information provided on the crosshead data plate per ASME A17.1-2004, Section 2.20.2.1, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

i. For the suspension means being replaced, all information provided on the data tag required per ASME A17.1-2004, Section 2.20.2.2, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

j. For the replacement suspension means, all information provided on the data tag required by ASME A17.1-2004, Section 2.20.2.2, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

k. Any other information requested by the Division regarding the replacement of the suspension means or fastenings.

3. In addition to the submission of the report to the Division, the findings of any testing, failure analysis, or other engineering evaluations performed on any portion of the replaced suspension components, or other elevator components replaced in conjunction therewith, shall be submitted to the Division referencing the information contained in above Appendix 2, Section 2, Subsection (a), above.

STATE OF CALIFORNIA
DEPARTMENT OF INDUSTRIAL RELATIONS
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
2520 Venture Oaks Way, Suite 350
Sacramento, California 95833
(916) 274-5721

In the Matter of Application for Permanent Variance regarding: KONE Monospace 500 Elevators with Retractable Platform Guard (Group IV)	OSHSB File No.: See Section A.1 table of Proposed Decision Dated: March 28, 2023 DECISION

The Occupational Safety and Health Standards Board hereby adopts the attached PROPOSED DECISION by Autumn Gonzalez, Hearing Officer.

_____
DAVID THOMAS, Chairman

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BARBARA BURGEL, Member

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KATHLEEN CRAWFORD, Member

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DAVID HARRISON, Member

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NOLA KENNEDY, Member

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CHRIS LASZCZ-DAVIS, Member

_____
LAURA STOCK, Member

OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

Date of Adoption: April 20, 2023

THE FOREGOING VARIANCE DECISION WAS ADOPTED ON THE DATE INDICATED ABOVE. IF YOU ARE DISSATISFIED WITH THE DECISION, A PETITION FOR REHEARING MAY BE FILED BY ANY PARTY WITH THE STANDARDS BOARD WITHIN TWENTY (20) DAYS AFTER SERVICE OF THE DECISION. YOUR PETITION FOR REHEARING MUST FULLY COMPLY WITH THE REQUIREMENTS OF CALIFORNIA CODE OF REGULATIONS, TITLE 8, SECTIONS 427, 427.1 AND 427.2.

Note: A copy of this Decision must be posted for the Applicant's employees to read, and/or a copy thereof must be provided to the employees' Authorized Representatives.

BEFORE THE
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
DEPARTMENT OF INDUSTRIAL RELATIONS
STATE OF CALIFORNIA

In the Matter of Application for Permanent Variance Regarding: KONE Monospace 500 Elevators with Retractable Platform Guard (Group IV)	OSHSB File Nos.: See Section A.1 Table Below PROPOSED DECISION Hearing Date: March 22, 2023

A. Subject Matter:

1. Each below listed applicant ("Applicant") applied for a permanent variance from provisions of the Elevator Safety Orders, found at title 8 of the California Code of Regulations, with respect to a conveyance, or conveyances, in the listed quantity, at the listed location:

Variance No.	Applicant Name	Variance Location Address	No. of Elevators
23-V-017	City of Santa Rosa	555 1st St. Santa Rosa, CA	2

2. The subject title 8, safety order requirements are set out within California Code of Regulations, title 8, section 3141 incorporated ASME A17.1-2004, Sections 2.18.5.1, 2.20.4, 2.4.1.5 and 2.15.9.2.

B. Procedural:

1. This hearing was held on March 22, 2023, in Sacramento, California, via teleconference, by delegation of the Occupational Safety and Health Standards Board ("Board"), with Hearing Officer Autumn Gonzalez, both presiding and hearing the matter on its merit, as a basis of proposed decision to be advanced to the Board for its consideration, in accordance with California Code of Regulations, title 8, section 426.

2. At the hearing, Fuei Saetern, with KONE, Inc., appeared on behalf of each Applicant; Mark Wickens and David Morris appeared on behalf of the Division of Occupational Safety and Health ("Division"), and Michael Nelmida appeared on behalf of Board staff in a technical advisory capacity apart from the Board.

3. Documentary and oral evidence was received at the hearing, and by stipulation of all parties, documents were admitted into evidence:

Exhibit Number	Description of Exhibit
PD-1	Application(s) for Permanent Variance per section A.1 table
PD-2	OSHSB Notice of Hearing
PD-3	Board Staff Review of Variance Application
PD-4	Division Review of Variance Application
PD-5	Review Draft-1 Proposed Decision

Official notice is taken of the Board's files, records, recordings and decisions concerning the Elevator Safety Order requirements from which variance shall issue. On March 22, 2023, the hearing and record closed, and the matter was taken under submission by the Hearing Officer.

C. Findings of Fact—Based on the record of this proceeding, the Board finds the following:

1. Each respective Applicant intends to utilize the KONE Inc. Monospace 500 type elevator, in the quantity, at the location, specified per the above Section A.1 table.

2. The installation contract for this elevator was or will be signed on or after May 1, 2008, thus making the elevator subject to the Group IV Elevator Safety Orders.

3. Each Applicant proposes to use hoisting ropes that are 8 mm in diameter which also consist of 0.51 mm diameter outer wires, in variance from the express requirements of ASME A17.1-2004, Section 2.20.4.

4. In relevant part, ASME A17.1-2004, Section 2.20.4 states:

> *2.20.4 Minimum Number and Diameter of Suspension Ropes*
>
> *…The minimum diameter of hoisting and counterweight ropes shall be 9.5 mm (0.375 in.). Outer wires of the ropes shall be not less than 0.56 mm (0.024 in.) in diameter.*

5. An intent of the afore cited requirement of ASME A17.1-2004, Section 2.20.4, is to ensure that the number, diameter, and construction of suspension ropes are adequate to provided safely robust and durable suspension means over the course of the ropes' foreseen service life.

6. KONE has represented to Division and Board staff, having established an engineering practice for purposes of Monospace 500 elevator design, of meeting or exceeding the minimum factor of safety of 12 for 8 mm suspension members, as required in

ASME A17.1-2010, Section 2.20.3—under which, given that factor of safety, supplemental broken suspension member protection is not required.

7. Also, each Applicant proposes as a further means of maintaining safety equivalence, monitoring the rope in conformity with the criteria specified within the *Inspector's Guide to 6 mm Diameter Governor and 8 mm Diameter Suspension Ropes for KONE Elevators* (per Application attachment "B", or as thereafter revised by KONE subject to Division approval).

8. In addition, each Applicant has proposed to utilize 6 mm diameter governor ropes in variance from title 8, section 3141, incorporated ASME A17.1-2004, Section 2.18.5.1.

9. ASME A17.1-2004, Section 2.18.5.1, specifies, in relevant part:

> *2.18.5.1 Material and Factor of Safety.*
>
> *… [Governor ropes] not less than 9.5 mm (0.375 in.) in diameter. The factor of safety of governor ropes shall be not less than 5…*

10. The Board takes notice of title 8, Elevator Safety Order Section 3141.7, subpart (a)(10):

> *A reduced diameter governor rope of equivalent construction and material to that required by ASME A17.1-2004, is permissible if the factor of safety as related to the strength necessary to activate the safety is 5 or greater;*

11. Applicants propose use of 6mm governor rope having a safety factor of 5 or greater, in conformity with Section 3141.7(a)(10), the specific parameters of which, being expressly set out within title 8, Elevator Safety Orders, take precedence over more generally referenced governor rope diameter requirements per ASME A17.1-2004, Section 2.18.5.1. Accordingly, the governor rope specifications being presently proposed, inclusive of a factor of safety of 5 or greater, would comply with current title 8, Elevator Safety Orders requirements, and therefore not be subject to issuance of permanent variance.

12. Absent evident diminution in elevator safety, over the past decade the Board has issued numerous permanent variances for use in KONE (Ecospace) elevator systems of 8 mm diameter suspension rope materially similar to that presently proposed (e.g. OSHSB File Nos. 06-V-203, 08-V-245, and 13-V-303).

13. As noted by the Board in OSHSB File Nos. 18-V-044, and 18-V-045, Decision and Order Findings, subpart B.17 (hereby incorporated by reference), the strength of wire rope operating as an elevator's suspension means does not remain constant over its years of projected service life. With increasing usage cycles, a reduction in the cross-sectional area of the wire rope normally occurs, resulting in decreased residual strength. This characteristic is of particular relevance to the present matter because, as also noted by

Board staff, decreasing wire rope diameter is associated with a higher rate of residual strength loss. This foreseeable reduction in cross-sectional area primarily results from elongation under sheave rounding load, as well as from wear, and wire or strand breaks. However, these characteristics need not compromise elevator safety when properly accounted for in the engineering of elevator suspension means, and associated components.

14. The presently proposed wire rope is Wuxi Universal steel rope Co LTD. 8 mm 8x19S+8x7+PP, with a manufacturer rated breaking strength of 35.8 kN, and an outer wire diameter of less than 0.56 mm, but not less than 0.51 mm. Both Board staff and Division safety engineers have scrutinized the material and structural specifications, and performance testing data, of this particular proposed rope, and conclude it will provide for safety equivalent to ESO compliant 9.5 mm wire rope, with 0.56 mm outer wire (under conditions of use included within the below Decision and Order).

15. The applicant supplies tabulated data regarding the "Maximum Static Load on All Suspension Ropes." To obtain the tabulated data, the applicant uses the following formula derived from ASME A17.1 2004, Section 2.20.3:

W = (S x N)/ f

where

W = maximum static load imposed on all car ropes with the car and its rated load at any position in the hoistway

N = number of runs of rope under load. For 2:1 roping, N shall be two times the number of ropes used, etc.

S = manufacturer's rated breaking strength of one rope

f = the factor of safety from Table 2.20.3

16. ASME A17.1-2010 Sections 2.20.3 and 2.20.4 utilize the same formula, but provide for use of suspension ropes having a diameter smaller than 9.5 mm, under specified conditions, key among them being that use of ropes having a diameter of between 8 mm to 9.5 mm be engineered with a factor of safety of 12 or higher. This is a higher minimum factor of safety than that proposed by Applicant, but a minimum recommended by both Board staff and Division as a condition of variance necessary to the achieving of safety equivalence to 9.5 mm rope.

17. Board staff and Division are in accord with Applicant, in proposing as a condition of safety equivalence, that periodic physical examination of the wire ropes be performed to confirm the ropes continue to meet the criteria set out in the (Application attachment) *Inspector's Guide to 6 mm Diameter Governor and 8 mm Diameter Suspension Ropes for KONE Elevators.* Adherence to this condition will provide an additional assurance of safety equivalence, regarding smaller minimum diameter suspension rope outer wire performance over the course of its service life.

18. The Board incorporates by reference the following findings of fact: Subsections 5 through 9, set forth in the "Findings of Fact" Section of the Proposed Decision adopted by the Board on June 18, 2010 regarding OSHSB File No. 08-V-108M1.

19. Applicant proposes to install a two-section retractable platform guard (apron) consisting of a stationary upper section guard plate and a moveable lower section guard plate. To monitor the retractable mechanism, an electrical switching system will be provided to monitor for malfunction.

20. Section 3141 [ASME A17.1-2004, Section 2.15.9.2] states, in part:

> *2.15.9.2 The guard plate shall have a straight vertical face, extending below the floor surface of the platform, conforming to one of the following:*
>
> *(a) where the elevator is required to conform to 2.19.2.2(b) the depth of the truck zone, where provided, plus 75 mm (3 in.), but in no case less than 1,220 mm (48 in.).*

An intent of this code section is to guard a hazardous opening to the hoistway if the elevator car is intentionally or unintentionally positioned above the landing zone, by providing a guard that extends below the car platform to obstruct the opening.

21. Section 3141 [ASME A17.1-2004, Section 2.4.1.5] states, in part:

> *2.4.1.5 When the car is resting on its fully compressed buffers or bumpers, no part of the car, or any equipment attached thereto or equipment traveling with the car, shall strike any part of the pit or any equipment mounted therein.*

22. An intent of this code section is to prevent any equipment attached to the elevator car from striking any part of the pit. This could damage the elevator equipment, which may result in unsafe operation or injury.

23. Per Division's Review of Application (Exhibit PD-4) Applicant's proposed platform guard is similar in all material respects to installations for which a permanent variance previously has been granted. (e.g. 18-V-010M1).

24. Both Board staff, and Division, by way of written submissions to the record (Exhibits PD-3 and PD-4 respectively), and stated positions at hearing, are of the well informed opinion that grant of permanent variance, as limited and conditioned per the below Decision and Order will provide employment, places of employment, and subject conveyances, as safe and healthful as would prevail given non-variant conformity with the Elevator Safety Order requirements from which variance has been requested.

D. <u>Conclusive Findings:</u>

The above stated procedural prerequisites, legal authority, and factual findings, as further supported by the documentary record and hearing testimony in this matter, provide a substantive and reasonable basis of conclusion that: (1) Each Applicant has complied with the statutory and regulatory requirements that must be met before an application for permanent variance may be conditionally granted; and (2) a preponderance of the evidence establishes that each Applicants proposal, subject to all conditions and limitations set forth in the below Decision and Order, will provide equivalent safety and health to that which would prevail upon full compliance with the requirements of California Code of Regulation, title 8, Elevator Safety Orders from which variance is being sought.

E. Decision and Order:

Each Application being the subject of this proceeding, per the table in Jurisdictional and Procedural Matters, section 1 above, is conditionally GRANTED, to the extent that each such Applicant shall be issued permanent variance from California Code of Regulations, title 8, section 3141 shall be GRANTED subject to the following conditions and limitations:

Elevator Safety Orders:

- Minimum Diameter of Suspension Ropes: 2.20.4 (Only to the extent necessary to permit the use of 8 mm [0.0315 in.] diameter suspension ropes, where the Elevator Safety Orders require a minimum diameter of 9.5 mm [0.375]);

- Platform Guard: 2.15.9.2 (Only to the extent necessary to permit the use of a two-section retractable platform guard (apron) where the depth of the pit is not sufficient enough to prevent the platform guard from contacting the floor when the car is resting on its fully compressed buffers or bumpers); and

- Bottom Car Clearances: 2.4.1.5 (Only to the extent necessary to permit the two-section retractable platform guard (apron) to contact the pit floor).

Conditions:

1. The diameter of the hoisting steel ropes shall be not less than 8 mm (0.315 in) diameter and the roping ratio shall be two to one (2:1).

2. The outer wires of the suspension ropes shall be not less than 0.51 mm (0.02 in.) in diameter.

3. The number of suspension ropes shall be not fewer than those specified per hereby incorporated Decision and Order Appendix 1 Table.

4. The ropes shall be inspected annually for wire damage (rouge, valley break etc.) in accordance with “KONE Inc. Inspector’s Guide to 6 mm diameter and 8 mm diameter steel ropes for KONE Elevators” (per Application Exhibit B, or as thereafter amended by KONE subject to Division approval).

5. A rope inspection log shall be maintained and available in the elevator controller room / space at all times.

6. The elevator rated speed shall not exceed those speeds specified per the Decision and Order Appendix 1 Table.

7. The maximum suspended load shall not exceed those weights (plus 5%) specified per the Decision and Order Appendix 1 Table.

8. The opening to the hoistway shall be effectively barricaded when car top inspection, maintenance, servicing, or testing of the elevator equipment in the hoistway is required. If the service personnel must leave the area for any reason, the hoistway and control room doors shall be closed.

9. The installation shall meet the suspension wire rope factor of safety requirements of ASME A17.1-2013 Section 2.20.3.

10. The Applicant shall comply with suspension means replacement reporting condition per hereby incorporated Decision and Order Appendix 2.

11. In lieu of the straight vertical face (one-piece) platform guards (aprons) required by Section 3141 [ASME A17.1-2004, Section 2.15.9.2], a two-section retractable platform guard consisting of a stationary, upper-section guard plate and a moveable, lower-section guard plate shall be installed to conform to the following:

    a. The stationary, upper-section guard plate shall have a straight vertical face, extending below the floor surface of the platform; the height shall be not less than 920 mm (36.2 in).

    b. The movable, lower-section guard plate shall:

        i. Comply with ASME A17.1-2004, Section 2.15.9.3;

        ii. Be provided a rubber bumper at the center of the bottom edge of the plate to absorb the impact when the toe guard strikes the concrete pit floor;

        iii. Be provided with an electrical switch that indicates to the control system that the retractable platform guard is in its extended position (when car is away from the bottom landing), and be provided with a second electrical switch that indicates to the control system that the moveable lower section is in its retracted position (when the car is at the bottom landing), thereby overriding the first switch. Failure of either of these electrical switches or of the mechanical parts that activate these electrical switches shall cause the controller to remove power from the driving machine and brake.

c. The two-section retractable platform guard shall be provided with smooth metal guard plates of not less than 1.5 mm (0.059 in) thick steel, or material of equivalent strength and stiffness, adequately reinforced and braced to the car platform and conforming to ASME A17.1-2004, sections 2.15.9.1 and 2.15.9.4.

d. The overall height of the two-section retractable platform guard shall be not less than 1220 mm (48 in) when the moveable lower section is in the fully extended (deployed) position.

e. The elevator rated speed shall be equal to or less than 200 feet per minute.

f. The opening to the hoistway shall be effectively barricaded when car top inspection, maintenance, servicing, or testing of the elevator equipment in the hoistway is required. If the service personnel must leave the area for any reason, the hoistway and control room doors shall be closed.

12. Any Certified Qualified Conveyance Company performing inspections, maintenance, servicing or testing the elevators shall be provided a copy of this variance decision.

13. The Division shall be notified when the elevator is ready for inspection. The elevator shall be inspected by the Division and a "Permit to Operate" issued before the elevator is placed in service.

14. The Applicant shall notify its employees or their authorized representative(s), or both, of this order in the same way and to the same extent that employees and authorized representatives are to be notified of docketed permanent variance applications pursuant to California Code of Regulations, title 8, sections 411.2 and 411.3.

15. This Decision and Order shall remain in effect unless modified or revoked upon application by the Applicant, affected employee(s), the Division of Occupational Safety and Health, or by the Board on its own motion, in accordance with procedures per Title 8, Division 1, Chapter 3.5.

Pursuant to California Code of Regulations, title 8, section 426(b), the above, duly completed Proposed Decision, is hereby submitted to the Occupational Safety and Health Standards Board for consideration of adoption.

Dated: March 28, 2023

Autumn Gonzalez, Hearing Officer

Appendix 1

	Monospace 500 Suspension Ropes Appendix 1 Table			
OSHSB File No.	Elevator ID	Minimum Quantity of Ropes (per Condition 3)	Maximum Speed in Feet per Minute (per Condition 6)	Maximum Suspended Load (per Condition 7)
23-V-017	1	6	150	10,497
23-V-017	2	6	150	10,497

Appendix 2

Suspension Means Replacement Reporting Condition

Beginning on the date the Board adopts this Proposed Decision and continuing for a period of two years, the Applicant shall report to the Division within 30 days any and all replacement activity performed on the elevator(s) pursuant to the requirements of ASME A17.1-2004, Section 8.6.3 involving the suspension means or suspension means fastenings. Further:

1. A separate report for each elevator shall be submitted, in a manner acceptable to the Division, to the following address (or to such other address as the Division might specify in the future): DOSH Elevator Unit, 2 MacArthur Place, Suite 700, Santa Ana, CA 92707, Attn: Engineering Section.

2. Each such report shall contain, but not necessarily be limited to, the following information:

    a. The State-issued conveyance number, complete address, and OSHSB file number that identifies the permanent variance.

    b. The business name, complete address, telephone number, and contact person of the elevator responsible party (presumably the Applicant or the subsequent holder of this variance).

    c. The business name, complete address, telephone number, and Certified Qualified Conveyance Company (CQCC) certification number of the firm performing the replacement work.

    d. The name (as listed on certification), Certified Competent Conveyance Mechanic (CCCM) certification number, certification expiration date, and signature of each CCCM performing the replacement work.

    e. The date and time the elevator was removed from normal service for suspension replacement, the date and time the replacement work commenced, the date and time the replacement work was completed, and the date and time the elevator was returned to normal service.

    f. A detailed description of, and clear color photographs depicting, (1) all the conditions that existed in the suspension components requiring their replacement and (2) any conditions that existed to cause damage or distress to the suspension components being replaced.

    g. A detailed list of all elevator components adjusted, repaired, or replaced in conjunction with the suspension component replacement.

h. All information provided on the crosshead data plate per ASME A17.1-2004, Section 2.20.2.1, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

i. For the suspension means being replaced, all information provided on the data tag required per ASME A17.1-2004, Section 2.20.2.2, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

j. For the replacement suspension means, all information provided on the data tag required by ASME A17.1-2004, Section 2.20.2.2, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

k. Any other information requested by the Division regarding the replacement of the suspension means or fastenings.

3. In addition to the submission of the report to the Division, the findings of any testing, failure analysis, or other engineering evaluations performed on any portion of the replaced suspension components, or other elevator components replaced in conjunction therewith, shall be submitted to the Division referencing the information contained in above Appendix 2, Section 2, Subsection (a), above.

STATE OF CALIFORNIA
DEPARTMENT OF INDUSTRIAL RELATIONS
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
2520 Venture Oaks Way, Suite 350
Sacramento, California 95833
(916) 274-5721

In the Matter of Application for Permanent Variance regarding: Schindler Model 5500 Elevators (Group IV)	OSHSB File No.: See Section A.1 table of Proposed Decision Dated: March 28, 2023 DECISION

The Occupational Safety and Health Standards Board hereby adopts the attached PROPOSED DECISION by Autumn Gonzalez, Hearing Officer.

_____
DAVID THOMAS, Chairman

_____
BARBARA BURGEL, Member

_____
KATHLEEN CRAWFORD, Member

_____
DAVID HARRISON, Member

_____
NOLA KENNEDY, Member

_____
CHRIS LASZCZ-DAVIS, Member

_____
LAURA STOCK, Member

OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

Date of Adoption: April 20, 2023

THE FOREGOING VARIANCE DECISION WAS ADOPTED ON THE DATE INDICATED ABOVE. IF YOU ARE DISSATISFIED WITH THE DECISION, A PETITION FOR REHEARING MAY BE FILED BY ANY PARTY WITH THE STANDARDS BOARD WITHIN TWENTY (20) DAYS AFTER SERVICE OF THE DECISION. YOUR PETITION FOR REHEARING MUST FULLY COMPLY WITH THE REQUIREMENTS OF CALIFORNIA CODE OF REGULATIONS, TITLE 8, SECTIONS 427, 427.1 AND 427.2.

Note: A copy of this Decision must be posted for the Applicant's employees to read, and/or a copy thereof must be provided to the employees' Authorized Representatives.

BEFORE THE
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
DEPARTMENT OF INDUSTRIAL RELATIONS
STATE OF CALIFORNIA

In the Matter of Application for Permanent Variance regarding: Schindler Model 5500 Elevators (Group IV)	OSHSB File Nos. See section A.1 Table below PROPOSED DECISION Hearing Date: March 22, 2023

A. Subject Matter:

1. Each below listed applicant ("Applicant") has applied for permanent variance from certain provisions of the Elevator Safety Orders, found at title 8, of the California Code of Regulations, with respect to a conveyance, or conveyances, in the listed quantity, at the listed location:

Variance No.	Applicant Name	Variance Location Address	No. of Elevators
23-V-027	Los Angeles World Airports	380 World Way Los Angeles, CA	4

2. The safety orders at issue are set out in below section C.1.

B. Process and Procedure:

1. This proceeding is conducted in accordance with Labor Code section 143, and California Code of Regulations, title 8, section 401, et. seq.

2. The installation contract for the subject elevators was signed after May 1, 2008. Therefore, the subject elevators fall within the scope of the Elevator Safety Orders (ESO) Group IV section 3141, and as incorporated by reference therein, ASME A17.1-2004.

3. This hearing was held on March 22, 2023, in Sacramento, California, via teleconference, by Occupational Safety and Health Standards Board ("Board") assigned Hearing Officer, Autumn Gonzalez, both presiding and hearing the matter on its merit, as a basis of proposed decision to be advanced to the Board for its consideration, in accordance with California Code of Regulations, title 8, section 426.

4. At the hearing, Jennifer Linares, with Schindler Elevator Corporation, appeared on behalf of each Applicant; Mark Wickens and David Morris appeared on behalf of the Division of Occupational Safety and Health ("Division"), and Michael Nelmida appeared on behalf of Board staff, in a technical advisory role apart from the Board.

5. Oral evidence was received at the hearing, and by stipulation of all parties, documents were admitted into evidence:

Exhibit Number	Description of Exhibit
PD-1	Permanent variance applications per section A.1 table
PD-2	OSHSB Notice of Hearing
PD-3	Board Staff Reviews of Variance Application
PD-4	Division Reviews of Variance Application
PD-5	Review Draft-1 Proposed Decision

Official notice is taken of the Board's rulemaking records, and variance decisions concerning the safety order requirements from which variance is requested. At close of hearing on March 22, 2023, the record was closed, and the matter taken under submission by the Hearing Officer.

C. Findings of Fact—Based upon the record of this proceeding, the Board finds the following:

Requested Suspension Means Related Variance:

1. As each pertains to the non-circular elastomeric coated suspension means characteristic of the Schindler Model 5500 elevator, Applicant presently seeks permanent variance from the following title 8, Elevator Safety Order incorporated ASME Safety Code for Elevators and Escalators (ASME Code) A17.1-2004 sections and subsections:

    Section 2.20.1—Wire rope suspension means
    Section 2.20.2.1—Crosshead data plate
    Subsection 2.20.2.2(a)—Wire rope data tag
    Subsection 2.20.2.2(f)—ID of steel wire rope as preformed or nonpreformed
    Section 2.20.3—Wire rope safety factor
    Section 2.20.4—Number and diameter of wire ropes
    Section 2.20.9.3.4—Wire rope end connections
    Section 2.20.9.5.4—Wire rope sockets

Requested Car Top Railing Inset Variance:

2. As it pertains to top of car railing placement requiring space occupied by upper hoistway mounted elevator machinery characteristic of the Schindler Model 5500 elevator, Applicant presently seeks permanent variance from the following title 8, Elevator Safety Order incorporated ASME Code A17.1-2004 section:

    Section 2.14.1.7.1—Top of Car Perimeter Railing Placement

Requested Seismic Reset Switch Placement Variance:

3. As it pertains to installation of the requisite seismic reset switch within a "machine room" location incompatible with machine-room-less design of the Schindler Model 5500 elevator, Applicant presently seeks permanent variance from the following title 8, Elevator Safety Order incorporated ASME Code subsection:

   Subsection 8.4.10.1.1(a)(2)(b)--Seismic Reset Switch Placement in Machine Room

Requested Transfer Switch Placement Variance:

4. As it pertains to installation of the requisite transfer switch within a "machine room" location incompatible with machine-room-less design of the Schindler Model 5500 elevator, Applicant presently seeks permanent variance from the following title 8, Elevator Safety Order incorporated ASME Code A17.1-2004 subsection:

   Subsection 2.26.1.4.4(a)--Transfer Switch Placement in Machine Room

Official Notice and Incorporation by Reference—OSHSB File No. 15-V-349:

5. Per hereby entered stipulation offered at hearing by Applicant, Division, and Board staff, concerning preexisting Board records, including decisions in matters of permanent variance from Elevator Safety Order requirements, the Board takes Official Notice and expressly incorporates herein by reference, OSHSB File No. 15-V-349, Decision and Order adopted November 17, 2016, section D.1—D.75 findings, and therein entered record upon which it was based.

Positions of Division, and Board Staff:

6. Having fully reviewed Applicant's request for variance from the above identified Elevator Safety Order requirements, it is the concurrent opinion of Division and Board staff, that conditionally limited grant to Applicant of permanent variance as specified per the below Decision and Order, will provide for elevator safety, and occupational safety and health, equivalent or superior to that of the Elevator Safety Order requirements from which variance is being sought. The present opinion of Division and Board staff, to any extent it may vary from those previously held with respect to the previously heard matter in OSHSB File No. 15-V-349, reflects further scrutiny of the subject matter, consultation between Division, Board staff, Applicant representatives, and refinement of recommended conditions and limitations.

D. Basis of Decision:

The afore stated procedural, statutory, regulatory, and factual matters establish a substantive reasonable basis of conclusion that: (1) Applicant has complied with the statutory and regulatory requirements that must be met before an application for permanent variance may be conditionally granted, and (2) a preponderance of the

evidence establishes that Applicant's proposal, subject to all conditions and limitations set forth in the below Decision and Order, will provide equivalent safety and health to that which would prevail upon full compliance with the requirements of California Code of Regulation, title 8, Elevator Safety Orders from which variance is being sought.

E. Decision and Order:

Each above section A.1 table specified Applicant, with respect to the also specified number of conveyance, and variance location, is hereby conditionally GRANTED Permanent Variance as stated below, to the limited extent that each enumerated conveyance at the given location shall be subject to conditionally limited permanent variance from the below specified ASME A17.1-2004, requirements incorporated by reference into California Code of Regulations, title 8, Elevator Safety Orders, section 3141.

Suspension Members: Applicant shall conditionally hold permanent variance from the following title 8, section 3141 incorporated sections and subsections of ASME A17.1-2004, to the limited extent variance is necessary to provide for use of noncircular elastomeric-coated steel suspension members and concomitant components, and configurations—section 2.20.1; section 2.20.2.1; subsection 2.20.2.2(a); subsection 2.20.2.2(f); section 2.20.3; section 2.20.4: section 2.20.9.3.4; and section 2.20.9.5.4.

Inspection Transfer Switch: Applicant shall conditionally hold permanent variance from certain requirements of the following title 8, section 3141 incorporated section of ASME A17.1-2004, to the extent variance is necessary to having the requisite inspection transfer switch located elsewhere than a machine room, within a Security Group I enclosure built into an upper floor landing door jam, or within other readily accessible and secure space shared with the motion controller outside the hoistway: section 2.26.1.4.4(a).

Seismic Safety Switch Placement: Applicant shall conditionally hold permanent variance from certain requirements of the following title 8, section 3141 incorporated section of ASME A17.1-2004, to the limited extent variance is necessary to having the requisite seismic reset switch located elsewhere than a machine room, within a Security Group I enclosure built into an upper floor landing door jam, or within other readily accessible and secure space shared with the motion controller outside the hoistway: section 8.4.10.1.1(a)(2)(b).

Car Top Railing: Applicant shall conditionally hold permanent variance from certain requirements of the following title 8, section 3141 incorporated section of ASME A17.1-2004, to the limited extent variance is necessary to provide for the below specified insetting of the subject elevator's top of car railing: section 2.14.1.7.1.

Further Conditions and Limitations:

1. The elevator suspension system shall comply with the following:

1.1. The suspension traction media (STM) members and their associated fastenings shall conform to the applicable requirements of ASME A17.1-2013, sections:

- 2.20.4.3 – Minimum Number of Suspension Members
- 2.20.3 – Factor of Safety
- 2.20.9 – Suspension Member Fastening

1.2. Additionally, STMs shall meet or exceed all requirements of ASME 17.6-2010 Standard for Elevator Suspension, Compensation, and Governor Systems, Part 3 Noncircular Elastomeric Coated Steel Suspension Members for Elevators.

1.3. The Applicant shall not utilize the elevator unless the manufacturer has written procedures for the installation, maintenance, inspection and testing of the STM members and fastenings and related monitoring and detection systems and criteria for STM replacement, and the Applicant shall make those procedures and criteria available to the Certified Competent Conveyance Mechanic (CCCM) at the location of the elevator, and to the Division of Occupational Safety and Health (Division) upon request.

1.4. STM member mandatory replacement criteria shall include:

1.4.1 Any exposed wire, strand or cord;

1.4.2 Any wire, strand or cord breaks through the elastomeric coating;

1.4.3 Any evidence of rouging (steel tension element corrosion) on any part of the elastomeric coated steel suspension member;

1.4.4 Any deformation in the elastomeric suspension member such as, but not limited to, kinks or bends.

1.5. Traction drive sheaves must have a minimum diameter of 72 mm. The maximum speed of STM members running on 72 mm, 87 mm and 125 mm drive sheaves shall be no greater than 2.5 m/s, 6.0 m/s and 8.0 m/s respectively.

1.6. If any one STM member needs replacement, the complete set of suspension members on the elevator shall be replaced. Exception: If a new suspension member is damaged during installation, and prior to any contemporaneously installed STM having been placed into service, it is permissible to replace the individual damaged suspension member. STM members that have been installed on another installation shall not be re-used.

1.7. A traction loss detection means shall be provided that conforms to the requirements of ASME A17.1-2013, section 2.20.8.1. The means shall be tested for correct function annually in accordance with ASME A17.1-2013, section 8.6.4.19.12.

1.8. A broken suspension member detection means shall be provided that conforms to the requirements of ASME A17.1-2013, section 2.20.8.2. The means shall be tested for correct function annually in accordance with ASME A17.1-2013, section 8.6.4.19.13(a).

1.9. An elevator controller integrated bend cycle monitoring system shall monitor actual STM bend cycles, by means of continuously counting, and storing in nonvolatile memory, the number of trips that the STM makes traveling, and thereby being bent, over the elevator sheaves. The bend cycle limit monitoring means shall automatically stop the car normally at the next available landing before the bend cycle correlated residual strength of any single STM member drops below 80 percent of full rated strength. The monitoring means shall prevent the car from restarting. Notwithstanding any less frequent periodic testing requirement per Addendum 1 (Division Circular Letter), the bend cycle monitoring system shall be tested semi-annually in accordance with the procedures required per above Conditions 1.2, and 1.3.

1.10. Each elevator shall be provided with a device that electronically detects a reduction in residual strength of each STM member. The device shall be in compliance with Division Circular Letter E-10-04, a copy of which is attached hereto as Addendum 1, and incorporated herein by reference.

1.11. The elevator crosshead data plate shall comply with the requirements of ASME A17.1-2013, section 2.20.2.1.

1.12. A suspension means data tag shall be provided that complies with the requirements of ASME A17.1-2013, section 2.20.2.2.

1.13. Comprehensive visual inspections of the entire length of each and all installed suspension members, in conformity with above Conditions 1.2 and 1.3 specified criteria, shall be conducted and documented every six months by a CCCM.

1.14. The Applicant shall be subject to the requirements per hereto attached, and inhere incorporated, Addendum 2, "Suspension Means Replacement Reporting Condition."

1.15. Records of all tests and inspections shall be maintenance records subject to ASME A17.1-2004, sections 8.6.1.2 and 8.6.1.4, respectively.

2. Inspection Transfer switch and Seismic Reset switch placement and enclosure shall comply with the following:

2.1. If the inspection transfer switch required by ASME A17.1-2004, Rule 2.26.1.4.4 does not reside in a machine room, that switch shall not reside in the elevator hoistway. The switch shall reside in the control/machinery room/space containing the elevator's control equipment in an enclosure secured by a lock

openable by a Group 1 security key. The enclosure is to remain locked at all times when not in use.

2.2. If the seismic reset switch does not reside in the machine room, that switch shall not reside in the elevator hoistway. The switch shall reside in the control/machinery room/space containing the elevator's control equipment in an enclosure secured by a lock openable by a Group 1 security key. The enclosure is to remain locked at all times when not in use.

3. Any and all inset car top railing shall comply with the following:

3.1. Serviceable equipment shall be positioned so that mechanics and inspectors do not have to stand on or climb over the railings to perform adjustments, maintenance, repairs or inspections. The Applicant shall not permit anyone to stand or climb over the car top railing.

3.2. The distance that the railing can be inset shall be limited to not more than 12 inches.

3.3. All exposed areas of the car top outside the car top railing where the distance from the railing to the edge of the car top exceeds 2 inches, shall be beveled with metal, at an angle of not less than 75 degrees with the horizontal, from the mid or top rail to the outside of the car top, such that no person or object can stand, sit, kneel, rest, or be placed in the exposed areas.

3.4. The top surface of the beveled area and/or car top outside the railing, shall be clearly marked. The markings shall consist of alternating 4 inch diagonal red and white stripes.

3.5. The applicant shall provide durable signs with lettering not less than 1/2 inch on a contrasting background on each inset railing; each sign shall state:

CAUTION
STAY INSIDE RAILING
NO LEANING BEYOND RAILING
NO STEPPING ON, OR BEYOND, RAILING

3.6. The Group IV requirements for car top clearances shall be maintained (car top clearances outside the railing will be measured from the car top and not from the required bevel).

4. The elevator shall be serviced, maintained, adjusted, tested, and inspected only by CCCM having been trained, and competent, to perform those tasks on the Schindler Model 5500 elevator system in accordance with written procedures and criteria, including as required per above Conditions 1.2, and 1.3.

5. The Division shall be notified when the elevator is ready for inspection. The elevator shall be inspected by the Division, and all applicable requirements met, including conditions of this permanent variance, prior to a Permit to Operate the elevator being issued. The elevator shall not be placed in service prior to the Permit to Operate being issued by Division.

6. The Applicant shall notify its employees or their authorized representative(s), or both, of this order in the same way and to the same extent that employees and authorized representatives are to be notified of docketed permanent variance applications pursuant to California Code of Regulations, title 8, sections 411.2 and 411.3.

7. This Decision and Order shall remain in effect unless modified or revoked upon application by Applicant, affected employee(s), the Division, or by the Board on its own motion, in accordance with title 8, Division 1, Chapter 3.5, procedural rules.

Pursuant to California Code of Regulations, title 8, section 426(b), the above, duly completed Proposed Decision, is hereby submitted to the Occupational Safety and Health Standards Board for consideration of adoption.

Dated: March 28, 2023

Autumn Gonzalez, Hearing Officer

ADDENDUM 1

October 6, 2010

CIRCULAR LETTER E-10-04

TO: Installers, Manufacturers of Conveyances and Related Equipment and, Other Interested Parties

SUBJECT: Coated Steel Belt Monitoring

The Elevator Safety Orders require routine inspection of the suspension means of an elevator to assure its safe operation.

The California Labor Code section 7318 allows the Division to promulgate special safety orders in the absence of regulation.

As it is not possible to see the steel cable suspension means of a Coated Steel Belt, a monitoring device which has been accepted by the Division is required on all Coated Steel Belts which will automatically stop the car if the residual strength of any belt drops below 60%. The Device shall prevent the elevator from restarting after a normal stop at a landing.

The monitoring device must be properly installed and functional. A functioning device may be removed only after a determination has been made that the residual strength of each belt exceeds 60%. These findings and the date of removal are to be conspicuously documented in the elevator machine room. The removed device must be replaced or returned to proper service within 30 days.

If upon routine inspection, the monitoring device is found to be in a non-functional state, the date and findings are to be conspicuously documented in the elevator machine room.

If upon inspection by the Division, the monitoring device is found to be non-functional or removed, and the required documentation is not in place, the elevator will be removed from service.

If the device is removed to facilitate belt replacement, it must be properly installed and functional before the elevator is returned to service.

A successful test of the device's functionality shall be conducted once a year.

This circular does not preempt the Division from adopting regulations in the future, which may address the monitoring of Coated Steel Belts or any other suspension means.

This circular does not create an obligation on the part of the Division to permit new conveyances utilizing Coated Steel Belts.

Debra Tudor
Principal Engineer
DOSH-Elevator Unit HQS

ADDENDUM 2

Suspension Means – Replacement Reporting Condition

Beginning on the date the Board adopts this Proposed Decision and continuing for a period of two years, the Applicant shall report to the Division within 30 days any and all replacement activity performed on the elevator(s) pursuant to the requirements of ASME A17.1-2004, section 8.6.3 involving the suspension means or suspension means fastenings.

Further:

1. A separate report for each elevator shall be submitted, in a manner acceptable to the Division, to the following address (or to such other address as the Division might specify in the future): DOSH Elevator Unit, 2 MacArthur Place, Suite 700, Santa Ana, CA 92707, Attn: Engineering section.

2. Each such report shall contain, but not necessarily be limited to, the following information:

    a. The State-issued conveyance number, complete address, and OSHSB file number that identifies the permanent variance.

    b. The business name, complete address, telephone number, and contact person of the elevator responsible party (presumably the Applicant or the subsequent holder of this variance).

    c. The business name, complete address, telephone number, and Certified Qualified Conveyance Company (CQCC) certification number of the firm performing the replacement work.

    d. The name (as listed on certification), Certified Competent Conveyance Mechanic (CCCM) certification number, certification expiration date, and signature of each CCCM performing the replacement work.

    e. The date and time the elevator was removed from normal service for suspension replacement, the date and time the replacement work commenced, the date and time the replacement work was completed, and the date and time the elevator was returned to normal service.

    f. A detailed description of, and clear color photographs depicting, (1) all the conditions that existed in the suspension components requiring their replacement and (2) any conditions that existed to cause damage or distress to the suspension components being replaced.

g. A detailed list of all elevator components adjusted, repaired, or replaced in conjunction with the suspension component replacement.

h. All information provided on the crosshead data plate per ASME A17.1-2004, section 2.20.2.1, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

i. For the suspension means being replaced, all information provided on the data tag required per ASME A17.1-2004, section 2.20.2.2, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

j. For the replacement suspension means, all information provided on the data tag required by ASME A17.1-2004, section 2.20.2.2, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

k. Any other information requested by the Division regarding the replacement of the suspension means or fastenings.

3. In addition to the submission of the report to the Division, the findings of any testing, failure analysis, or other engineering evaluations performed on any portion of the replaced suspension components, or other elevator components replaced in conjunction therewith, shall be submitted to the Division referencing the information contained in item 2a above.

STATE OF CALIFORNIA
DEPARTMENT OF INDUSTRIAL RELATIONS
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
2520 Venture Oaks Way, Suite 350
Sacramento, California 95833
(916) 274-5721

In the Matter of Application for Permanent Variance regarding: Otis Gen2O and/or Gen3Peak with Variant Governor Rope and Sheaves (Group IV)	OSHSB File No.: See section A table of Proposed Decision Dated: March 28, 2023 DECISION

The Occupational Safety and Health Standards Board hereby adopts the attached PROPOSED DECISION by Autumn Gonzalez, Hearing Officer.

_____
DAVID THOMAS, Chairman

_____
BARBARA BURGEL, Member

_____
KATHLEEN CRAWFORD, Member

_____
DAVID HARRISON, Member

_____
NOLA KENNEDY, Member

_____
CHRIS LASZCZ-DAVIS, Member

_____
LAURA STOCK, Member

OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

Date of Adoption: April 20, 2023

THE FOREGOING VARIANCE DECISION WAS ADOPTED ON THE DATE INDICATED ABOVE. IF YOU ARE DISSATISFIED WITH THE DECISION, A PETITION FOR REHEARING MAY BE FILED BY ANY PARTY WITH THE STANDARDS BOARD WITHIN TWENTY (20) DAYS AFTER SERVICE OF THE DECISION. YOUR PETITION FOR REHEARING MUST FULLY COMPLY WITH THE REQUIREMENTS OF CALIFORNIA CODE OF REGULATIONS, TITLE 8, SECTIONS 427, 427.1 AND 427.2.

Note: A copy of this Decision must be posted for the Applicant's employees to read, and/or a copy thereof must be provided to the employees' Authorized Representatives.

BEFORE THE
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
DEPARTMENT OF INDUSTRIAL RELATIONS
STATE OF CALIFORNIA

In the Matter of Application for Permanent Variance regarding: Otis Gen2O, and/or Gen3Peak with Variant Governor Rope and Sheaves (Group IV)	OSHSB File No: See section A.1 table below PROPOSED DECISION Hearing Date: March 22, 2023

A. Procedural & Jurisdictional Matters

1. Each applicant ("Applicant") listed in the table below has applied for permanent variances from provisions of the Elevator Safety Orders, found at title 8 of the California Code of Regulations[1], with respect to a conveyance, or conveyances, in the listed quantity, at the listed location:

Variance No.	Applicant Name	Variance Location Address	No. of Conveyances
23-V-046	Disney Vacation Development, Inc.	The Villas at Disneyland Hotel 1150 W. Magic Way Anaheim, CA	2

2. The subject safety order requirements are specified in B. Applicable Regulations below.
3. These proceedings are conducted in accordance with Labor Code section 143 and section 401, et. seq. of the Board's procedural regulations.
4. This hearing was held on March 22, 2023, in Sacramento, California, and via teleconference, by Occupational Safety and Health Standards Board ("Board") with Hearing Officer Autumn Gonzalez, both presiding and hearing the matter on its merit, as a basis of proposed decision to be advanced to the Board for its consideration, in accordance with California Code of Regulations, title 8, section 426.
5. At the hearing, Dan Leacox of Leacox & Associates, and Wolter Geesink with Otis Elevator Company, appeared on behalf of each Applicant; Mark Wickens and David Morris appeared on behalf of the Division of Occupational Safety and Health ("Division"); and Michael Nelmida appeared on behalf of the Board.
6. Oral evidence was received at the hearing, and by stipulation of all parties, documents were admitted into evidence:

[1] Unless otherwise noted, all references are to title 8, California Code of Regulations.

Exhibit Number	Description of Exhibit
PD-1	Application(s) for Permanent Variance per section A.1 table
PD-2	OSHSB Notice of Hearing
PD-3	Board Staff Review of Variance Application
PD-4	Division Review of Variance Application
PD-5	Review Draft-1 Proposed Decision

7. Official notice is taken of the Board's files, records, recordings and decisions concerning the Elevator Safety Order requirements from which variance shall issue. On March 22, 2023, the hearing and record closed, and the matter was taken under submission by the Hearing Officer.

B. Applicable Regulation

1. The Applicants request variance from some or all of the following sections of ASME A17.1-2004 that section 3141 makes applicable to the elevators the subject of those applications:

   a. Suspension Means: 2.20.1, 2.20.2.1, 2.20.2.2(a), 2.20.2.2(f), 2.20.3, 2.20.4, 2.20.9.3.4, and 2.20.9.5.4 (Only to the extent necessary to permit the use of the Elastomeric Coated Steel Belts proposed by the Applicant in lieu of circular steel suspension ropes.);

   b. Cartop Railing: 2.14.1.7.1 (Only to the extent necessary to permit the use of the car top railing system proposed by the Applicant, where the railing system is located inset from the elevator car top perimeter);

   c. Inspection transfer switch: 2.26.1.4.4(a) (Only to the extent necessary to permit the inspection transfer switch to reside at a location other than the machine room);

   d. Seismic reset switch: 8.4.10.1.1(a)(2)(b) (Only to the extent necessary to permit the seismic reset switch to reside at a location other than the machine room);

   e. Governor Rope Diameter: 2.18.5.1 (Only to the extent necessary to permit the use of the governor rope proposed by the Applicant, where the rope has a diameter of 8 mm [0.315 in.]); Note: A variance from the section above is not required. However, the Board has included a variance from this code requirement in similar previous variances.

   f. Pitch Diameter: 2.18.7.4 (Only to the extent necessary to permit the use of the speed governor system, proposed by the Applicant, where the rope sheave pitch diameter is less than what is required by the Elevator Safety Orders).

C. Findings of Fact

1. The Board incorporates by reference the findings stated in:

a. Items 3 through 5.c, 5.e, and 5.f of the "Findings of Fact" section of the Proposed Decision adopted by the Board on February 19, 2009, in OSHSB File No. 08-V-247;

b. Item D.3 of the Proposed Decision adopted by the Board on July 16, 2009, in OSHSB File No. 09-V-042;

c. Item D.4 of the Proposed Decision adopted by the Board on September 16, 2010, in OSHSB File No. 10 V 029;

d. Items D.4, D.5, and D.7 of the Proposed Decision adopted by the Board on July 18, 2013, in OSHSB File No. 12-V-146; and

e. Items D.4 and D.5 of the Proposed Decision adopted by the Board on September 25, 2014, in OSHSB File No. 14-V-170.

2. Regarding requested variance in governor sheave diameter, and governor rope diameter, in variance from title 8, section 3141, incorporated ASME A17.1-2004, sections 2.18.7.4 and 2.18.5.1, respectively, the Board incorporates by reference the following previous findings of record: Items 8 through 12 of the Proposed Decision adopted by the Board on December 13, 2018, in OSHSB File No. 18-V-425, and further substantiating bases per therein cited Permanent Variance Decisions of the Board.

3. The installation contracts for elevators, the subject of the permanent variance application, were signed on or after May 1, 2008, making the elevators subject to the Group IV Elevator Safety Orders ("ESO").

4. Both Board staff and Division safety engineers, by way of written submissions to the record (Exhibits PD-3 and PD-4 respectively), and positions stated at hearing, are of the well informed opinion that grant of requested permanent variance, as limited and conditioned per the below Decision and Order will provide employment, places of employment, and subject conveyances, as safe and healthful as would prevail given non-variant conformity with the Elevator Safety Order requirements from which variance has been requested.

D. Conclusive Findings

The above stated procedural prerequisites, legal authority, and factual findings, as further supported by the documentary record and hearing testimony in this matter, provide a substantive and reasonable basis of conclusion that:

1. Applicant has complied with the statutory and regulatory requirements that must be met before an application for permanent variance may be conditionally granted, and

2. a preponderance of the evidence establishes that Applicant's proposal, subject to all conditions and limitations set forth in the below Decision and Order, will provide

equivalent safety and health to that which would prevail upon full compliance with the requirements of the Elevator Safety Orders from which variance is being sought.

E. Decision and Order

Each permanent variance application the subject of this proceeding is conditionally GRANTED as specified below, and to the extent, as of the date the Board adopts this Proposed Decision, Applicant shall have permanent variances from section 3141 and from the following sections of ASME A17.1-2004 that section 3141 makes applicable to the elevators the subject of those applications:

- Suspension Means: 2.20.1, 2.20.2.1, 2.20.2.2(a), 2.20.2.2(f), 2.20.3, 2.20.4, 2.20.9.3.4, and 2.20.9.5.4 (Only to the extent necessary to permit the use of the Elastomeric Coated Steel Belts proposed by the Applicant in lieu of circular steel suspension ropes.);
- Cartop Railing: 2.14.1.7.1 (Only to the extent necessary to permit the use of the car top railing system proposed by the Applicant, where the railing system is located inset from the elevator car top perimeter);
- Inspection transfer switch: 2.26.1.4.4(a) (Only to the extent necessary to permit the inspection transfer switch to reside at a location other than the machine room);
- Seismic reset switch: 8.4.10.1.1(a)(2)(b) (Only to the extent necessary to permit the seismic reset switch to reside at a location other than the machine room);
- Governor Rope Diameter: 2.18.5.1 (Only to the extent necessary to permit the use of the governor rope proposed by the Applicant, where the rope has a diameter of 8 mm [0.315 in.]); *Note: A variance from the section above is not required. However, the Board has included a variance from this code requirement in similar previous variances.*
- Pitch Diameter: 2.18.7.4 (Only to the extent necessary to permit the use of the speed governor system, proposed by the Applicant, where the rope sheave pitch diameter is less than what is required by the Elevator Safety Orders).

The variance shall be subject to, and limited by, the following additional conditions:

1. Each elevator subject to this variance shall comply with all applicable Group IV Elevator Safety Orders and with all ASME provisions made applicable by those Group IV Elevator Safety Orders, except those from which variances are granted, as set forth in the prefatory portion of this Decision and Order.
2. The suspension system shall comply with the following:
    a. The coated steel belt shall have a factor of safety at least equal to the factor of safety that ASME A17.1-2004, section 2.20.3, would require for wire ropes if the elevator were suspended by wire ropes rather than the coated steel belt.

b. Steel-coated belts that have been installed and used on another installation shall not be reused.

c. The coated steel belt shall be fitted with a monitoring device which has been accepted by the Division and which will automatically stop the car if the residual strength of any single belt drops below 60 percent. If the residual strength of any single belt drops below 60 percent, the device shall prevent the elevator from restarting after a normal stop at a landing.

d. Upon initial inspection, the readings from the monitoring device shall be documented and submitted to the Division.

e. A successful test of the monitoring device's functionality shall be conducted at least once a year (the record of the annual test of the monitoring device shall be a maintenance record subject to ASME A17.1-2004, section 8.6.1.4).

f. The coated steel belts used shall be accepted by the Division.

g. The installation of belts and connections shall be in conformance with the manufacturer's specifications, which shall be provided to the Division.

3. With respect to each elevator subject to this variance, the applicant shall comply with Division Circular Letter E-10-04, a copy of which is attached hereto as Addendum 1 and incorporated herein by this reference.

4. The Applicant shall not utilize each elevator unless the manufacturer has written procedures for the installation, maintenance, inspection, and testing of the belts and monitoring device, and criteria for belt replacement, and shall make those procedures and criteria available to the Division upon request.

5. The flat coated steel belts shall be provided with a metal data tag that is securely attached to one of those belts. This data tag shall bear the following flat steel coated belt data:

   a. The width and thickness in millimeters or inches;

   b. The manufacturer's rated breaking strength in (kN) or (lbf);

   c. The name of the person who, or organization that, installed the flat coated steel belts;

   d. The month and year the flat coated steel belts were installed;

   e. The month and year the flat coated steel belts were first shortened;

   f. The name or trademark of the manufacturer of the flat coated steel belts;

   g. Lubrication information.

6. There shall be a crosshead data plate of the sort required by section 2.20.2.1, and that plate shall bear the following flat steel coated belt data:
    a. The number of belts,
    b. The belt width and thickness in millimeters or inches, and
    c. The manufacturer's rated breaking strength per belt in (kN) or (lbf).
7. If the seismic reset switch does not reside in a machine room, that switch shall not reside in the elevator hoistway. The switch shall reside in the inspection and test control panel located in one upper floor hoistway door jamb or in the control space (outside the hoistway) used by the motion controller.
8. If the inspection transfer switch required by ASME A17.1, rule 2.26.1.4.4(a), does not reside in a machine room, that switch shall not reside in the elevator hoistway. The switch shall reside in the inspection and test control panel located in one upper floor hoistway door jamb or in the control space (outside the hoistway) used by the motion controller.
9. When the inspection and test control panel is located in the hoistway door jamb, the inspection and test control panel shall be openable only by use of a Security Group I restricted key.
10. The opening to the hoistway shall be effectively barricaded when car top inspection, maintenance, servicing, or testing of elevator equipment in the hoistway is required. If service personnel must leave the area for any reason, the hoistway and control room doors shall be closed.
11. If there is an inset car top railing:
    a. Serviceable equipment shall be positioned so that mechanics and inspectors do not have to climb on railings to perform adjustment, maintenance, repairs, or inspections. The Applicant shall not permit anyone to stand on or climb over the car top railing.
    b. The distance that the car top railing may be inset from the car top perimeter shall be limited to no more than 6 inches.
    c. All exposed areas of the car top outside the car top railing shall preclude standing or placing objects or persons which may fall and shall be beveled from the mid- or top rail to the outside of the car top.
    d. The top of the beveled area and/or the car top outside the railing, shall be clearly marked. The markings shall consist of alternating four-inch diagonal red and white stripes.

e. The Applicant shall provide, on each inset railing, durable signs with lettering not less than ½ inch on a contrasting background. Each sign shall state:

CAUTION
DO NOT STAND ON OR CLIMB OVER RAILING

f. The Group IV requirements for car top clearances shall be maintained (car top clearances outside the railing shall be measured from the car top, and not from the required bevel).

12. The speed governor rope and sheaves shall comply with the following:

    a. The governor shall be used in conjunction with a 8 mm (0.315 in.) diameter steel governor rope with 8-strand, regular lay construction.

    b. The governor rope shall have a factor of safety of 8 or greater as related to the strength necessary to activate the safety.

    c. The governor sheaves shall have a pitch diameter of not less than 240 mm (9.45 in.).

13. Each elevator shall be serviced, maintained, adjusted, tested, and inspected only by Certified Competent Conveyance Mechanics who have been trained to, and are competent to, perform those tasks on the Gen2(O) and/or Gen3 Peak elevator system the Applicant proposes to use, in accordance with the written procedures and criteria required by Condition No. 4 and the terms of this permanent variance.

14. Any Certified Qualified Conveyance Company performing inspections, maintenance, servicing, or testing of the elevators shall be provided a copy of this variance decision.

15. The Division shall be notified when each elevator is ready for inspection. Each elevator shall be inspected by the Division, and a Permit to Operate shall be issued before each elevator is placed in service.

16. The Applicant shall be subject to the suspension means replacement reporting condition stated in Addendum 2; that condition is incorporated herein by this reference.

17. The Applicant shall notify its employees or their authorized representative(s), or both, of this order in the same way that the Applicant was required to notify them of the application for permanent variance, per California Code of Regulations, title 8, sections 411.2 and 411.3.

18. This Decision and Order shall remain in effect unless modified or revoked upon application by the Applicant, affected employee(s), the Division of Occupational Safety and Health, or by the Board on its own motion, in accordance with procedures per title 8, division 1, chapter 3.5.

Pursuant to Section 426, subdivision (b) of the Board's procedural regulations, the above, Proposed Decision, is hereby submitted to the Occupational Safety and Health Standards Board for consideration of adoption.

DATED: March 28, 2023

Autumn Gonzalez, Hearing Officer

ADDENDUM 1

October 6, 2010

CIRCULAR LETTER E-10-04

TO: Installers, Manufacturers of Conveyances and Related Equipment and, Other Interested Parties

SUBJECT: Coated Steel Belt Monitoring

The Elevator Safety Orders require routine inspection of the suspension means of an elevator to assure its safe operation.

The California Labor Code Section 7318 allows the Division to promulgate special safety orders in the absence of regulation.

As it is not possible to see the steel cable suspension means of a Coated Steel Belt, a monitoring device which has been accepted by the Division is required on all Coated Steel Belts which will automatically stop the car if the residual strength of any belt drops below 60%. The Device shall prevent the elevator from restarting after a normal stop at a landing.

The monitoring device must be properly installed and functional. A functioning device may be removed only after a determination has been made that the residual strength of each belt exceeds 60%. These findings and the date of removal are to be conspicuously documented in the elevator machine room. The removed device must be replaced or returned to proper service within 30 days.

If upon routine inspection, the monitoring device is found to be in a non-functional state, the date and findings are to be conspicuously documented in the elevator machine room.

If upon inspection by the Division, the monitoring device is found to be non-functional or removed, and the required documentation is not in place, the elevator will be removed from service.

If the device is removed to facilitate belt replacement, it must be properly installed and functional before the elevator is returned to service.

A successful test of the device's functionality shall be conducted once a year.

This circular does not preempt the Division from adopting regulations in the future, which may address the monitoring of Coated Steel Belts or any other suspension means.

This circular does not create an obligation on the part of the Division to permit new conveyances utilizing Coated Steel Belts.

Debra Tudor
Principal Engineer
DOSH-Elevator Unit HQS

ADDENDUM 2

Suspension Means – Replacement Reporting Condition

Beginning on the date the Board adopts this Proposed Decision and continuing for a period of two years, the Applicant shall report to the Division within 30 days any and all replacement activity performed on the elevator(s) pursuant to the requirements of ASME A17.1-2004,

Section 8.6.3 involving the suspension means or suspension means fastenings.

Further:

1. A separate report for each elevator shall be submitted, in a manner acceptable to the Division, to the following address (or to such other address as the Division might specify in the future): DOSH Elevator Unit, 2 MacArthur Place, Suite 700, Santa Ana, CA 92707, Attn: Engineering Section.

2. Each such report shall contain, but not necessarily be limited to, the following information:

    a. The State-issued conveyance number, complete address, and OSHSB file number that identifies the permanent variance.

    b. The business name, complete address, telephone number, and contact person of the elevator responsible party (presumably the Applicant or the subsequent holder of this variance).

    c. The business name, complete address, telephone number, and Certified Qualified Conveyance Company (CQCC) certification number of the firm performing the replacement work.

    d. The name (as listed on certification), Certified Competent Conveyance Mechanic (CCCM) certification number, certification expiration date, and signature of each CCCM performing the replacement work.

    e. The date and time the elevator was removed from normal service for suspension replacement, the date and time the replacement work commenced, the date and time the replacement work was completed, and the date and time the elevator was returned to normal service.

    f. A detailed description of, and clear color photographs depicting, (1) all the conditions that existed in the suspension components requiring their replacement and

(2) any conditions that existed to cause damage or distress to the suspension components being replaced.

g. A detailed list of all elevator components adjusted, repaired, or replaced in conjunction with the suspension component replacement.

h. All information provided on the crosshead data plate per ASME A17.1-2004, Section 2.20.2.1, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

i. For the suspension means being replaced, all information provided on the data tag required per ASME A17.1-2004, Section 2.20.2.2, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

j. For the replacement suspension means, all information provided on the data tag required by ASME A17.1-2004, Section 2.20.2.2, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

k. Any other information requested by the Division regarding the replacement of the suspension means or fastenings.

3. In addition to the submission of the report to the Division, the findings of any testing, failure analysis, or other engineering evaluations performed on any portion of the replaced suspension components, or other elevator components replaced in conjunction therewith, shall be submitted to the Division referencing the information contained in item 2a above.

THE PROPOSED DECISION FOR OSHSB FILE NO. 23-V-054, BURBANK BOYZ II, LLC, WILL BE PROVIDED WHEN IT IS READY FOR THE BOARD'S CONSIDERATION.

STATE OF CALIFORNIA
DEPARTMENT OF INDUSTRIAL RELATIONS
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
2520 Venture Oaks Way, Suite 350
Sacramento, California 95833
(916) 274-5721

In the Matter of Application for Permanent Variance regarding: Otis Gen2O, and/or Gen3Peak (Group IV)	OSHSB File No.: See section A table of Proposed Decision Dated: March 28, 2023 DECISION

The Occupational Safety and Health Standards Board hereby adopts the attached PROPOSED DECISION by Autumn Gonzalez, Hearing Officer.

_____
DAVID THOMAS, Chairman

_____
BARBARA BURGEL, Member

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KATHLEEN CRAWFORD, Member

_____
DAVID HARRISON, Member

_____
NOLA KENNEDY, Member

_____
CHRIS LASZCZ-DAVIS, Member

_____
LAURA STOCK, Member

OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

Date of Adoption: April 20, 2023

THE FOREGOING VARIANCE DECISION WAS ADOPTED ON THE DATE INDICATED ABOVE. IF YOU ARE DISSATISFIED WITH THE DECISION, A PETITION FOR REHEARING MAY BE FILED BY ANY PARTY WITH THE STANDARDS BOARD WITHIN TWENTY (20) DAYS AFTER SERVICE OF THE DECISION. YOUR PETITION FOR REHEARING MUST FULLY COMPLY WITH THE REQUIREMENTS OF CALIFORNIA CODE OF REGULATIONS, TITLE 8, SECTIONS 427, 427.1 AND 427.2.

Note: A copy of this Decision must be posted for the Applicant's employees to read, and/or a copy thereof must be provided to the employees' Authorized Representatives.

BEFORE THE
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
DEPARTMENT OF INDUSTRIAL RELATIONS
STATE OF CALIFORNIA

In the Matter of Application for Permanent Variance regarding: Otis Gen2O, and/or Gen3Peak (Group IV)	OSHSB File No: See Section A.1 Table below PROPOSED DECISION Hearing Date: March 22, 2023

A. Procedural & Jurisdictional Matters

1. Each applicant ("Applicant") listed in the table below has applied for permanent variances from provisions of the Elevator Safety Orders, found at title 8 of the California Code of Regulations[1], with respect to a conveyance, or conveyances, in the listed quantity, at the listed location:

Variance No.	Applicant Name	Variance Location Address	No. of Elevators
23-V-058	Regents of the University of California	UCSD Pepper Canyon West Housing 9610 Gilman Dr. La Jolla, CA	3
23-V-060	Regents of the University of California	UCSD Pepper Canyon West Housing 9620 Gilman Dr. La Jolla, CA	3

2. The subject safety order requirements are specified in B. Applicable Regulations below.
3. These proceedings are conducted in accordance with Labor Code section 143 and section 401, et. seq. of the Board's procedural regulations.
4. This hearing was held on March 22, 2023, in Sacramento, California, and via teleconference, by Occupational Safety and Health Standards Board ("Board") with Hearing Officer Autumn Gonzalez, both presiding and hearing the matter on its merit, as a basis of proposed decision to be advanced to the Board for its consideration, in accordance with California Code of Regulations, title 8, section 426.
5. At the hearing, Dan Leacox of Leacox & Associates, and Wolter Geesink with Otis Elevator Company, appeared on behalf of each Applicant; Mark Wickens and David Morris appeared on behalf of the Division of Occupational Safety and Health ("Division"); and Michael Nelmida appeared on behalf of the Board.

[1] Unless otherwise noted, all references are to title 8, California Code of Regulations.

6. Oral evidence was received at the hearing, and by stipulation of all parties, documents were admitted into evidence:

Exhibit Number	Description of Exhibit
PD-1	Application(s) for Permanent Variance per section A.1 table
PD-2	OSHSB Notice of Hearing
PD-3	Board Staff Review of Variance Application
PD-4	Division Review of Variance Application
PD-5	Review Draft-1 Proposed Decision

7. Official notice is taken of the Board's files, records, recordings and decisions concerning the Elevator Safety Order requirements from which variance shall issue. On March 22, 2023, the hearing and record closed, and the matter was taken under submission by the Hearing Officer.

B. Applicable Regulation

1. The Applicants request variance from some or all of the following sections of ASME A17.1-2004 that section 3141 makes applicable to the elevators the subject of those applications:

   a. Suspension Means: 2.20.1, 2.20.2.1, 2.20.2.2(a), 2.20.2.2(f), 2.20.3, 2.20.4, 2.20.9.3.4, and 2.20.9.5.4 (Only to the extent necessary to permit the use of the Elastomeric Coated Steel Belts proposed by the Applicant in lieu of circular steel suspension ropes.);

   b. Cartop Railing: 2.14.1.7.1 (Only to the extent necessary to permit the use of the car top railing system proposed by the Applicant, where the railing system is located inset from the elevator car top perimeter);

   c. Inspection transfer switch: 2.26.1.4.4(a) (Only to the extent necessary to permit the inspection transfer switch to reside at a location other than the machine room);

   d. Seismic reset switch: 8.4.10.1.1(a)(2)(b) (Only to the extent necessary to permit the seismic reset switch to reside at a location other than the machine room);

C. Findings of Fact

1. The Board incorporates by reference the findings stated in:

   a. Items 3 through 5.c, 5.e, and 5.f of the "Findings of Fact" section of the Proposed Decision adopted by the Board on February 19, 2009, in OSHSB File No. 08-V-247;

   b. Item D.3 of the Proposed Decision adopted by the Board on July 16, 2009, in OSHSB File No. 09-V-042;

   c. Item D.4 of the Proposed Decision adopted by the Board on September 16, 2010, in OSHSB File No. 10 V 029;

d. Items D.4, D.5, and D.7 of the Proposed Decision adopted by the Board on July 18, 2013, in OSHSB File No. 12-V-146; and

e. Items D.4 and D.5 of the Proposed Decision adopted by the Board on September 25, 2014, in OSHSB File No. 14-V-170.

2. The installation contracts for elevators, the subject of the permanent variance application, were signed on or after May 1, 2008, making the elevators subject to the Group IV Elevator Safety Orders ("ESO").

3. Both Board staff and Division safety engineers, by way of written submissions to the record (Exhibits PD-3 and PD-4 respectively), and positions stated at hearing, are of the well informed opinion that grant of requested permanent variance, as limited and conditioned per the below Decision and Order will provide employment, places of employment, and subject conveyances, as safe and healthful as would prevail given non-variant conformity with the Elevator Safety Order requirements from which variance has been requested.

D. Conclusive Findings

The above stated procedural prerequisites, legal authority, and factual findings, as further supported by the documentary record and hearing testimony in this matter, provide a substantive and reasonable basis of conclusion that:

1. Applicant has complied with the statutory and regulatory requirements that must be met before an application for permanent variance may be conditionally granted, and

2. a preponderance of the evidence establishes that Applicant's proposal, subject to all conditions and limitations set forth in the below Decision and Order, will provide equivalent safety and health to that which would prevail upon full compliance with the requirements of the Elevator Safety Orders from which variance is being sought.

E. Decision and Order

Each permanent variance application the subject of this proceeding is conditionally GRANTED as specified below, and to the extent, as of the date the Board adopts this Proposed Decision, Applicant shall have permanent variances from section 3141 and from the following sections of ASME A17.1-2004 that section 3141 makes applicable to the elevators the subject of those applications:

- Suspension Means: 2.20.1, 2.20.2.1, 2.20.2.2(a), 2.20.2.2(f), 2.20.3, 2.20.4, 2.20.9.3.4, and 2.20.9.5.4 (Only to the extent necessary to permit the use of the Elastomeric Coated Steel Belts proposed by the Applicant in lieu of circular steel suspension ropes.);
- Cartop Railing: 2.14.1.7.1 (Only to the extent necessary to permit the use of the car top railing system proposed by the Applicant, where the railing system is located inset from the elevator car top perimeter);

- Inspection transfer switch: 2.26.1.4.4(a) (Only to the extent necessary to permit the inspection transfer switch to reside at a location other than the machine room);
- Seismic reset switch: 8.4.10.1.1(a)(2)(b) (Only to the extent necessary to permit the seismic reset switch to reside at a location other than the machine room);

The variance shall be subject to, and limited by, the following additional conditions:

1. Each elevator subject to this variance shall comply with all applicable Group IV Elevator Safety Orders and with all ASME provisions made applicable by those Group IV Elevator Safety Orders, except those from which variances are granted, as set forth in the prefatory portion of this Decision and Order.
2. The suspension system shall comply with the following:
    a. The coated steel belt shall have a factor of safety at least equal to the factor of safety that ASME A17.1-2004, section 2.20.3, would require for wire ropes if the elevator were suspended by wire ropes rather than the coated steel belt.
    b. Steel-coated belts that have been installed and used on another installation shall not be reused.
    c. The coated steel belt shall be fitted with a monitoring device which has been accepted by the Division and which will automatically stop the car if the residual strength of any single belt drops below 60 percent. If the residual strength of any single belt drops below 60 percent, the device shall prevent the elevator from restarting after a normal stop at a landing.
    d. Upon initial inspection, the readings from the monitoring device shall be documented and submitted to the Division.
    e. A successful test of the monitoring device's functionality shall be conducted at least once a year (the record of the annual test of the monitoring device shall be a maintenance record subject to ASME A17.1-2004, section 8.6.1.4).
    f. The coated steel belts used shall be accepted by the Division.
    g. The installation of belts and connections shall be in conformance with the manufacturer's specifications, which shall be provided to the Division.
3. With respect to each elevator subject to this variance, the applicant shall comply with Division Circular Letter E-10-04, a copy of which is attached hereto as Addendum 1 and incorporated herein by this reference.
4. The Applicant shall not utilize each elevator unless the manufacturer has written procedures for the installation, maintenance, inspection, and testing of the belts and monitoring device, and criteria for belt replacement, and shall make those procedures and criteria available to the Division upon request.

5. The flat coated steel belts shall be provided with a metal data tag that is securely attached to one of those belts. This data tag shall bear the following flat steel coated belt data:
    a. The width and thickness in millimeters or inches;
    b. The manufacturer's rated breaking strength in (kN) or (lbf);
    c. The name of the person who, or organization that, installed the flat coated steel belts;
    d. The month and year the flat coated steel belts were installed;
    e. The month and year the flat coated steel belts were first shortened;
    f. The name or trademark of the manufacturer of the flat coated steel belts;
    g. Lubrication information.
6. There shall be a crosshead data plate of the sort required by section 2.20.2.1, and that plate shall bear the following flat steel coated belt data:
    a. The number of belts,
    b. The belt width and thickness in millimeters or inches, and
    c. The manufacturer's rated breaking strength per belt in (kN) or (lbf).
7. If the seismic reset switch does not reside in a machine room, that switch shall not reside in the elevator hoistway. The switch shall reside in the inspection and test control panel located in one upper floor hoistway door jamb or in the control space (outside the hoistway) used by the motion controller.
8. If the inspection transfer switch required by ASME A17.1, rule 2.26.1.4.4(a), does not reside in a machine room, that switch shall not reside in the elevator hoistway. The switch shall reside in the inspection and test control panel located in one upper floor hoistway door jamb or in the control space (outside the hoistway) used by the motion controller.
9. When the inspection and test control panel is located in the hoistway door jamb, the inspection and test control panel shall be openable only by use of a Security Group I restricted key.
10. The opening to the hoistway shall be effectively barricaded when car top inspection, maintenance, servicing, or testing of elevator equipment in the hoistway is required. If service personnel must leave the area for any reason, the hoistway and control room doors shall be closed.
11. If there is an inset car top railing:

a. Serviceable equipment shall be positioned so that mechanics and inspectors do not have to climb on railings to perform adjustment, maintenance, repairs, or inspections. The Applicant shall not permit anyone to stand on or climb over the car top railing.

b. The distance that the car top railing may be inset from the car top perimeter shall be limited to no more than 6 inches.

c. All exposed areas of the car top outside the car top railing shall preclude standing or placing objects or persons which may fall and shall be beveled from the mid- or top rail to the outside of the car top.

d. The top of the beveled area and/or the car top outside the railing, shall be clearly marked. The markings shall consist of alternating four-inch diagonal red and white stripes.

e. The Applicant shall provide, on each inset railing, durable signs with lettering not less than ½ inch on a contrasting background. Each sign shall state:

CAUTION
DO NOT STAND ON OR CLIMB OVER RAILING

f. The Group IV requirements for car top clearances shall be maintained (car top clearances outside the railing shall be measured from the car top, and not from the required bevel).

12. Each elevator shall be serviced, maintained, adjusted, tested, and inspected only by Certified Competent Conveyance Mechanics who have been trained to, and are competent to, perform those tasks on the Gen2(O) and/or Gen3 Peak elevator system the Applicant proposes to use, in accordance with the written procedures and criteria required by Condition No. 4 and the terms of this permanent variance.

13. Any Certified Qualified Conveyance Company performing inspections, maintenance, servicing, or testing of the elevators shall be provided a copy of this variance decision.

14. The Division shall be notified when each elevator is ready for inspection. Each elevator shall be inspected by the Division, and a Permit to Operate shall be issued before each elevator is placed in service.

15. The Applicant shall be subject to the suspension means replacement reporting condition stated in Addendum 2; that condition is incorporated herein by this reference.

16. The Applicant shall notify its employees or their authorized representative(s), or both, of this order in the same way that the Applicant was required to notify them of the application for permanent variance, per California Code of Regulations, title 8, sections 411.2 and 411.3.

17. This Decision and Order shall remain in effect unless modified or revoked upon application by the Applicant, affected employee(s), the Division of Occupational Safety and Health, or by the Board on its own motion, in accordance with procedures per title 8, division 1, chapter 3.5.

Pursuant to Section 426, subdivision (b) of the Board's procedural regulations, the above, Proposed Decision, is hereby submitted to the Occupational Safety and Health Standards Board for consideration of adoption.

DATED: March 28, 2023

Autumn Gonzalez, Hearing Officer

ADDENDUM 1

October 6, 2010

CIRCULAR LETTER E-10-04

TO: Installers, Manufacturers of Conveyances and Related Equipment and, Other Interested Parties

SUBJECT: Coated Steel Belt Monitoring

The Elevator Safety Orders require routine inspection of the suspension means of an elevator to assure its safe operation.

The California Labor Code Section 7318 allows the Division to promulgate special safety orders in the absence of regulation.

As it is not possible to see the steel cable suspension means of a Coated Steel Belt, a monitoring device which has been accepted by the Division is required on all Coated Steel Belts which will automatically stop the car if the residual strength of any belt drops below 60%. The Device shall prevent the elevator from restarting after a normal stop at a landing.

The monitoring device must be properly installed and functional. A functioning device may be removed only after a determination has been made that the residual strength of each belt exceeds 60%. These findings and the date of removal are to be conspicuously documented in the elevator machine room. The removed device must be replaced or returned to proper service within 30 days.

If upon routine inspection, the monitoring device is found to be in a non-functional state, the date and findings are to be conspicuously documented in the elevator machine room.

If upon inspection by the Division, the monitoring device is found to be non-functional or removed, and the required documentation is not in place, the elevator will be removed from service.

If the device is removed to facilitate belt replacement, it must be properly installed and functional before the elevator is returned to service.

A successful test of the device's functionality shall be conducted once a year.

This circular does not preempt the Division from adopting regulations in the future, which may address the monitoring of Coated Steel Belts or any other suspension means.

This circular does not create an obligation on the part of the Division to permit new conveyances utilizing Coated Steel Belts.

Debra Tudor
Principal Engineer
DOSH-Elevator Unit HQS

ADDENDUM 2

Suspension Means – Replacement Reporting Condition

Beginning on the date the Board adopts this Proposed Decision and continuing for a period of two years, the Applicant shall report to the Division within 30 days any and all replacement activity performed on the elevator(s) pursuant to the requirements of ASME A17.1-2004,

Section 8.6.3 involving the suspension means or suspension means fastenings.

Further:

1. A separate report for each elevator shall be submitted, in a manner acceptable to the Division, to the following address (or to such other address as the Division might specify in the future): DOSH Elevator Unit, 2 MacArthur Place, Suite 700, Santa Ana, CA 92707, Attn: Engineering Section.

2. Each such report shall contain, but not necessarily be limited to, the following information:

    a. The State-issued conveyance number, complete address, and OSHSB file number that identifies the permanent variance.

    b. The business name, complete address, telephone number, and contact person of the elevator responsible party (presumably the Applicant or the subsequent holder of this variance).

    c. The business name, complete address, telephone number, and Certified Qualified Conveyance Company (CQCC) certification number of the firm performing the replacement work.

    d. The name (as listed on certification), Certified Competent Conveyance Mechanic (CCCM) certification number, certification expiration date, and signature of each CCCM performing the replacement work.

    e. The date and time the elevator was removed from normal service for suspension replacement, the date and time the replacement work commenced, the date and time the replacement work was completed, and the date and time the elevator was returned to normal service.

    f. A detailed description of, and clear color photographs depicting, (1) all the conditions that existed in the suspension components requiring their replacement and

(2) any conditions that existed to cause damage or distress to the suspension components being replaced.

g. A detailed list of all elevator components adjusted, repaired, or replaced in conjunction with the suspension component replacement.

h. All information provided on the crosshead data plate per ASME A17.1-2004, Section 2.20.2.1, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

i. For the suspension means being replaced, all information provided on the data tag required per ASME A17.1-2004, Section 2.20.2.2, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

j. For the replacement suspension means, all information provided on the data tag required by ASME A17.1-2004, Section 2.20.2.2, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

k. Any other information requested by the Division regarding the replacement of the suspension means or fastenings.

3. In addition to the submission of the report to the Division, the findings of any testing, failure analysis, or other engineering evaluations performed on any portion of the replaced suspension components, or other elevator components replaced in conjunction therewith, shall be submitted to the Division referencing the information contained in item 2a above.

STATE OF CALIFORNIA
DEPARTMENT OF INDUSTRIAL RELATIONS
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
2520 Venture Oaks Way, Suite 350
Sacramento, California 95833
(916) 274-5721

In the Matter of Application for Permanent Variance regarding: Otis Elevator (Group IV) Gen2O and/or Gen2L Alterations	OSHSB File No.: See section A table of Proposed Decision Dated: March 28, 2023 DECISION

The Occupational Safety and Health Standards Board hereby adopts the attached PROPOSED DECISION by Autumn Gonzalez, Hearing Officer.

_____
DAVID THOMAS, Chairman

_____
BARBARA BURGEL, Member

_____
KATHLEEN CRAWFORD, Member

_____
DAVID HARRISON, Member

_____
NOLA KENNEDY, Member

_____
CHRIS LASZCZ-DAVIS, Member

_____
LAURA STOCK, Member

OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

Date of Adoption: April 20, 2023

THE FOREGOING VARIANCE DECISION WAS ADOPTED ON THE DATE INDICATED ABOVE. IF YOU ARE DISSATISFIED WITH THE DECISION, A PETITION FOR REHEARING MAY BE FILED BY ANY PARTY WITH THE STANDARDS BOARD WITHIN TWENTY (20) DAYS AFTER SERVICE OF THE DECISION. YOUR PETITION FOR REHEARING MUST FULLY COMPLY WITH THE REQUIREMENTS OF CALIFORNIA CODE OF REGULATIONS, TITLE 8, SECTIONS 427, 427.1 AND 427.2.

Note: A copy of this Decision must be posted for the Applicant's employees to read, and/or a copy thereof must be provided to the employees' Authorized Representatives.

BEFORE THE
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
DEPARTMENT OF INDUSTRIAL RELATIONS
STATE OF CALIFORNIA

In the Matter of Application for Permanent Variance Regarding: Otis Elevator (Group IV) Gen2(O) and/or Gen2L Alterations	OSHSB File Nos.: See section A.1 Table below PROPOSED DECISION Hearing Date: March 22, 2023

A. Subject Matter:

1. Each below listed applicant ("Applicant") has applied for permanent variances from provisions of the Elevator Safety Orders, found at title 8 of the California Code of Regulations[1], or applied to modify such variances, with respect to a conveyance, or conveyances, in the listed quantity, at the listed location:

Variance No.	Applicant Name	Variance Location Address	No. of Elevators
23-V-065	The Salvation Army	832 Folsom St. San Francisco, CA	2

2. The subject regulatory requirements are as enumerated per the below Decision and Order.

B. Jurisdiction:

This proceeding is conducted in accordance with Labor Code Section 143, and section 401, et. seq.

C. Procedural:

1. This hearing was held on March 22, 2023, in Sacramento, California, and via teleconference, by Occupational Safety and Health Standards Board ("Board"), with Hearing Officer Autumn Gonzalez, both presiding and hearing the matter on its merit, as a basis of proposed decision to be advanced to the Board for its consideration, in accordance with section 426.

2. At the hearing, Wolter Geesink, with Otis Elevator, and Dan Leacox of Leacox & Associates, appeared on behalf of each Applicant; Mark Wickens and David Morris appeared on behalf of the Division of Occupational Safety and Health ("Division"); and

[1] Unless otherwise noted, all references are to title 8, California Code of Regulations.

Michael Nelmida appeared on behalf of Board staff in a technical advisory role apart from the Board.

3. Oral evidence was received at the hearing, and by stipulation of all parties, documents were admitted into evidence:

Exhibit Number	Description of Exhibit
PD-1	Permanent variance applications per Section A.1 table
PD-2	OSHSB Notice of Hearing
PD-3	Board Staff Reviews of Variance Application
PD-4	Division Reviews of Variance Application
PD-5	Review Draft-1 Proposed Decision

Official notice is taken of the Board's rulemaking records, and variance files and decisions, concerning the Elevator Safety Order standards at issue. At close of hearing on March 22, 2023, the record was closed, and the matter taken under submission by the Hearing Officer.

D. Findings and Basis:

1. Each Applicant intends to alter elevators at the locations, and in the numbers, stated in the Section A.1 table such that each elevator becomes (or incorporates features of) an Otis Gen2(O) and/or Otis Gen2L elevator.

2. The belts and connections that each Applicant intends to install are the same as are used on new Otis Gen2(O)/Gen2L installations.

3. The alterations will be performed after May 1, 2008, and the contracts for the alterations were or will be signed on or after May 1, 2008, making those alterations subject to the Group IV Elevator Safety Orders.

4. The Board incorporates by reference the findings stated in: (a) Items 3 through 5.c, 5.e, and 5.f of the "Findings of Fact" section of the Proposed Decision adopted by the Board on February 19, 2009, regarding OSHSB File No. 08-V-247; (b) Item D.3 of the Proposed Decision adopted by the Board on July 16, 2009, regarding OSHSB File No. 09-V-042; (c) Item D.4 of the Proposed Decision adopted by the Board on September 16, 2010, regarding OSHSB File No. 10-V-029; and (d) Items D.4, D.5, and D.7 of the proposed decision adopted by the Board on July 18, 2013, regarding OSHSB File No. 12-V-146.

E. Conclusive Findings:

The above stated procedural prerequisites, legal authority, and factual findings, as further supported by the documentary record and hearing testimony in this matter, provide a substantive and reasonable basis of conclusion that: (1) Each Applicant has complied with the statutory and regulatory requirements that must be met before an application for

permanent variance may be conditionally granted, and (2) a preponderance of the evidence establishes that each Applicants proposal, subject to all conditions and limitations set forth in the below Decision and Order, will provide equivalent safety and health to that which would prevail upon full compliance with the requirements of the Elevator Safety Orders from which variance is being sought.

F. Decision and Order:

Each permanent variance application that is the subject of this proceeding is conditionally GRANTED, as specified below, to the extent that, as of the date the Board adopts this Proposed Decision, each Section A.1 table listed Applicant, at the specified variance location, and as to specified number of conveyances, shall have a permanent variance regarding switches, suspension rope and connection retrofits, (so long as the elevators are Gen2 (O) or Gen2L Group IV devices that are designed, equipped, and installed in accordance with, and are otherwise consistent with, the representations made in the Otis Master File [referred to in previous Proposed Decisions as the "Gen2 Master File"] maintained by the Board, as that file was constituted at the time of this hearing). The variance shall be from California Code of Regulations, title 8, sections 3141 and 3141.2(a), and shall only be to the extent necessary to allow variances from the following provisions of ASME A17.1-2004 made applicable by those title 8 provisions:

- Sections 8.7.1.1(b), 8.7.2.21.1, and 8.7.2.25.1(c) (to the extent necessary to permit variance from the ASME A17.1-2004 provisions listed in the next bullet point);

- Sections 2.14.1.7.1 (only to the extent necessary to permit an inset car top railing, if, in fact, the car top railing is inset),

- Sections 2.20.1, 2.20.2.1, 2.20.2.2(a), 2.20.2.2(f), 2.20.3, 2.20.4, 2.20.9.3.4, 2.20.9.5.4, (only to the extent necessary to permit the use of Otis Gen2 flat coated steel suspension belts [the belts proposed for use on these Gen2(O) and/or Gen2L elevators] in lieu of conventional steel suspension ropes),

- Sections 2.26.1.4.4(a) (only to the extent necessary to allow the inspection transfer switch to reside at a location other than a machine room, if, in fact, it does not reside in the machine room) and

- Sections 8.4.10.1.1(a)(2)(b) (only to the extent necessary to allow the seismic reset switch to reside at a location other than a machine room, if, in fact, it does not reside in the machine room)].

The variance shall be subject to, and limited by, the following additional conditions:

1. Each elevator subject to this variance shall comply with all applicable Group IV Elevator Safety Orders and with all ASME provisions made applicable by those Group IV Elevator

Safety Orders, except those from which variances are granted, as set forth in the prefatory portion of this Decision and Order.

2. The elevator suspension system shall comply with the following:

    a. The coated steel belt shall have a factor of safety at least equal to the factor of safety that ASME A17.1-2004, Section 2.20.3 would require for wire ropes if the elevator were suspended by wire ropes rather than the coated steel belt.

    b. Steel coated belts that have been installed and used on another installation shall not be reused.

    c. The coated steel belt shall be fitted with a monitoring device which has been accepted by the Division and which will automatically stop the car if the residual strength of any single belt drops below 60 percent. If the residual strength of any single belt drops below 60 percent, the device shall prevent the elevator from restarting after a normal stop at a landing.

    d. Upon initial inspection, the readings from the monitoring device shall be documented and submitted to the Division.

    e. A successful test of the monitoring device's functionality shall be conducted at least once a year (the record of the annual test of the monitoring device shall be a maintenance record subject to ASME A17.1-2004, Section 8.6.1.4).

    f. The coated steel belts used shall be accepted by the Division.

    g. The installation of belts and connections shall be in conformance with the manufacturer's specifications, which shall be provided to the Division.

3. With respect to each elevator subject to this variance, the applicant shall comply with Division Circular Letter E-10-04, a copy of which is attached hereto as Addendum 1 and incorporated herein by this reference.

4. The Applicant shall not utilize the elevator unless the manufacturer has written procedures for the installation, maintenance, inspection, and testing of the belts and monitoring device, and criteria for belt replacement, and the Applicant shall make those procedures and criteria available to the Division upon request.

5. The flat coated steel belts shall be provided with a metal data tag that is securely attached to one of those belts. This data tag shall bear the following flat steel coated belt data:

    a. The width and thickness in millimeters or inches;
    b. The manufacturer's rated breaking strength in (kN) or (lbf);

c. The name of the person who or organization that installed the flat coated steel belts;
d. The month and year the flat coated steel belts were installed;
e. The month and year the flat coated steel belts were first shortened;
f. The name or trademark of the manufacturer of the flat coated steel belts; and
g. Lubrication information.

6. There shall be a crosshead data plate of the sort required by Section 2.20.2.1, and that plate shall bear the following flat steel coated belt data:

   a. The number of belts;
   b. The belt width and thickness in millimeters or inches; and
   c. The manufacturer's rated breaking strength per belt in (kN) or (lbf).

7. If the seismic reset switch does not reside in a machine room, that switch shall not reside in the elevator hoistway. The switch shall reside in the inspection and test control panel located in one upper floor hoistway door jamb or in the control space (outside the hoistway) used by the motion controller.

8. If the inspection transfer switch required by ASME A17.1, rule 2.26.1.4.4(a) does not reside in a machine room, that switch shall not reside in the elevator hoistway. The switch shall reside in the inspection and test control panel located in one upper floor hoistway door jamb or in the control space (outside the hoistway) used by the motion controller.

9. When the inspection and test control panel is located in the hoistway door jamb, the inspection and test control panels shall be openable only by use of a Security Group I restricted key.

10. The opening to the hoistway shall be effectively barricaded when car top inspection, maintenance, servicing, or testing of elevator equipment in the hoistway is required. If service personnel must leave the area for any reason, the hoistway and control room doors shall be closed.

11. If there is an inset car top railing:

    a. Serviceable equipment shall be positioned so that mechanics and inspectors do not have to climb on railings to perform adjustment, maintenance, repairs, or inspections. The applicant shall not permit anyone to stand on or climb over the car top railing.

    b. The distance that the car top railing may be inset from the car top perimeter shall be limited to no more than 6 inches.

c. All exposed areas of the car top outside the car top railing shall preclude standing or placing objects or persons which may fall and shall be beveled from the mid- or top rail to the outside of the car top.

d. The top of the beveled area and/or the car top outside the railing shall be clearly marked. The markings shall consist of alternating 4 inch diagonal red and white stripes.

e. The Applicant shall provide durable signs with lettering not less than ½ inch on a contrasting background on each inset railing; each sign shall state:

CAUTION
DO NOT STAND ON OR CLIMB OVER RAILING

f. The Group IV requirements for car top clearances shall be maintained (car top clearances outside the railing shall be measured from the car top and not from the required bevel).

12. Each elevator shall be serviced, maintained, adjusted, tested, and inspected by Certified Competent Conveyance Mechanics who have been trained, and are competent, to perform those tasks on the Gen2(O) and/or Gen2L elevator system the Applicant proposes to use, in accordance with the written procedures and criteria required by Condition No. 4 and all other terms and conditions of this permanent variance.

13. Any Certified Qualified Conveyance Company performing inspections, maintenance, servicing, or testing of the elevators shall be provided a copy of this variance decision.

14. The Division shall be notified when the elevator is ready for inspection. No elevator shall be placed in service prior to it being inspected and issued a Permit to Operate by the Division

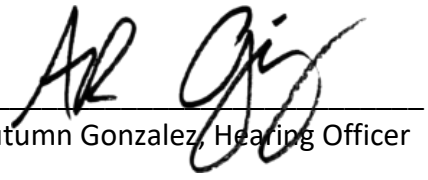
15. Each Applicant shall be subject to the suspension means replacement reporting condition stated in Addendum 2; that condition is incorporated herein by this reference.

16. Each Applicant shall notify its employees or their authorized representative(s), or both, of this order in the same way that the Applicant was required to notify them of the application for permanent variance per sections 411.2 and 411.3.

17. This Decision and Order shall remain in effect unless modified or revoked upon application by the Applicant, affected employee(s), the Division of Occupational Safety and Health, or by the Board on its own motion, in accordance with the Board's procedural regulations.

Pursuant to section 426, subdivision (b), the above, duly completed Proposed Decision, is hereby submitted to the Occupational Safety and Health Standards Board for consideration of adoption.

Dated: March 28, 2023



Autumn Gonzalez, Hearing Officer

ADDENDUM 1

October 6, 2010

CIRCULAR LETTER E-10-04

TO: Installers, Manufacturers of Conveyances and Related Equipment and, Other Interested Parties

SUBJECT: Coated Steel Belt Monitoring

The Elevator Safety Orders require routine inspection of the suspension means of an elevator to assure its safe operation.

The California Labor Code Section 7318 allows the Division to promulgate special safety orders in the absence of regulation.

As it is not possible to see the steel cable suspension means of a Coated Steel Belt, a monitoring device which has been accepted by the Division is required on all Coated Steel Belts which will automatically stop the car if the residual strength of any belt drops below 60%. The Device shall prevent the elevator from restarting after a normal stop at a landing.

The monitoring device must be properly installed and functional. A functioning device may be removed only after a determination has been made that the residual strength of each belt exceeds 60%. These findings and the date of removal are to be conspicuously documented in the elevator machine room. The removed device must be replaced or returned to proper service within 30 days.

If upon routine inspection, the monitoring device is found to be in a non-functional state, the date and findings are to be conspicuously documented in the elevator machine room.

If upon inspection by the Division, the monitoring device is found to be non-functional or removed, and the required documentation is not in place, the elevator will be removed from service.

If the device is removed to facilitate belt replacement, it must be properly installed and functional before the elevator is returned to service.

A successful test of the device's functionality shall be conducted once a year.

This circular does not preempt the Division from adopting regulations in the future, which may address the monitoring of Coated Steel Belts or any other suspension means.

This circular does not create an obligation on the part of the Division to permit new conveyances utilizing Coated Steel Belts.

Debra Tudor
Principal Engineer
DOSH-Elevator Unit HQS

ADDENDUM 2

Suspension Means – Replacement Reporting Condition

Beginning on the date the Board adopts this Proposed Decision and continuing for a period of two years, the Applicant shall report to the Division within 30 days any and all replacement activity performed on the elevator(s) pursuant to the requirements of ASME A17.1-2004, Section 8.6.3 involving the suspension means or suspension means fastenings.

Further:

1. A separate report for each elevator shall be submitted, in a manner acceptable to the Division, to the following address (or to such other address as the Division might specify in the future): DOSH Elevator Unit, 2 MacArthur Place, Suite 700, Santa Ana, CA 92707, Attn: Engineering Section.

2. Each such report shall contain, but not necessarily be limited to, the following information:

    a. The State-issued conveyance number, complete address, and OSHSB file number that identifies the permanent variance.

    b. The business name, complete address, telephone number, and contact person of the elevator responsible party (presumably the Applicant or the subsequent holder of this variance).

    c. The business name, complete address, telephone number, and Certified Qualified Conveyance Company (CQCC) certification number of the firm performing the replacement work.

    d. The name (as listed on certification), Certified Competent Conveyance Mechanic (CCCM) certification number, certification expiration date, and signature of each CCCM performing the replacement work.

    e. The date and time the elevator was removed from normal service for suspension replacement, the date and time the replacement work commenced, the date and time the replacement work was completed, and the date and time the elevator was returned to normal service.

    f. A detailed description of, and clear color photographs depicting, (1) all the conditions that existed in the suspension components requiring their replacement and (2) any conditions that existed to cause damage or distress to the suspension components being replaced.

g. A detailed list of all elevator components adjusted, repaired, or replaced in conjunction with the suspension component replacement.

h. All information provided on the crosshead data plate per ASME A17.1-2004, Section 2.20.2.1, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

i. For the suspension means being replaced, all information provided on the data tag required per ASME A17.1-2004, Section 2.20.2.2, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

j. For the replacement suspension means, all information provided on the data tag required by ASME A17.1-2004, Section 2.20.2.2, unless that ASME requirement is modified by the conditions of a variance that pertains to the elevator in question, in which case, the information to be reported shall be the information required by the ASME provision as modified by the variance.

k. Any other information requested by the Division regarding the replacement of the suspension means or fastenings.

3. In addition to the submission of the report to the Division, the findings of any testing, failure analysis, or other engineering evaluations performed on any portion of the replaced suspension components, or other elevator components replaced in conjunction therewith, shall be submitted to the Division referencing the information contained in item 2a above.

Occupational Safety and Health Standards Board

Business Meeting

Legislative Update

Legislative Update
Prepared April 7, 2023 for the April 20, 2023
Meeting of the Occupational Safety and Health Standards Board

AB-1 Oil refineries: maintenance.(2023-2024) – NO UPDATE

AB-1

AB-1 Oil refineries: maintenance.(2023-2024)

(Ting)

Date	Action
01/26/23	Referred to Com. on P.E. & R.
12/06/22	From printer. May be heard in committee January 5.
12/05/22	Read first time. To print.

Summary:

AB 1, as introduced, Ting. Oil refineries: maintenance.

The California Refinery and Chemical Plant Worker Safety Act of 1990 requires, among other things, every petroleum refinery employer to submit to the Division of Occupational Safety and Health a full schedule of planned turnarounds, meaning a planned, periodic shutdown of a refinery process unit or plant to perform maintenance, overhaul, and repair operations and to inspect, test, and replace process materials and equipment, as provided.

This bill would express the intent of the Legislature to enact subsequent legislation to ensure that only one oil refinery in the state is undergoing scheduled maintenance at a time.

Board staff is monitoring for potential impacts on Board operations.

Legislative Update
Prepared April 7, 2023 for the April 20, 2023
Meeting of the Occupational Safety and Health Standards Board

AB-316 Vehicles: autonomous vehicles.(2023-2024) - UPDATED

AB-316

AB-316 Vehicles: autonomous vehicles.(2023-2024)

(Aguiar-Curry and Friedman
Kalra and Lackey)

Date	Action
03/14/23	From committee: Do pass and re-refer to Com. on C. & C. (Ayes 12. Noes 0.) (March 13). Re-referred to Com. on C. & C.
03/14/23	Coauthors revised.

Summary:

AB 316, as introduced, Aguiar-Curry. Vehicles: autonomous vehicles.

Existing law authorizes the operation of an autonomous vehicle on public roads for testing purposes by a driver who possesses the proper class of license for the type of vehicle operated if specified requirements are satisfied. Existing law prohibits the operation of an autonomous vehicle on public roads until the manufacturer submits an application to the Department of Motor Vehicles, as specified, and that application is approved.

This bill would prohibit the operation of an autonomous vehicle with a gross vehicle weight of 10,000 pounds or more on public roads for testing purposes, transporting goods, or transporting passengers without a human safety operator physically present in the autonomous vehicle at the time of operation.

Board staff is monitoring for potential impacts on Board operations.

Legislative Update
Prepared April 7, 2023 for the April 20, 2023
Meeting of the Occupational Safety and Health Standards Board

AB-521 Occupational safety and health standards: restrooms.(2023-2024) – NO UPDATE

AB-521

AB-521 Occupational safety and health standards: restrooms.(2023-2024)

(Bauer-Kahan)

Date	Action
02/17/23	Referred to Com. on L. & E.
02/08/23	From printer. May be heard in committee March 10.
02/07/23	Read first time. To print.

Summary:

AB 521, as introduced, Bauer-Kahan. Occupational safety and health standards: restrooms.

Existing law grants the Division of Occupational Safety and Health, which is within the Department of Industrial Relations, jurisdiction over all employment and places of employment, with the power necessary to enforce and administer all occupational health and safety laws and standards. The Occupational Safety and Health Standards Board, an independent entity within the department, has the exclusive authority to adopt occupational safety and health standards within the state. Existing law, the California Occupational Safety and Health Act of 1973 (OSHA), requires employers to comply with certain safety and health standards, as specified, and charges the division with enforcement of the act.

Existing law requires the division, before December 1, 2025, to submit to the standards board a rulemaking proposal to consider revising the heat illness standard and wildfire smoke standard. Existing law also requires the standards board to review the proposed changes and consider adopting revised standards on or before December 31, 2025.

This bill would also require the division, before December 1, 2025, to submit to the standards board a rulemaking proposal to consider revising a regulation on jobsite restrooms to require at least one women's designated restroom for jobsites with 2 or more required water closets. The bill would require the standards board to review the proposed changes and consider adopting revised standards for the standards described above on or before December 31, 2025. The bill would include related legislative findings.

Board staff is monitoring for potential impacts on Board operations.

Legislative Update
Prepared April 7, 2023 for the April 20, 2023
Meeting of the Occupational Safety and Health Standards Board

AB-1007 Occupational safety and health standards: plume.(2023-2024) **-** UPDATED

AB-1007

AB-1007 Occupational safety and health standards: plume.(2023-2024)

(Ortega)

Date	Action
03/22/23	From committee: Do pass and re-refer to Com. on APPR. (Ayes 5. Noes 2.) (March 22). Re-referred to Com. on APPR.
02/23/23	Referred to Com. on L. & E.
02/16/23	From printer. May be heard in committee March 18.
02/15/23	Read first time. To print.

Summary:

AB 1007, as introduced, Ortega. Occupational safety and health standards: plume.

Under existing law, the Occupational Safety and Health Standards Board within the Department of Industrial Relations promulgates and enforces occupational safety and health standards for the state, including standards dealing with toxic materials and harmful physical agents. Under existing law, the Division of Occupational Safety and Health is required to enforce all occupational safety and health standards, as specified. A violation of these standards and regulations under specific circumstances is a crime.

This bill would, by June 1, 2024, require the division to submit to the board a proposed regulation requiring a health facility to evacuate or remove plume through the use of a plume scavenging system in all settings that employ techniques that involve the creation of plume. The bill would require the division, when developing regulations, to consider, among other things, recommendations on the evacuation of plume from the federal Occupational Safety and Health Administration and National Institute for Occupational Safety and Health. The bill would require the board to adopt a proposed regulation by January 1, 2025.

This bill would provide that compliance with general room ventilation standards or the use of surgical masks does not satisfy the requirements for protection from surgical plumes under these provisions. The bill would provide that the use of respirators does not satisfy the requirements for protection from surgical plumes under these provisions, except as specified. The bill would require the manufacturer of a plume scavenging system to provide evidence

	that the system meets specified minimum requirements when installed, operated, and maintained in accordance with the manufacturer's instructions. This bill would specify that these provisions do not limit the authority of the division to develop, or limit the authority of the board to adopt, a regulation with a broader scope or broader application than required by these provisions. By expanding the definition of an existing crime, this bill would impose a state-mandated local program. The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement. This bill would provide that no reimbursement is required by this act for a specified reason. Board staff is monitoring for potential impacts on Board operations.

Legislative Update
Prepared April 7, 2023 for the April 20, 2023
Meeting of the Occupational Safety and Health Standards Board

SB-553 Occupational safety: workplace violence. (2023-2024) - UPDATED

SB-553

SB-553 Occupational safety: workplace violence. (2023-2024)

(Cortese)

Date	Action
03/28/23	From committee with author's amendments. Read second time and amended. Re-referred to Com. on L., P.E. & R.
03/21/23	Set for hearing April 12.
03/20/23	From committee with author's amendments. Read second time and amended. Re-referred to Com. on L., P.E. & R.

Summary:

SB 553, as introduced, Cortese. Occupational safety: workplace violence.

Existing law, the California Occupational Safety and Health Act of 1973, imposes safety responsibilities on employers and employees, including the requirement that an employer establish, implement, and maintain an effective injury prevention program, and makes specified violations of these provisions a crime. The act is enforced by the Division of Occupational Safety and Health within the Department of Industrial Relations, including the enforcement of standards adopted by the Occupational Safety and Health Standards Board. The act requires the standards board to adopt standards developed by the division that require specified types of hospitals to adopt a workplace violence prevention plan as a part of the hospital's injury and illness prevention plan to protect health care workers and other facility personnel from aggressive and violent behavior, as prescribed (hospital standards).

This bill would require the division, by an unspecified date, to adopt standards that require an employer that is not subject to the hospital standards to adopt a workplace violence prevention plan as a part of the employer's injury and illness prevention plan to protect employees from aggressive and violent behavior, as prescribed. The bill would require the standards adopted by the division to be consistent with the hospital standards, except as the division determines to be necessary to apply to the employers covered under the new standards.

	Because this bill would expand the scope of a crime, the bill would impose a state-mandated local program. The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement. This bill would provide that no reimbursement is required by this act for a specified reason. Board staff is monitoring for potential impacts on Board operations.

SB-686 Domestic workers: occupational safety.(2023-2024) - NO UPDATE

SB-686

SB-686 Domestic workers: occupational safety.(2023-2024)

(Durazo)

Date	Action
03/01/23	Referred to Com. on L., P.E. & R.
02/17/23	From printer. May be acted upon on or after March 19.
02/16/23	Introduced. Read first time. To Com. on RLS. for assignment. To print.

Summary:

SB 686, as introduced, Durazo. Domestic workers: occupational safety.

Existing law establishes within the Department of Industrial Relations the Division of Labor Standards Enforcement and the Division of Occupational Safety and Health, with duties and powers, as prescribed.

Existing law, the California Occupational Safety and Health Act of 1973, requires employers to comply with certain standards ensuring healthy and safe working conditions, as specified. The act charges the Division of Occupational Safety and Health with enforcement of the act, subject to oversight by the Chief of the Division of Occupational Safety and Health. The act excludes household domestic service from the definition of "employment." The act requires the chief, or a representative of the chief, to convene an advisory committee for the purposes of creating voluntary guidance and making recommendations to the department and the Legislature on policies the state may adopt to protect the health and safety of privately funded household domestic service employees, except publicly funded household domestic service and family daycare homes, as specified. The act requires the advisory committee to develop voluntary industry-specific occupational health and safety guidance relating to workplace hazards and the prevention or minimization of work-related injuries and illnesses. The act requires the advisory committee to make recommendations, as specified, on additional policies to protect the health and safety of household domestic service employees. Under specified circumstances, a violation of the act is a crime.

Existing law, until July 1, 2024, requires the Division of Labor Standards Enforcement, upon appropriation of funding for this purpose, to establish and maintain an outreach and education program for the purpose of promoting awareness of, and compliance with, labor protections that affect the domestic work industry and fair and dignified labor standards in this industry and other low-wage industries. Existing law requires the Division of Labor

	Standards Enforcement to issue a competitive request to community-based organizations (CBOs) to provide education and outreach services in this connection and prescribes requirements for these organizations. Existing law makes CBOs responsible for developing and consulting with the Division of Labor Standards Enforcement regarding the core education and outreach materials, as specified. Existing law requires the Division of Labor Standards Enforcement and CBOs to meet at least biannually to coordinate efforts around outreach, education, and enforcement, including sharing information, in accordance with applicable privacy and confidentiality laws, that will shape and inform the overall enforcement strategy of the division regarding low-wage industries, including the domestic work industry. Existing law prohibits the Division of Labor Standards Enforcement from expending more than 5% of the budget allocation on the administration of the program. This bill would make CBOs responsible for developing and consulting with the Division of Occupational Safety and Health regarding the core education and outreach materials regarding health and safety standards, retaliation, and the division's workplace safety complaint and retaliation process, including specific issues that affect the domestic work industry differently. The bill would make CBOs responsible for all costs related to the development, printing, advertising, or distribution of the education and outreach materials. The bill, on and after July 1, 2024, would require the chief, representatives of the consultation services and enforcement branches of the Division of Occupational Safety and Health, and CBOs to meet periodically, as specified, to coordinate efforts around outreach, education, and enforcement. The bill would prohibit the Division of Labor Standards Enforcement and the Division of Occupational Safety and Health from expending more than 5% of the budget allocation on the administration of the program. The bill would remove the repeal date, thereby making these provisions operative indefinitely. This bill, for purposes of the California Occupational Safety and Health Act of 1973, would narrow the exclusion of household domestic service from the definition of "employment" to exclude only publicly funded household domestic service and family daycare homes, as specified. The bill would require the Division of Occupational Safety and Health, by July 1, 2024, to adopt industry guidance to assist household domestic service employers on their legal obligations under existing occupational safety and health laws and regulations that apply to the work activity of household domestic service employees. The bill would require the guidance to be consistent with the voluntary industry guidelines established by the advisory committee. The bill would require a household domestic services employer, by January 1, 2025, to comply with, and adhere to, all applicable occupational safety and health regulations. The bill would require the Division of Occupational Safety and Health, if the division determines that additional industry-specific regulations are necessary, to propose those regulations to the standards board for its review, and would require the standards board to adopt regulations by January 1, 2026. The bill would require the Division of Occupational Safety and Health, upon appropriation of funds by the Legislature to the division for the specified purpose, to establish and administer

	the Household Domestic Services Employment Safety and Technical Assistance Program for the purpose of providing one-time grants and technical assistance to household domestic service employers, as prescribed. The bill would prohibit the Division of Occupational Safety and Health from expending more than 5% of the budget allocation on the administration of the program. The bill would require the program to commence by July 1, 2024, and continue until July 1, 2029, with an opportunity to expand or renew contingent on the additional allocation of state funds or identification of other revenue sources. By expanding the application of criminal penalties under the act to household domestic service employers, this bill would impose a state-mandated local program. The bill would make related legislative findings and declarations. The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement. This bill would provide that no reimbursement is required by this act for a specified reason. Board staff is monitoring for potential impacts on Board operations.

Occupational Safety and Health Standards Board

Business Meeting

Executive Officer's Report