LEAD AND BRIDGE-COATING HAZARDS

Assessment, Exposure Control, Hygiene and Medical Protection

POLICY STANDARD	Assess bridge coatings and lead-generating work before disturbance. Until representative exposure data establish otherwise, apply OSHA's task-specific interim protections, control contamination at the source and prevent employees from carrying lead into vehicles, break areas or home.

PHEIFER BROTHERS CONSTRUCTION CO., INC.

Effective August 24, 2026 | Revision 1

Table of Contents

USE OF THIS POLICY

This policy establishes minimum company requirements and is not all-inclusive. Project specifications, coating constituents, exposure results, environmental rules and other substance-specific standards may require additional controls.

Primary Regulatory References

- 29 CFR 1926.62 - Lead in construction
- 29 CFR 1910.134 / 1926.103 - Respiratory protection
- 29 CFR 1926.1126 - Chromium (VI), when applicable
- 29 CFR 1910.1020 - Employee access to exposure and medical records

1. Purpose, Scope, Limits and Responsibilities

Purpose and Scope

This policy applies to construction, alteration, repair, painting, demolition, salvage, coating removal, encapsulation, cleanup, transport, storage and waste handling where employees may be occupationally exposed to metallic lead or inorganic lead compounds. Typical bridge tasks include abrasive blasting, power-tool cleaning, scraping, sanding, rivet busting, welding, cutting and torch burning of coated steel.

Current Airborne Limits

- Action level: 30 micrograms per cubic meter of air (30 µg/m³) as an 8-hour TWA, measured without regard to respirator use.
- PEL: 50 µg/m³ as an 8-hour TWA. For workdays over 8 hours, allowable exposure = 400 divided by hours worked that day (for example, 40 µg/m³ for 10 hours; about 33.3 µg/m³ for 12 hours).
- Airborne exposure is only one route. Lead can be swallowed from contaminated hands, food, tobacco, clothing, vehicles and surfaces.

Health Effects

- Lead can damage the nervous system, kidneys, blood-forming system and reproductive system and may affect fertility or the unborn child.
- Symptoms may include fatigue, headache, abdominal pain, nausea, weakness, irritability, memory problems or numbness; significant exposure can occur without obvious symptoms.

Responsibilities

- Management provides assessment, controls, competent-person authority, medical surveillance, hygiene facilities, training and records.
- The lead competent person identifies hazards, performs frequent/regular inspections and has authority to correct or stop work.
- Foremen implement the project compliance plan, verify interim protections and control access/contamination.
- Employees follow controls and hygiene rules, use assigned PPE, report symptoms/defects and stop uncontrolled work.

2. Pre-Work Coating and Hazardous-Material Assessment

Assess Before Disturbance

- Obtain owner records, bridge/coating history, hazardous-material surveys, prior analytical results and specifications before demolition or coating disturbance.
- Use representative laboratory analysis as appropriate to identify lead and other constituents; XRF or field screening may support planning but must be used within its limitations.
- Assume an unknown existing bridge coating may contain hazardous metals until reliable information establishes otherwise. Do not call material 'lead-free' without defensible data.
- Evaluate substrate, primer and topcoat layers separately where work may disturb multiple systems.

Evaluate More Than Lead

- Assess potential hexavalent chromium, cadmium, arsenic, beryllium or other toxic metals/pigments; silica from concrete/substrate or abrasive; asbestos-containing materials; solvents/isocyanates in new coatings; and welding fumes.
- An abrasive marketed as a silica substitute is not automatically nonhazardous. Review its SDS and exposure potential and evaluate the coating/substrate being removed.
- Apply each applicable substance-specific program; controlling lead alone may not control another contaminant.

Project Planning Inputs

- Task/sequence, tools, crew/job classifications, shift length, enclosure/containment, ventilation and exposure data.
- Traffic/public/waterway exposure, weather/wind, access, fall/fire/confined-space hazards and emergency response.
- Hygiene/change/shower facilities, waste characterization, environmental permits, collection/disposal and multi-employer responsibilities.

UNEXPECTED COATING OR MATERIAL	Stop disturbance, isolate the area and notify the foreman/competent person when the material differs from the assessment or unknown layers/debris are found.

3. Presumed-Exposure Tasks and Interim Protection

Where lead is present, OSHA requires interim protection before exposure assessment documents the applicable lower exposure. Objective data may not replace the task-specific assessment required by 1926.62(d)(2).

PRESUMED TASK GROUP	TREAT AS / EXAMPLES
Above PEL through 10 x PEL	Manual demolition, scraping, sanding, heat gun work, power-tool cleaning with dust collection, and spray painting with lead paint.
Above 500 µg/m³	Lead burning; lead mortar; rivet busting; power-tool cleaning without dust collection; cleanup with dry expendable abrasives; abrasive-blasting enclosure movement/removal.
Above 2,500 µg/m³ (50 x PEL)	Abrasive blasting, welding, cutting and torch burning where lead-containing coatings/paint are present.
Other reason to believe above PEL	Treat as above PEL until assessment documents otherwise.

Required Interim Protection

- Appropriate respiratory protection selected for the presumed level.
- Protective work clothing/equipment; change areas; handwashing facilities.
- Initial biological monitoring for blood lead and zinc protoporphyrin (ZPP).
- Hazard Communication, respirator and task safety training.
- Continue until representative assessment documents actual employee exposure and adjusted controls are authorized.

Bridge Cutting and Burning

- Do not substitute a fixed 25-foot radius for exposure assessment. Establish the work zone from the hazard evaluation, containment, ventilation, wind and monitoring.
- Torch cutting of coated structural steel is presumed above 2,500 µg/m³ until documented otherwise; protect burners and affected nearby employees accordingly.
- A result for one bridge, coating, tool, crew or weather condition does not automatically represent another.

INTERIM MEANS IMMEDIATE	Protection begins before the first cut, blast, weld or disturbance - not after monitoring results arrive.

4. Exposure Assessment and Employee Notification

Initial Determination

- Determine whether any employee may be exposed at or above 30 µg/m³ without respirators.
- Use representative full-shift personal breathing-zone samples for each job classification/work area and highest-exposure shift, except as specifically allowed.
- Consider monitoring, observations/calculations, prior measurements and employee symptoms/complaints.
- Closely similar monitoring from the previous 12 months may be used when all standard conditions and analytical requirements are met.
- Maintain a written negative determination when exposure is below the action level; document basis, date, location and employees monitored.

Monitoring Frequency

RESULT	REQUIREMENT
Below action level	No routine repeat unless reassessment is triggered.
At/above AL but at/below PEL	At least every 6 months until two consecutive results at least 7 days apart are below AL.
Above PEL	Quarterly until two consecutive results at least 7 days apart permit reduction/discontinuation under the standard.

Additional Assessment

- Repeat when equipment, process, control, personnel or task changes may create new/additional AL exposure or increase existing exposure above the PEL.
- Reassess after coating/material changes, enclosure/ventilation changes, complaints, visible emissions, control failure or significantly different weather/work practices.

Notification and Observation

- Notify each affected employee in writing or by accessible posting as soon as possible, no later than five working days after receiving results.
- If at/above PEL, state that result and describe corrective action taken or planned.
- Allow affected employees/designated representatives to observe monitoring and provide required PPE without cost.

5. Written Lead Compliance Program

Before Work Begins

Establish and implement a project-specific written compliance program before commencing work covered by the control requirements. Make it available at the worksite and to affected employees/representatives and regulators as required.

Required Content

- Each lead-emitting activity: equipment, material/coating, controls, crew size, responsibilities, procedures and maintenance.
- Specific compliance methods and supporting engineering plans/studies; technology considered to meet the PEL.
- Air-monitoring data documenting emission sources and a schedule for implementing controls.
- Work practices addressing protective clothing, housekeeping and hygiene.
- Administrative-control/rotation schedule when used, including employee identity, duration and exposure at each assignment.
- Multi-contractor arrangements for hazard communication and compliance responsibility.
- Other relevant project, respiratory, medical, waste and emergency information.

Implementation and Inspection

- A competent person makes frequent and regular inspections of sites, materials and equipment.
- Evaluate mechanical ventilation performance as necessary to maintain effectiveness.
- Do not use rotation instead of feasible engineering/work-practice controls; document any permitted administrative schedule.
- Revise when conditions or controls change and update at least annually.

Pre-Task/JHA Integration

- Identify coating/task, presumed tier, data/monitoring, control/containment, respirator/PPE, hygiene, access, fire/fall/confined-space hazards and stop-work actions.
- Coordinate shifts and adjacent operations so containment setup/removal, cleanup and waste handling receive the same lead controls as production work.

PLAN MUST MATCH THE FIELD	A generic manual section is not the required project compliance program unless it accurately describes the actual activity, controls, schedule and contractor arrangements.

6. Engineering Controls and Work Practices

Control Hierarchy

- Substitute/remove hazardous coatings or use lower-emission methods when feasible.
- Use containment/enclosure, local exhaust/negative pressure, on-tool HEPA collection, wet methods, isolation, remote/automated tools and process optimization.
- Use all feasible engineering/work-practice controls to reduce exposure to/below the PEL; if insufficient, reduce to the lowest feasible level and supplement with respirators.
- Maintain controls and verify ventilation flow, filters, pressure and capture before and during work.

Bridge-Coating Removal

- Select blasting/power-tool controls from coating, substrate, abrasive, exposure and environmental assessment.
- Design containment for wind/load/fire/access and prevent leakage to traffic, water, soil, public or other crews.
- Place exhaust pickup close to generation and discharge through appropriate filtration without re-entrainment.
- Use tool shrouds and HEPA vacuums of adequate capacity; keep hoses/seals intact and change collectors using low-dust methods.

Welding, Cutting and Torch Burning

- Remove coatings from the heat-affected area by a controlled method when feasible and authorized; coating removal itself remains hazardous work.
- Use local exhaust, mechanical ventilation, positioning and isolation appropriate to fumes and lead vapor/particulate.
- Follow Hot Work, Fire Prevention, Respiratory Protection, Fall Protection and Confined Space programs.
- Do not perform hot work inside a coating enclosure until fire load, ventilation, atmospheric and rescue hazards are addressed.

Work Practices

- Keep containers closed; minimize drop height and dust disturbance; do not dry dump debris.
- Do not eat/drink/smoke or touch face with contaminated gloves; maintain clean-to-dirty workflow.
- Schedule high-emission work away from others, but do not rely on scheduling alone where feasible controls are required.

7. Respiratory Protection, PPE and Regulated Work Zones

Respiratory Protection

- Required respirator use follows 1926.62 and the company Respiratory Protection Policy.
- Provide medical evaluation, training and fit testing before tight-fitting use; select only NIOSH-approved equipment for the measured or presumed exposure and all contaminants.
- Use HEPA filters for powered and non-powered air-purifying respirators used for lead. Provide a full facepiece when lead aerosols may irritate eyes/skin at use concentrations.
- Provide an adequate PAPR when an employee chooses it and it provides sufficient protection under the lead standard.
- Use quantitative fit testing when a tight-fitting respirator is used at an APF greater than 10; maintain clean-shaven sealing surfaces.
- Respirators are required during above-PEL exposure, insufficient controls, requested use and interim-protection tasks as the standard specifies.

Protective Clothing and Equipment

- Provide at no cost when exposure without respirators is above the PEL, irritating lead compounds are present, or interim protection applies.
- Use coveralls/full-body clothing, gloves, hats, shoes/shoe covers and eye/face protection appropriate to the task.
- Provide clean/dry required clothing at least weekly, and daily when exposure exceeds 200 µg/m³ as an 8-hour TWA.
- Company handles cleaning/laundering/disposal. Never take required contaminated clothing home.

Work Zones

- Establish boundaries from exposure/containment data, task, wind and potential migration - not a universal distance.
- Limit entry to authorized trained employees with required PPE; post warning signs where exposure is above the PEL.
- Use barriers, negative pressure, signage, communication and monitoring to protect other employers, traffic and public.

MULTIPLE CONTAMINANTS	A lead HEPA filter does not protect against solvent vapor, and a vapor cartridge alone does not protect against lead particles. Select the complete assembly for every hazard.

8. Housekeeping, Hygiene and Decontamination

Housekeeping

- Keep surfaces as free as practicable of lead accumulation.
- Use HEPA vacuuming or another method minimizing airborne lead. Shoveling, sweeping or brushing is allowed only after vacuuming/equally effective methods have been tried and found ineffective.
- Use HEPA vacuums and empty/service them to minimize reentry. Do not use compressed air unless a ventilation system captures the airborne dust.
- Do not remove lead from clothing/equipment by blowing, shaking or another dispersive method.

Change Areas and Clothing

- Provide clean change areas for employees required to wear protective clothing; separate storage for street clothes and work clothing/equipment.
- Remove contaminated protective clothing only in the change area. Place it in closed containers preventing dispersion.
- Notify cleaners/launderers in writing of lead hazards. Label contaminated-clothing/equipment containers with the current warning required by 1926.62(g)(2)(vii).

Showers, Washing and Eating

- Provide showers, where feasible, for employees whose airborne exposure is above the PEL. Employees shower at shift end; company supplies cleansing agents and towels.
- Provide adequate hand/face washing facilities for exposed employees. Wash before eating, drinking, smoking/vaping or applying cosmetics and at shift end.
- Where exposure is above the PEL, provide a clean eating area readily accessible and keep protective clothing/equipment out. Employees wash before entering.
- No food, beverages, tobacco, gum or cosmetics in areas where exposure is above the PEL.

Take-Home Prevention

- Use clean/dirty transitions; HEPA-vacuum outer clothing as permitted before removal; bag waste and equipment.
- Do not enter personal vehicles, offices or homes wearing contaminated gear. Clean tools and vehicle contact surfaces under the plan.

9. Medical Surveillance and Biological Monitoring

Initial Biological Monitoring

- Make blood lead level (BLL) and ZPP testing available to employees exposed at or above the action level on any one day, and as interim protection for presumed-exposure tasks.
- Provide at no cost and at a reasonable time/place; use an OSHA-compliant laboratory.

Periodic Program Eligibility

- Full medical-surveillance program applies to employees exposed at/above the action level for more than 30 days in any consecutive 12 months.
- Continue any additional monitoring/examinations triggered by BLL, symptoms, respirator difficulty, reproductive concern or medical removal.

Biological Monitoring Frequency

CONDITION	MINIMUM FREQUENCY
Covered by medical surveillance	BLL and ZPP at least every 2 months for first 6 months, then every 6 months.
Last BLL at/above 40 µg/dL	At least every 2 months until two consecutive BLLs are below 40 µg/dL.
Medically removed due to elevated BLL	At least monthly during removal.

Medical Examinations and Consultation

- Make available initially and at least annually for covered employees when required by the standard.
- Also provide promptly for signs/symptoms, desire for advice about reproductive effects, breathing difficulty during fit/use, or medical removal.
- Provide the physician required exposure/task/PPE information and the standard; obtain the limited written medical opinion and give the employee a copy.
- Employee may request a second medical opinion under the standard's multiple-physician review process.

BLL UNITS	Blood lead results are reported in micrograms per deciliter (µg/dL). Airborne lead is reported in micrograms per cubic meter (µg/m³). Do not confuse them.

10. Medical Removal Protection

Airborne-Exposure Removal

- Remove an employee from work at/above the action level on each occasion a final medical determination finds a detected medical condition that places the employee at increased risk from lead exposure.
- Return only when a subsequent final medical determination permits return.

BLL-Based Removal

- Remove when a periodic and follow-up BLL is at or above 50 µg/dL and the standard's confirmation/averaging criteria are met.
- The standard's criterion uses the average of the last three BLL tests or all tests over the previous six months, whichever is longer, at or above 50 µg/dL; an employee need not be removed if the last BLL is below 40 µg/dL.
- Return to lead exposure when two consecutive BLLs are below 40 µg/dL unless a medical determination requires otherwise.

Benefits and Alternate Work

- Maintain medical-removal-protection benefits for up to 18 months as required, including earnings, seniority and other employment rights/benefits, subject to standard provisions.
- Provide safe alternate work where feasible that keeps exposure below the action level and complies with medical restrictions.
- Follow standard provisions for workers' compensation, other earnings, voluntary removal and medical-determination disputes.

Confidentiality and Non-Retaliation

- Medical decisions are made by qualified licensed professionals; supervisors do not diagnose lead poisoning.
- Protect medical confidentiality and do not retaliate against an employee for reporting symptoms, participating in surveillance or being medically removed.
- Employees must promptly complete follow-up testing and comply with medical restrictions.

CURRENT STANDARD THRESHOLDS	This policy states the current federal construction-standard removal thresholds. Pheifer Brothers or a PLHCP may apply more protective action levels when justified.

11. Bridge-Coating, Blasting and Environmental Controls

Abrasive Blasting

- Apply the Abrasive Blasting/Hexavalent Chromium Policy, lead interim protection and project-specific containment/ventilation plan.
- Evaluate the abrasive, coating and substrate; dry expendable-abrasive cleanup and enclosure movement/removal are presumed high-exposure lead tasks when lead is present.
- Inspect blast hoses, deadman controls, breathing-air systems, containment, exhaust and filtration before use.
- Use a separate clean breathing-air supply meeting respiratory-policy requirements; do not locate compressor intake near exhaust or engines.

Coating Application

- Review SDS/technical data for solvents, isocyanates, metals, flammability, skin sensitizers and curing products.
- Select ventilation and respirators for both particulate and vapor hazards; establish cartridge schedules where applicable.
- Control ignition, static electricity, confined-space atmosphere and overspray; follow manufacturer temperature/humidity and coating instructions.

Environmental and Waste Management

- Prevent debris, blast media, paint chips, slurry and overspray from reaching soil, stormwater or waterways.
- Characterize waste under applicable federal, Wisconsin, owner and project requirements; do not assume lead paint debris is or is not hazardous waste without evaluation.
- Use labeled closed compatible containers, secondary containment and documented transport/disposal.
- Spill/release response protects employees first, stops migration when safe and follows notification/reporting requirements.

Containment Changes and Severe Weather

- Stop for torn containment, failed negative pressure/filtration, excessive wind, lightning, flooding, fire risk or unsafe access.
- Reinspect after weather, relocation, major maintenance or enclosure modification before restart.

12. Training, Signs, Records and Stop Work

Training

- Provide lead training before work for employees subject to interim protection and at least annually for employees exposed at/above the action level or to irritating lead compounds.
- Cover the standard/program; operations/exposure; health effects; engineering/work practices; respirators; PPE; hygiene; medical surveillance/removal; signs; employee rights and access to records.
- Provide Hazard Communication and task/equipment training in a language and vocabulary employees understand. Verify understanding and retrain after changes/deficiencies.

Required Warning Sign

POST AT ABOVE-PEL WORK AREAS	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

Records

- Maintain exposure assessments/monitoring, objective/previous data, notifications and observation records.
- Maintain written compliance programs, competent-person inspections, training, respirator/PPE and administrative-control records.
- Maintain biological/medical and medical-removal records confidentially under 1926.62 and 1910.1020; provide required employee access.
- Maintain coating surveys, analytical reports, contractor coordination, waste records and corrective actions.

Stop-Work Triggers

- Unknown coating/material; no assessment or interim protection; unplanned high-exposure task; missing/failed control, containment or ventilation.
- Dust/fume escapes work zone; incorrect respirator/PPE; no hygiene/change facilities; improper cleanup; contaminated vehicle/break area.
- Employee symptoms, respirator difficulty, fire/atmosphere concern, environmental release, or conditions no longer represented by monitoring.

13. Test Your Knowledge

Circle the best answer. Review missed questions with your foreman before lead or coating work.

1. Which standard primarily governs construction lead work? A. 29 CFR 1910.1025 only B. 29 CFR 1926.62 C. DOT hazmat rules only	2. What is the airborne lead action level? A. 30 µg/m³ as an 8-hour TWA B. 50 µg/dL C. 200 µg/m³
3. How is the PEL adjusted for shifts over 8 hours? A. It never changes B. Multiply by hours C. 400 divided by hours worked that day	4. Until assessed, how is torch burning lead-coated steel treated? A. Below the AL B. Above 2,500 µg/m³ C. Voluntary respirator use
5. May a fixed 25-foot boundary replace exposure assessment? A. No B. Yes C. Only on bridges	6. What filter is required for lead APRs/PAPRs? A. Organic vapor only B. N95 in all cases C. HEPA
7. When are monitoring results provided? A. Within five working days after receipt B. At year-end C. Only if above PEL	8. May employees take required contaminated clothing home? A. If bagged B. No C. Only weekly
9. Which units report blood lead level? A. µg/m³ B. ppm C. µg/dL	10. What happens when containment or ventilation fails? A. Stop, isolate and correct/reassess B. Continue until break C. Add a disposable mask

EMPLOYEE: _____ DATE: _____

ANSWER KEY: 1-B | 2-A | 3-C | 4-B | 5-A | 6-C | 7-A | 8-B | 9-C | 10-A