



Preventing Exposures to Lead in Telecommunications: What Every Member Should Know

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1. Why should we care about exposure to lead at work?

Lead is toxic to humans and animals. Unlike some other heavy metals, such as iron, lead serves NO useful purpose in the human body and ONLY has negative health consequences. Repeated exposures to lead over time increases the risk of serious health consequences. Lead contamination from work brought home on work clothes can create secondary exposures to you and your family members or others living in your household.

2. What are the sources of lead exposure in telecommunications?

Working with and around lead-sheathed cables and other telecom plant, such as old lead splice cases, without proper protections can expose you to lead. The lead-sheathed cables in the telecommunications network are all old. Any handling, touching, or disturbance of those cables can create lead-containing dust. The use of lead solders can be a source of exposure. Residual lead dust contamination in workspaces such as manholes, cable vaults, or areas where lead sleeves may be stored and cut for use can also be a source of exposure even if you are not working directly on a lead-sheathed cable. Lastly, old lead paint that may be chipping and peeling, as might be the case in old Central Offices (CO's), can create lead-containing contamination .

3. What are the primary routes of exposure to lead at work?

The main ways that lead gets into the body, referred to as 'routes of exposure', are by breathing it in (inhalation) and ingestion (swallowing lead that gets into your mouth).

Inhalation of lead in the air can be from breathing in lead dust particles suspended in the air or from breathing in lead fumes (very small particles of lead which can float in the air) created by melting lead to a high temperature, for example during soldering or lead wiping.

Ingestion of lead will typically occur if your hands or face are contaminated with lead particles and you transfer this contamination to something you eat/drink or to a cigarette you put in your mouth. Breathing through your mouth if you are not wearing a respirator in an environment where there is lead in the air can also result in some amount of that lead being swallowed.

Some studies have shown evidence that there can be skin absorption of inorganic lead, called 'percutaneous' or 'dermal' absorption, although this is not considered a primary route of exposure for inorganic lead. Organic lead, which is the type of lead that used to be in leaded gasoline, can be absorbed through the skin. The lead used in telecommunications is inorganic lead.

ALL of these kinds of exposures are preventable through the use of appropriate personal protective equipment (PPE) and a variety of work procedures and practices.

4. What happens to lead after you have an exposure and it gets into your body?

When you are exposed to lead through inhalation or ingestion and it is absorbed in the body, the lead will first go to your blood. The blood is just a method of transport and the lead does not stay in your blood. From the blood, some of the lead will be excreted from the body in urine and some of it can be deposited in organs such as the kidneys, liver, lungs, brain, spleen, muscles, heart, bones and teeth. In adults, almost all inhaled lead is absorbed in the body, whereas less lead is absorbed when lead is ingested.

Almost all of the lead, approximately 95%, that ends up being deposited and stored in the body is stored in bones and teeth. Lead stored in bone can remain for a long time (decades), but it can also be released into the bloodstream over time and can be an internal source of exposure. Lead that gets deposited in organs can cause damage.

The total amount of lead in a person's body at a given point in time – in the blood, in organs, and in bones and teeth — is called the '*body burden*' of lead.

One of the reasons why exposures to lead are so dangerous is that lead is *bioaccumulative*. That means that every time you have an exposure to lead, some lead can be added to your body burden. In other words, you will accumulate and build up the amount of lead in your body with additional exposures over time, even if those exposures are at lower levels. That is why preventing all exposure to lead is so important.

5. Can I be tested to find out my body burden of lead?

No, there is no test to tell you your body burden of lead.

6. What does a Blood Lead test tell me?

A Blood Lead (BL) test will tell you the amount of lead that is in your blood ONLY at the time of the test, which will be the result of a recent exposure. This is very important information because it can help you evaluate the work you have been doing to determine whether you need additional protections to prevent exposures.

A blood lead test is most accurate when done right after an exposure, and no longer than a month after an exposure because the lead does not remain in your blood. If you get a blood lead test, but have not had any recent exposures (from any sources), you will likely not have any lead in your blood. In some cases, a person who has an elevated body burden of lead, may have some level of lead in the blood in the absence of any recent exposures because of the release of a portion of the lead stored in their bones. If you work with lead at work on an intermittent basis, a blood lead test will not capture your exposures that have occurred over a month prior to getting the blood lead test.

7. If lead is so dangerous, why is it even used in telecommunications?

It has been known for thousands of years that lead is harmful, so that is not a recent discovery. However, lead has some properties that make it effective for certain uses which is why it ends up in so many products. Lead is soft and malleable, very stable, and very resistant to corrosion. When the telecommunications network was being created in the late 1800's it became clear that the copper wires had to have protection from the elements. Eventually, lead-sheathing became the cable protection material of choice because of its unique properties and was used for many years. Remember, this was before OSHA or any workplace lead standards. Unfortunately, the telecommunications industry is still stuck with this toxic legacy as evidenced by the presence of lead-sheathed cables within the network and lingering lead contamination in work environments, both of which pose significant health hazards to the workforce.

8. What are the signs and symptoms of lead exposure?

The health effects of lead exposure can be the result of an acute (recent) exposure or of chronic (long term) exposure to lead. Some signs and symptoms of acute or chronic lead exposure can easily be overlooked because some of the signs and symptoms can be caused by other things, for example headaches or forgetfulness. Some lead health impacts can be irreversible. Lead may also cause health problems without causing noticeable signs or symptoms, even at lower levels of chronic exposure, so you may not be aware of the progression of disease until extensive and irreversible damage has occurred.

The signs and symptoms of lead poisoning from acute (short term) exposures can include:

- Abdominal pain
- Constipation
- Fatigue
- Headaches
- Irritability/mood swings
- Loss of appetite
- Memory Loss
- Trouble sleeping
- Tremors
- Pain or tingling in the hands and/or feet
- Lead line in gums (not generally seen in this country)
- Muscle and joint pain, paralysis
- Weakness
- With a high enough exposure, lead can kill you in a matter of days and can cause acute encephalopathy resulting in vomiting, seizures, coma, and death.

The signs and symptoms of chronic (long term) exposure to lead can include:

- Loss of appetite
- Metallic taste in mouth
- Anxiety, nervous irritability
- Colic with severe abdominal pain

- Constipation
- Nausea
- Dizziness
- Pallor
- Excessive fatigue
- Weakness
- Insomnia
- Headache
- Forgetfulness
- Muscle and joint pain or soreness
- Fine tremors
- Numbness
- Hyperactivity

9. What are the health effects of lead on body systems?

Lead is a systemic poison that can negatively impact many systems of the body. Following is a brief description of the impacts most associated with lead exposure.

Nervous System: The nervous system is the most sensitive target organ of lead exposure. Lead is a neurotoxin and can cause damage to the brain and nervous system, especially motor nerves.

Renal (Urinary) System: Lead can cause kidney disease. Few if any outward symptoms may occur until extensive and permanent damage has occurred. Lead can also cause a form of gout.

Hematological (Blood) System: Lead inhibits the body's ability to make hemoglobin which is needed by the blood to carry oxygen to the cells. Lead can cause anemia.

Reproductive Damage: Lead can cause reproductive damage in both women AND men. When pregnant, lead can be passed from the mother to the developing fetus and can cause permanent impairment to the developing fetus, miscarriage, or stillbirth.

Cardiovascular (Heart) Effects: Lead can cause cardiovascular and coronary heart disease, stroke, peripheral arterial disease, and hypertension (high blood pressure). Recent research in the past couple of decades has shown associations of cardiovascular health effects at low blood lead levels of < 5 micrograms/dL. (That is less than five millionths of a gram per deciliter of blood.)

Cancer: There is evidence to show that lead can cause lung, stomach, and brain cancers. Lead is considered a probable human carcinogen by the U.S. EPA and a possible human carcinogen by the International Agency for Research on Cancer (IARC).

10. Are there any federal OSHA Lead Standards?

OSHA has two Lead standards. They are the lead standard for General Industry, 29 CFR 1910.1025 and the lead standard for Construction, 29 CFR 1926.62. The two standards are very similar, but not identical.. The General Industry standard applies to most workplace lead work and the Construction standard applies to certain construction-related work involving lead. In addition, some state plan states that operate their own state OSHA plan, like Cal/OSHA in California, MIOSHA in Michigan, and WISHA in Washington State, have updated lead standards or are in the process of rulemaking for updated lead standards that contain additional protections about working with lead that are more protective than the federal OSHA standards.

The federal OSHA Lead standards are old standards and are not nearly as protective as they should be, but they do contain important protections and provisions that employers are required to follow, at a minimum.

The main sections of both the General Industry and the Construction Lead standards include:

1. Scope
2. Definitions

3. Permissible Exposure Limit (PEL)
4. Exposure Assessment
5. Methods of Compliance
6. Respiratory Protection
7. Protective Work Clothing and Equipment
8. Housekeeping
9. Hygiene Facilities and Practices
10. Medical Surveillance
11. Medical Removal Protection
12. Communication of Hazards (Construction) or Employee Information of Training (General Industry)
13. Signs (Construction) or Communication of Hazards/Signs (General Industry)
14. Recordkeeping
15. Observation of Monitoring

Employers are required to determine which employees may be exposed to lead and to conduct industrial hygiene exposure monitoring for different work tasks to make initial determinations of whether any tasks create an exposure, without regard to the use of a respirator, that are above the OSHA Action Level of 30 micrograms of lead per cubic meter of air ($30 \mu\text{g}/\text{m}^3$) averaged over an 8-hour period.

Different requirements of the standard are triggered based upon the initial determinations about exposures above the Action Level.

The OSHA lead standards set a permissible exposure limit (PEL) of $50 \mu\text{g}/\text{m}^3$ (micrograms of lead per cubic meter of air) averaged over an eight-hour work shift or period. If the industrial hygiene monitoring results identify lead levels that exceed the permissible exposure limit, the employer must initiate periodic personal sampling or air monitoring tests, institute engineering, administrative and work practices, as well as personal protective controls to ensure that workers are not exposed to hazardous lead levels. In addition, the employer must provide medical surveillance and, if necessary, medical removal protection for all affected workers.

Further, the standards provide for engineering controls, administrative controls, safe work practices, better housekeeping, clean lunchrooms, special washing facilities and lockers, employer-supplied personal protective clothing and safety equipment (including respirators), and, as noted, medical surveillance and medical removal protection for workers removed from the job because of exposure to lead above the regulatory level.

Employers are required to provide an information and training program, initially and annually, for all employees exposed above the Action Level or who may suffer eye or skin irritation to lead.

The training must include: The specific hazards of the work environment; protective measures to be taken; the health hazards of lead, including reproductive hazards; and employee rights under the lead standard. The lead standard and its appendices must be made available to all employees and training must be conducted prior to assignment where there is a possibility of exposure above the Action Level and annually after that.

CWA has always insisted that all employees who may be exposed to lead at any level be provided with training about lead, initially and annually.

10. What are the types of work operations in telecommunications that are most hazardous in terms of potentially high exposures to lead?

Any exposure to lead should be considered hazardous and should be prevented, but there are some work tasks or operations that are considered particularly high risk.

Dry carding of lead-sheathed cables with a carding brush without the use of a lead encapsulating compound or shaving cream in an enclosed space of a manhole or vault is **EXTREMELY DANGEROUS** and will create a large amount of lead dust in the air resulting in a very high exposure. You should **NEVER, EVER** dry card a lead-sheathed cable. There may be alternative methods to clean and/or seal up a cable that don't rely on carding at all. Your employer is responsible for making sure you have the training, equipment, and protections to perform operations safely.

Pulling lead-sheathed cables, sometimes referred to as 'cable mining', from conduit in manholes will result in the release of a lot of lead dust inside the manhole because the lead sheathing is abraded as the cable is pulled. Any lineman/woman who has to re-enter the manhole after a lead sheathed cable has been pulled to attach another cable for removal can have an acute, very high level of exposure if not properly protected. To perform this task, a lineman/woman must be in full protective gear, including the use of an elastomeric respirator with High Efficiency Particulate Air (HEPA) filters which requires prior respirator training, fit-testing and medical clearance to wear the respirator. Protective procedures should also be in place to minimize the amount of lead dust coming out of the manhole as the cable is being pulled, such as spraying the cable at the point of exit. When a lead-sheathed cable is pulled from a manhole, there will be a considerable amount of lead

contamination left in the manhole which can endanger other techs who may then enter the manhole to perform different work in the future.

For certain lead-sheathed cable aerial removals, the cable will be lowered to the ground and reeled up onto a reel for transport. A lot of visible lead dust can come off of the lead-sheathed cable while it is being reeled up if the proper procedures are not followed. The lineman/woman who is guiding the cable onto the reel should be in protective gear, including the use of a respirator, the reel should be sprayed continuously with water to keep the lead dust from getting into the air, all other members of the crew on the ground should stay away from the reel and upwind, and when the cable is reeled up it should be covered with plastic wound over the cable to seal it up prior to transport.

Large scale removals involving lead-sheathed cables, particularly in cable vaults and manholes, can create high levels of lead dust in the air. Large scale removals can be planned or the result of an environmental disaster or emergency. Cutting and then physically handling cut sections of lead-sheathed cable will create lead dust in the air and contamination of the work environment and tools. Work gloves will be contaminated and clothing will be contaminated if not properly protected. The greater the amount of handling of lead sections, the higher the risk of exposure in the absence of appropriate protective measures. Personal protective equipment is critical as are proper decontamination procedures, methods of disposal for PPE and refuse, and isolation of lead contaminated tools that will continue to be used for lead work. For manhole work, any cut sections of lead-sheathed cables should be wrapped in plastic sheeting and taped closed before they are placed in a work vehicle for transport. As part of your employer's lead program, procedures should be in place and followed to prevent lead contamination from being carried away from the worksite into your vehicle, to your garage, into your personal vehicle, or home.

Lead wiping was a practice used in the past which required specialized training and skill. Although this was a process used in the past, there still may be isolated instances of technicians who learned the craft of wiping who may still conduct lead wiping. Lead wiping involves heating lead to a high temperature so that it melts and can be poured and 'wiped' onto a cable to seal it. Melting lead can result in the creation of lead fumes. A metal fume is created when the metal is vaporized and then condenses as very fine, invisible particles in the air. These ultra-small particles present a serious inhalation exposure hazard. Lead wiping should be avoided.

11. What if my employer has not provided me with training about lead?

You should immediately let your steward know. Stewards should inform their local leadership who should relay the information to their District Staff Representative and the CWA Health and Safety Department. CWA leadership will be bringing serious violations like this directly to the employers so that it is fixed at all work locations for all affected employees.

12. I know that I have been exposed to lead at work. What can I do?

While it is not possible to take back past exposures, you can and should prevent any more exposures. There are work practices and procedures to reduce exposures, including the use of personal protective equipment (PPE). Your employer is responsible for making sure you are aware of all procedures and work practices that should be followed to prevent or minimize lead exposures. Your employer is also responsible for ensuring that the PPE and other materials you need to do your job safely are available to you and that you have been trained about all procedures, practices, and use of PPE.

You can also monitor your health closely by regular medical check-ups and making sure to inform your primary care physician (PCP) of your work and exposure to lead. Your PCP may want to conduct additional testing or surveillance for those body systems that can be affected by lead. Not all PCP's are well versed in the effects of lead exposure, so you may consider seeking the advice of an Occupational Medicine physician who has more training and experience in evaluating occupational diseases and exposures.

13. My employer is offering to have me get a blood lead (BL) test on work time. Should I do it?

As a result of the Wall Street Journal articles published in July 2023 which focused on the use of lead-sheathed cables in telecommunications, AT&T, Verizon, Frontier and Lumen have initiated a voluntary blood lead testing opportunity for all affected employees. This is in addition to the standing process the employers already had in place for employees to request a BL test. It should be noted that Lumen is the only major telecom employer that is not providing paid work time for a blood lead test; CWA is in the process of negotiation.

It is good that the employers are focusing on lead and are making blood lead tests available to affected work groups on a voluntary basis. We encourage CWA

members to take advantage of this and to get a blood lead test because a BL test can provide important information about a recent exposure. Your employer is required to provide you with a blood lead test at any time that you have concerns about your exposure to lead or lead health effects you may be experiencing.

If your blood lead level (BLL) comes back high, based on criteria in the OSHA Lead standards for temporary medical removal, the Company will remove you from work involving lead until your blood lead level has dropped and is confirmed by additional blood lead tests.

If you do have an elevated BLL at any level, it is also critical to figure out why you had an exposure and what kind of protections may have been missing that led to your exposure so that the conditions can be corrected and future exposures prevented. It would be helpful for you to speak to your steward or local union leadership. They in turn can get additional advice from your District Staff Representative and the CWA Health and Safety Department.

14. Will retired workers be eligible for the blood lead test?

The blood lead tests being offered are for current employees. A blood lead test for a retired member who has not been working with lead, i.e., has not had recent exposures, would come up negative and not provide useful information. That doesn't mean that retired employees have not had past exposures, just that a blood lead test in the absence of a recent exposure would not be helpful.

15. Is my job protected if I have to have a temporary medical removal?

Yes, there are Medical Removal Protections (MRP) in the OSHA lead standards that protect your seniority, pay, and other benefits so you should not be penalized in any way if you have to have a temporary medical removal from working with lead. The OSHA lead standards provide for up to 18 months of MRP for temporary medical removal as a result of an elevated blood lead level or a medical opinion recommending medical removal because of lead-related health issues.

As per OSHA, 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 a worker 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. The vast majority of removed workers, however, will return to their former jobs long before the eighteen month period expires. The standard contains special provisions to deal with the extraordinary but possible case where a long term worker's blood lead level does not adequately decline during eighteen months of removal.

The OSHA lead standards do not give specific instructions dealing with what an employer must do with a removed worker. Your job assignment upon removal is a matter for you, your employer and your union to work out consistent with existing procedures for job assignments. 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.

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 includes 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 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 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 worker 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.

16. My employer has not made a recent offer for me to voluntarily get a blood lead test. What should I do if I want a BL test?

You still have the right to request a blood lead test and a lead-related medical exam provided by your employer if you have a concern about your work-related lead exposures and your health. You should follow your Company's procedures for making a request.

17. What is CWA doing about lead exposures?

Preventing lead exposures in all represented telecommunications employers is a priority and CWA has done a lot of work spanning decades in this regard. CWA leadership is currently having conversations and negotiating with the major telecommunications companies to ensure all companies are doing what they are required to do under the OSHA lead standards and what CWA believes should be done beyond the regulatory requirements to protect members from lead exposures. CWA wants equal protections across employers and will hold all employers to the same standards.

CWA is also conducting a nationwide assessment of lead work protections and practices in the field to better understand where lead work is conducted and what gaps exist in protections. Members are a critical source of information about what has actually been happening in the field, so when you are asked about your work...whether it is through a CWA survey or by questions from your local union or District leadership...please participate. The only way to really understand how work is being done, is by speaking to members like you who do the work.

CWA remains very concerned about past exposures for all members, retired and current. That is why the CWA Occupational Safety and Health Department has begun collaborative work with researchers to look at the impacts of lead exposures. Research about lead exposures and health impacts requires outside grant funding for the research institutions conducting the research. The CWA Occupational Safety and Health Department is committed to CWA's involvement in future lead-related research opportunities as they become available.