DEPARTMENT OF HEALTH AND HUMAN SERVICES Public Health Service

Centers for Disease Control
and Prevention
National Institute for Occupational
Safety and Health
1090 Tusculum Avenue
Cincinnati OH 45226-1998

March 6, 2025
HHE 2024-0046

Gregory Unczur
EHS Regional Lead, Environmental Health and Safety
Verizon New England
76 Ash Street
Danvers, Massachusetts 01923

Dear Mr. Unczur:

In January 2025, the National Institute for Occupational Safety and Health (NIOSH) visited Verizon New England in Massachusetts for a Health Hazard Evaluation (HHE). The International Brotherhood of Electrical Workers (IBEW) Local 2324, who requested the HHE, was concerned about lead exposure to employees working in and around lead-sheathed cable in underground environments such as telecommunications manholes. This letter gives the results of the air and handwipe tests we did. We have also sent employees a letter with their own results unless they asked us not to do so. An example of the letter we sent employees is enclosed.

What did we do?

- We measured employees' exposures to lead in the air while working underground for at least part of one shift.
- We took post-work hand wipe samples for lead. Handwipe samples were taken after work in the manhole was completed, before employees entered their work vehicle to return home or to their garage, or at the garage after routine hand hygiene activities were completed and before entering their personal vehicles.

What did we compare the results to?

We compared the air sample results to the occupational exposure limit (OEL) for lead of 50 micrograms per cubic meter of air ($\mu g/m^3$) set by the Occupational Safety and Health Administration (OSHA), NIOSH, and the American Conference of Governmental Industrial Hygienists (ACGIH®). An OEL is meant to be the amount of a substance or agent that most employees can be exposed to without harm. Employers are required to keep exposure below the OSHA permissible exposure limit (PEL). Additionally, OSHA has an action level (AL) of 30 $\mu g/m^3$ as an 8-hour time-weighted average (TWA). If occupational exposures are at or above the action level, employers should refer to the OSHA regulations for specific compliance activities such as air monitoring, instituting a medical surveillance program (e.g., blood lead testing), and providing training and education that are intended to reduce lead exposures.

Neither NIOSH, OSHA, nor ACGIH has OELs for lead on hands. However, chemicals on a person's skin can add to their exposure. Also, if this substance is on a person's hands when they leave work, it can be transferred to other people or to surfaces in their car or home.

What did we find?

Results of personal air sampling for lead are shown in Table 1 below. All employee exposures in air were below the lowest OEL. One employee's exposure in air was above the OSHA action level.

Table 1. Personal air sample results, in micrograms per cubic meter

Job title	Number of samples	8-hour TWA exposure (range)
Splice Service Technician	4	2.7–32*
Outside Plant Technician	2	ND–0.27†
Occupational exposure limits (OELs)		
NIOSH recommended exposure limit (REL)		50
ACGIH threshold limit value (TLV)		50
OSHA PEL		50
OSHA AL		30

ND = not detected. This result was below the minimum detectable concentration for this sample of 0.7 µg/m^3

*One employee's result exceeded the OSHA action level.

†One employee's result was between this sample's minimum detectable concentration and the minimum quantifiable concentration which means there is more uncertainty in this value.

Results of post-work handwipe sampling for lead are shown in Table 2 below. We found lead on employees' hands after routine hand hygiene. This may add to their exposure to lead and contribute to take-home lead exposure. The highest post-work handwipe sample result was taken from an employee after they exited the manhole and doffed personal protective equipment, before routine hand hygiene in the field. Some post-work handwipe samples were taken before employees returned to the garage. Post-work handwipe samples taken from both splice service technicians and outside plant technicians after routine hand hygiene at the garage and before entering personal vehicles ranged from 1.3 through 13 micrograms per handwipe.

Table 2. Post-work handwipe* sample results, in micrograms

Job title	Number of samples	Range (median)
Splice Service Technician	4	4.8–83 (29)
Outside Plant Technician	5	1.3–13 (11)

*Handwipe samples were taken after work in manholes was completed, before employees entered their work vehicle to return home or to their garage, or at the garage after routine hand hygiene activities were completed and before entering their personal vehicles.

What happens next?

In addition to the preliminary guidance we gave in our letters on September 24, 2024, we recommend the following actions:

- Because personal air sampling results indicate the possibility for employees to be exposed to levels of lead in air at or above the OSHA action level, follow the actions outlined in the OSHA lead standard (29 CFR 1910.1025).
- Schedule time for employees to regularly clean commonly touched surfaces in vehicles with lead removal wipes. This could potentially be during weekly glove checks or more frequently as needed.
- Emphasize the importance of hand hygiene before eating, entering work vehicles, entering personal vehicles, and leaving the worksite.
    - Provide employees with time and supplies to thoroughly clean hands at field sites before breaks, especially before eating.
    - Consider providing employees with lead removal wipes for cleaning hands when soap and water are not available at field sites.
    - Consider providing lead removal soap for employees to clean hands at the garages before leaving the worksite.

This letter summarizes our results so far. We will contact you to arrange another visit if needed. We recommend that you share this letter with employees.

If you have questions, please contact Jessica Li by email at jessica.li@cdc.gov or by phone at (513) 841-4439.

Sincerely,

Jessica F. Li -S
Digitally signed by Jessica F. Li -S
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Jessica F. Li, MSPH, CIH
Industrial Hygienist
Hazard Evaluations and Technical Assistance Branch
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cc:
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