Lead Compliance Plan

In compliance with *Cal/OSHA Construction Safety Orders* Section 1532.1, *Lead*, Structure Construction (SC) has developed a *Lead Compliance Plan (LCP)* that addresses the procedures to be followed whenever SC employees are exposed to lead. Attachment 1 is the *SC LCP*.

Major requirements of the *LCP* are:

1. Training is required annually (either the 8-hour class or the 2-hour refresher).
2. Medical surveillance is required.
    a. Medical surveillance will include a blood sample that is analyzed for Blood Lead Level (BLL) and Zinc Protoporphyrin (ZPP).
3. Quarterly review of the *LCP* by the Bridge Construction Engineer (BCE) and Area Construction Manager (ACM).

A half-face cartridge-style respirator will be provided, based on exposure or when requested by the employee.

Work Procedures
A summary of the work procedures is given in the Lead Compliance Program Matrix, (Attachment 2).

Code of Safe Practices
The *SC Code of Safe Practices* lists the standard procedures for working in an environment with potential lead exposure and is available on the SC webpage under the Safety tab[1].

Medical Surveillance Procedure
The *LCP* requires medical surveillance for all SC personnel who are exposed to lead paint. This medical surveillance program will involve blood sampling and analysis for BLL and ZPP levels.

Cal/OSHA regulations require the employer to maintain employee medical records for **30 years**, therefore no deviation is allowed from the following procedure when arranging for medical surveillance or respirator medical evaluations.

1. The supervisor selects a local laboratory approved by Cal/OSHA.
2. The laboratory contacts the SC Safety Liaison to verify the work to be done and to arrange payment.
3. The supervisor completes a SC-0602, *SC Medical Testing Authorization Form* for each employee going for lab work.

[1] http://onramp.dot.ca.gov/hq/oscnet/.

4. A copy of the signed authorization form is faxed to SC Headquarters (HQ) in Sacramento (Attn: SC Safety Liaison).
5. The employee presents and surrenders the authorization form at the laboratory.
6. The laboratory mails the results and the invoice directly to SC HQ in Sacramento.
7. SC HQ in Sacramento processes the invoice to Accounts Payable.
8. Results are relayed via e-mail or phone to the employee, the supervisor, and to the Office of Safety & Health.
9. The original results will remain on file with SC HQ in Sacramento.

Attachment 3 is a copy of the SC-0602, *SC Medical Testing Authorization Form*[2].

Advisory Letter

The *SC LCP* explains that a Blood Lead Level of 10 µg/dl or above will initiate an advisory letter being sent by the SC Safety Liaison to the employee, with copies sent to the BCE, the ACM, and the Office of Safety and Health. Attachment 4 is a sample advisory letter. A blood lead level of 10 µg/dl does not imply immediate health risks; however, it is at the high end of the BLL in the general population.

The *SC LCP* requires employees with a BLL of 10 µg/dl or above to retest within 6 months. However, because the half-life of lead is 30 days, the employee will be asked to retest in 30 days. If an employee has zero exposure for 30 days, the BLL should drop from 10 µg/dl to 5 µg/dl.

During this 30 days an employee may continue with assigned duties. However, the employee, the leadworker, and the supervisor must pay strict attention to the provisions of the *LCP*, be aware of all sources of lead exposure. There may be lead exposure at home as well as at work. The employee must follow the basic hygiene practice of washing hands and face before eating, drinking, or smoking.

At a BLL of 20 µg/dl, the SC employee will be transferred to an assignment with zero lead exposure until blood lead levels have dropped below 10 µg/dl. In addition, an assessment interview will be held to determine if changes to the *LCP* are required. The interview team will consist of the BCE, the ACM, the Office of Safety and Health, and the SC Safety Liaison.

Additional Resources

Cal/OSHA, Construction Safety Orders, Section 1532.1, *Lead*[3].

General information pertaining to lead safety is available at the Department of Health Services, Occupational Lead Poisoning Prevention Program (OLPPP) webpage[4].

[2] http://onramp.dot.ca.gov/hq/oscnet/sc_manuals/crp/vol_1/crp016.htm
[3] http://www.dir.ca.gov/title8/1532_1.html.
[4] http://www.cdph.ca.gov/programs/olppp/Pages/default.aspx.

STRUCTURE CONSTRUCTION

LEAD COMPLIANCE PLAN

Introduction

This *Lead Compliance Plan (LCP)* provides guidance to the Structure Construction (SC) personnel who work on bridges and other structures that are coated with paint containing lead, particularly during operations that disturb that paint. This *LCP* also meets the requirements of the *Cal/OSHA Construction Safety Orders* Section 1532.1, *Lead*.

All SC personnel who perform work on a structure or bridge, and are exposed to paint being disturbed, will follow the requirements of this *LCP* unless the paint system and underlying residual paints have been tested and found to contain no lead. If the paint content is not known, then it will be presumed to contain lead until tested.

This *LCP* addresses lead related hazards, and does not replace the *Caltrans Injury Illness Prevention Program (IIPP),* the *SC Code of Safe Practices*, or other location specific safety rules and regulations.

Roles and Responsibilities

Area Construction Managers (ACM):

1. Ensure that SC employees receive the necessary health and safety training to work around lead-containing materials safely, and that such training is renewed annually as required.
2. Ensure that the required personal protective equipment is available to employees.
3. Ensure that the medical surveillance program is provided when required based on the level of exposure.
4. Conduct accident investigations as needed with the first-line supervisor, SC Headquarters, and the Office of Safety and Health, and make recommendations on any necessary actions.
5. Periodically review the performance of first-line supervisors to ensure that the actions required by the *LCP* are being completed.

Bridge Construction Engineers (BCE) (First-Line Supervisors):

1. Ensure that all employees working around lead containing materials are trained in the provisions of the *LCP*.
2. Ensure that employees follow the provisions of the *LCP* and other applicable safety and health rules related to lead.
3. Ensure that employees follow the respiratory protection requirements and wear their respiratory protection properly.
4. Ensure that the personal protective equipment used by the employees exposed to lead is appropriate for the actual exposure.
5. Provide regular pre-job *tailgate meetings* to discuss lead safety issues.
6. Ensure that employees follow the proper decontamination and hygiene procedures.
7. Conduct routine health and safety audits and document those findings, including recommendations for modification of the *LCP* if needed, and take immediate action to correct any unsafe conditions.

8. Ensure that lead waste is disposed of in compliance with local, state, and federal regulations.

NOTE
The above items are primarily the responsibility of the first-line supervisor, however, it is expected that SC employees assigned as leadworkers will assist the first-line supervisor.

SC Employees:

1. Follow the provisions of the *LCP* and other applicable safety and health rules related to lead.
2. Use the required personal protective equipment properly.
3. Report any unsafe condition or equipment to their supervisor immediately.
4. Follow proper decontamination and hygiene procedures.

District/Headquarters Office of Safety and Health and/or Construction Safety Liaison Coordinators:

- Provide oversight of the *Lead Compliance Program* and coordinate industrial hygiene monitoring for lead work to evaluate employee exposures.

SC Safety Liaison:

1. Receive, review, and report, within 5 days of receipt, the results of Blood Lead Level (BLL) testing to the tested employee and to the first-line supervisor.
2. Receive from the ACM, review, file, and maintain for 3 years the BCE's quarterly reviews of employee's compliance with this *Lead Compliance Program*.
3. Participate in assessment interviews if BLL is greater than 20 µg/dl.
4. Provide technical guidance on lead issues.
5. Review *LCP* biannually and initiate appropriate changes.
6. Facilitate lead training as requested by ACMs and BCEs.

See SC webpage[5] for current SC Safety Liaison assignment or call (916) 227-7777.

Activities with Lead Exposure

The following activities performed by SC employees could involve exposure to paint containing lead on steel bridges and structures:

1. Inspection of surface preparation conducted by the Contractor prior to painting, including measurement of areas and examination of cleaned surfaces.
2. Entering the Contractor's lead paint containment area.
3. Inspection of new and old paint on the structure.
4. Inspection of the Contractor's lead paint clean up and disposal operations.
5. Onsite inspection of contract work.
6. Disturbance of lead contaminated soil under or near existing structures (see lead compliance plan for lead in the soil).
7. Inspection of seismic retrofit projects, including removal and replacement of structural steel and paint.

[5] http://onramp.dot.ca.gov/hq/oscnet/sc_people/hq_people.htm.

8. Activities that disturb aerially deposited lead debris on girder flanges, the tops of bent caps, and inside bridge cells and towers.

Expected Exposure Level

Initial monitoring, conducted on operations similar to those listed above, indicates that expected employee exposure to airborne lead is well below the action level of 30μg/m^3 [8 Hour Time Weighted Average (TWA)]. If the employee's exposure is below the action level, the requirements of the *LCP* are dramatically reduced.

Employee Training

SC employees who work on the activities listed above will be trained in the following topics prior to starting work:

1. Lead health hazards.
2. Contents of *Cal/OSHA Construction Safety Orders* Section 1532.1, *Lead.*
3. Operations that could result in lead exposures.
4. Medical surveillance program.
5. Medical removal protection.
6. Chelating agent use.
7. Applicable engineering controls.
8. Contents of the *SC Lead Compliance Plan (LCP).*
9. Required personal hygiene and decontamination practices.
10. Rights to access medical and exposure monitoring records.
11. Purpose, selection, proper use and limitations of respiratory protective devices.
12. Hazardous materials or products.

Qualified trainers, in cooperation with the District/Headquarters Office of Safety and Health and Structure Construction, will provide training. Update this training annually if lead exposure continues. Refer to the Special Provisions for the project as the Contractor may be required to provide this training.

Exposure Control Methods

The Structure Construction practice is to minimize SC employee's exposures to lead through the use of engineering and administrative controls. In accordance with this practice, SC employees will not enter the Contractor's containment area during any operation that disturbs the paint containing lead. Additionally, SC employees will not enter the containment area when the Contractor stops work, unless it has been cleaned as outlined below, and the proper protective equipment is worn.

SC employees will position themselves away from active removal or clean-up operations to minimize their exposure to lead. To assist in the control of lead exposures to workers during work involving disturbance of paint containing lead, the following work areas or zones will be established:

> Containment Area (lead work area)–this is the area where actual lead paint disturbance and cleanup is taking place. It includes the areas where lead dust and paint chips accumulate during work.

Cleanup Area–this is the transition area between the actual work area and the support areas (where no lead exposure exists). This zone is located outside of the actual lead work area and includes the blasting support equipment, the initial decontamination area, transportation vehicles to the change room/ decontamination trailer and support area, and the *dirty* side of the change room/ decontamination trailer.

Support Area–these areas are the locations where no lead exposure exists. It includes lunchrooms, offices, toilets, crew rooms, the *clean* side of the change room/ decontamination trailer, employee's personal transportation, and all locations after final decontamination.

Tarp containment areas to contain lead emissions and minimize contamination of surrounding areas. Post a sign at the entrance to lead work areas stating:

WARNING LEAD WORK AREA POISON NO SMOKING OR EATING.

Access into the lead work area will be restricted to authorized-personnel wearing the required personal protective equipment.

These regulated areas are required under the *Cal/OSHA Construction Safety Orders* Section 1532, *Lead*. These areas are also addressed in the Contractor's *LCP*. The Contractor will establish them and provide the necessary signs, clean-up equipment (i.e., tarps, HEPA vacuum, etc.), and decontamination facilities (hand wash facilities, etc.). If inspection activities by SC employees occur outside of the Contractor's normal working hours, these items are still required. Discuss with your first-line supervisor/lead-worker any inspection activities that will occur outside the Contractor's normal working hours. You may need to reschedule these inspection activities.

Daily cleaning of the lead work area is required to minimize the accumulation of lead containing materials. HEPA (High Efficiency Particulate Air filter) vacuums or wet wash methods that minimize dust are required. Do not use methods that create dust, such as wet or dry sweeping, shoveling, compressed air blow down, etc.

(Exception: Those locations where a full enclosure, a negative pressure air ventilation system, and air supplied respiratory protection are used.)

Tarps and other materials used for containment will also be HEPA vacuumed or wet washed before taken down or moved. The Contractor's personnel will perform the clean-up operations.

Work Procedures

SC personnel exposed to lead containing materials will follow the work procedures, decontamination procedures, and personal protective equipment requirements listed in the Lead Compliance Plan Matrix (Attachment 2).

Personal Protective Equipment

Employees entering the containment or clean up areas will wear coveralls (cloth and/or Tyvek, depending on work activity and expected level of contamination) over their work clothes. Gloves are required to minimize skin contamination. Wear rubber boots or work shoes in the lead work area to aid in decontamination. At the end of the work shift, remove, properly store, or clean coveralls, protective equipment, and contaminated shoes before leaving the clean-up area. The specifications require the Contractor to provide coveralls for SC personnel. Review your project Special Provisions early to determine if sufficient coveralls are provided for employees. It might be necessary to write a Contract Change Order to increase the number of coveralls provided.

Employees must wear respiratory protection equipment in accordance with the Lead Compliance Plan Matrix. They will also comply with the Caltrans Respiratory Protection Program (Chapter 15 in the *Caltrans Safety and Health Manual*). A respiratory medical evaluation and a respirator fit testing will be required annually. Clean and check the fitting on the respirator each day. SC practice is that employees cannot wear respirators requiring a tight face piece seals if they have facial hair in the seal area. Employees with facial hair below their upper lip will be required to shave.

Any SC employee exposed to lead may request a respirator regardless of the exposure level. They must comply with all provisions of the Caltrans respirator program.

Entry/Exit and Decontamination

To minimize cross contamination and taking home lead containing materials, use the following entry/exit and decontamination procedures. The specifics of the Entry/Exit and Decontamination procedures for each project are also covered in the *LCP* submitted by the Contractor or subcontractor. The following are the minimum entry/exit procedures for SC employees:

1. Employees will enter the cleanup area from the support area through an established location (preferably at the decontamination facilities). Wear work clothes and shoes, coveralls, and appropriate personal protective equipment into the lead work clean-up area. Before moving into the containment area (if necessary and allowable), put on the required respiratory protection equipment.
2. When workers leave the containment area, they must be decontaminated to remove lead residue from their protective equipment and outer clothing. Use a HEPA vacuum or water wash (for rain suits) ~~as required~~ just before or after leaving the containment area. *Do not blow down or shake clothing to remove lead dust*. Remove outer protective clothing and other protective equipment. Vacuum cloth coveralls or work clothes and clean shoes if contaminated. Remove Tyvek coveralls inside out and place in bags or buckets for disposal. Do not eat, drink, or smoke in the cleanup area.
3. To leave the cleanup area and enter the support area, go to the established entry/exit decontamination location and wash face, arms, hands, and neck with soap and water. Remove coveralls and, if necessary, vacuum or remove contaminated inner work clothing before entering lunchroom, toilets, offices, etc. in the support area. *Do not wear coveralls and contaminated work clothing into lunchrooms, vehicles, or the support areas.*
4. At the end of shift, workers must decontaminate as required by the Lead Compliance Plan Matrix before entering the support area and going home. *As a minimum, all employees must wash hands, face, neck, and arms before leaving.* If work clothes are contaminated, clean or change before leaving the site. Store contaminated clothing or coveralls in plastic bags to prevent cross contamination.

5. Cloth coveralls must be changed and laundered at least weekly. They will be stored in sealed and labeled plastic bags until laundered. If washed at home, wash separately from the family's clothes. If laundered commercially, notify the laundry facility that the clothing is contaminated with lead. Change Tyvek coveralls daily or as needed. As discussed previously, the Special Provisions require the Contractor to provide coveralls for SC employees.
6. Decontamination areas, change rooms, cars, etc. that could be contaminated with lead containing materials must be cleaned and decontaminated by HEPA vacuum and/or wet methods on a weekly basis or sooner to minimize lead contamination.

Medical Surveillance Program

All SC personnel who are exposed to lead paint removal (i.e., structure re-painting jobs) will be enrolled in the medical surveillance program, which includes blood sampling and analysis for lead (BLL) and zinc protoporphyrin (ZPP) levels. Contact the SC Safety Liaison to arrange for medical services for medical surveillance or respirator physicals. (See below for sampling intervals.)

The results of this monitoring will be reported to the SC Safety Liaison and provided simultaneously to the tested employee and the employee's first-line supervisor within 5 days.

Employee Sampling Intervals

The following are the minimum sampling intervals, for SC employees:

1. No prior sampling: Sample before the job and at the end of the job, at 6 months and at 12 months for the first year, and then annually.
2. Prior sampling, but not within last 2 years: Sample before the job and at the end of the job, at 6 months and at 12 months for the first year, and then annually.
3. Current sampling (within last 2 years): Sample at the end of the job and annually.

NOTE
Sampling will continue as long as employee exposure exists. If lead work is completed and no further exposure is expected, end of job sampling is required.

Employees with blood lead levels at 10 µg/dl or above will be sent an advisory letter and will be required to have their blood sampled every 6 months until their blood lead level drops below 10 µg/dl.

*The SC Lead Compliance mandates that employees with blood lead levels over 20 µg/dl will be transferred to work assignments with no lead exposure until subsequent monitoring shows their BLL has fallen below 10µg/dl***.**

If BLL exceeds 20 µg/dl, conduct an assessment interview with the first and second-line supervisors, the Office of Safety & Health, and the SC Safety Liaison to determine if changes to the *LCP* are required.

Perform the blood lead sampling under the direction of a California licensed physician and the blood analysis must be performed at a Cal-EPA/DHS accredited laboratory. The ACM over the employee is responsible to ensure that the medical surveillance program is conducted.

SC Lead Compliance Plan Evaluation

Bridge Construction Engineers (First-Line Supervisors) and Structure Representatives (Leadworkers) are responsible to ensure that employees are following the provisions of this *LCP*. The BCE (First-Line Supervisor) must conduct quarterly reviews of employees exposed to lead containing materials to evaluate their compliance with the *LCP*. Such reviews will be recorded and forwarded to the appropriate ACM, who is responsible to ensure that such reviews are being conducted. The ACMs will forward these reviews to the SC Safety Liaison, who will maintain them for three years. The results will be used to make needed changes to this *LCP* and to monitor and schedule SC lead training. The *LCP* must be reviewed and updated as necessary every 6 month.

STRUCTURE CONSTRUCTION - LEAD COMPLIANCE PROGRAM MATRIX

TASK	Expected Exposure	Respirator	Personal Protective Equip.	Decontamination Procedures	Administrative Requirements	Work Procedures
Bridge steel/paint insp., area measure, entering cleaned containment area	Low Exposure: $<30\mu g/m^3$	Half Face HEPA when entering containment area	Coveralls, gloves, safety glasses	Remove coveralls, wash face & hands before eating or smoking	Annual training, Quarterly insp., Annual blood test BLL/ZPP	Keep paint chips off street clothes, minimize dust, HEPA vac or wash coveralls
Scaffold rigging, bridge maintenance with minimal paint disturbance	Very Low	None required if no airborne exposure	Coveralls, gloves, safety glasses	Remove coveralls, wash face & hands before eating or smoking	Annual training, Quarterly inspection	Keep paint chips off street clothes, minimize dust, HEPA vac or wash coveralls
Painting	Low	Not required for lead - but use is required for paint	Coveralls, gloves, safety glasses	Remove coveralls, wash face & hands before eating or smoking	Annual training, Quarterly inspection	Keep paint chips off street clothes, Minimize dust
Cleanup after blasting, entering dirty containment area, containment removal	Low	Half Face HEPA, Full Face HEPA	Coveralls, boots, gloves, safety glasses	HEPA vac at site, remove coveralls, wash face & hands	Annual blood test, 6 mos. fit test, annual training/ quarterly insp	Wet or HEPA vac cleanup, NO DRY SWEEP, clean containment before removal
Vehicle & building lead dust/paint chip decontamination	Low	HEPA mask, Half Face HEPA	Coveralls, boots, gloves, safety glasses	HEPA vac at site, remove coveralls, wash face & hands	Annual blood test, 6 mos. fit test, annual training/ quarterly insp	Minimize dust, HEPA vac or wet wipe cleanup
Manual surface prep (hand scraping & brushing), drilling painted surfaces	Low	Half Face HEPA	Coveralls, safety glasses, gloves, boots	HEPA vac at site, remove coveralls, wash face & hands	Annual blood test, 6 mos. fit test, annual training/ quarterly insp	Minimize dust, contain waste, HEPA vac or wet cleanup
Pressure washing	Low	Half Face HEPA Full Face HEPA	Rainsuit, rubber boots, faceshield w/safety glasses or goggles	Wash off at site, remove rainsuit, wash hands & face	Annual blood test, 6 mos. fit test, annual training/ quarterly insp	Contain chips & water, wash down, HEPA vac or wet cleanup

DEPARTMENT OF TRANSPORTATION
ENGINEERING SERVICES, STRUCTURE CONSTRUCTION
SC-0602 (Rev 12/17/13)

SC Medical Testing Authorization Form

PERSONAL INFORMATION NOTICE

Pursuant to the Federal Privacy Act (P.L. 93-579) and the Information Practices Act of 1977 (Civil Code Sections 1798, et seq.), notice is hereby given for the request of personal information by this form. The requested personal information is voluntary. The principal purpose of the voluntary information is to facilitate the processing of this form. The failure to provide all or any part of the requested information may delay processing of this form. No disclosure of personal information will be made unless permissible under Article 6, Section 1798.24 of the IPA of 1977. Each individual has the right upon request and proper identification, to inspect all personal information in any record maintained on the individual by an identifying particular. Direct any inquiries on information maintenance to your IPA Officer.

Employee name:_____ Unit:_____

Employee ID:_____

Authorized By:_____

Supervisor Name:_____ Phone:_____

Supervisor Signature:_____ Date:_____

To the Vendor:

The Structure Construction employee named above is authorized to receive the test(s) marked below. Contact the employee's supervisor above to verify employment and approval of these tests. The cost to perform the Respirator Physical must not exceed $200 or $350 for all three tests.

Forward invoices and test results to:

CALTRANS
Structure Construction MS 9-2/11H
1801 30th Street
Sacramento, CA 95816
Attn: SC Safety Liaison

Testing Authorized:

_____Blood Lead
_____Zinc Protoporphyrin
_____Respirator Physical

State of California
DEPARTMENT OF TRANSPORTATION

Memorandum

California State Transportation Agency

Serious drought.
Help Save Water!

To:

Date: Month Day, Year

File: Safety BLL/ZPP

From: DEPARTMENT OF TRANSPORTATION
Division of Engineering Services
Structure Construction

Subject: **RESULTS OF BLOOD LEAD LEVEL TESTING**

Your blood lead level (BLL) test resulted in a BLL of XX μg/dl. In accordance with the Structure Construction Lead Compliance Plan (LCP), this level warrants an advisory letter. While this level of lead in the blood does not imply immediate health risks, it is at the high end of the BLL in the general population.

Structure Construction's (SC) LCP is based on controls and procedures that will maintain an employee's BLL at or below 10 μg/dl and I am concerned that your initial testing is at our first trigger level.

The LCP requires you to retest within 6 months, however, please schedule yourself for another BLL test in 30 days. The half-life of lead is 30 days. If you have zero exposure for the next 30 days, I would expect your BLL to drop to X/2 μg/dl.

Continue with your assigned duties, however, pay strict attention to the provisions of the LCP, be aware of all sources of lead that you may be exposed to, at home as well as at work, and follow the basic hygiene practice of washing your hands and face before eating, drinking, or smoking.

We will review and discuss the results of this second sample. In the meanwhile if you have any questions please contact me at (916) 227-7777.

Name of SC Safety Liaison
SC Safety Liaison
Senior Bridge Engineer

cc: Bridge Construction Engineer,
Area Construction Manager,
SC Safety Liaison

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability"