

LEAD DUST CLEANING PROTOCOL FOR MANUFACTURING OPERATIONS

PROJECT OVERVIEW

ESE developed a Lead Dust Cleaning Protocol for a Texas manufacturing facility where select employees regularly handle lead components as part of routine production tasks. The protocol was designed to minimize employee exposure, prevent secondary contamination beyond the work area, and establish a consistent, defensible approach to housekeeping, disposal, training, and performance verification.

CHALLENGES

An initial industrial hygiene investigation confirmed airborne lead concentrations were below OSHA permissible exposure limits, while surface wipe sampling identified lead dust on work surfaces above housekeeping guidelines used to support OSHA housekeeping requirements. With approximately 30 personnel involved in lead-related tasks and lead materials distributed across multiple work areas, the facility needed standardized procedures that could be implemented consistently without disrupting operations.

ESE'S APPROACH

ESE established a practical, operations-ready protocol aligned with OSHA lead requirements and applicable waste management regulations, including clear roles, required equipment, standard work practices, and a step-by-step cleaning method. The protocol specifies a top-down cleaning sequence using HEPA vacuuming and lead-specific wet cleaning methods, followed by optional verification techniques to confirm efficacy, and it provides guidance for disposal, documentation, and ongoing implementation through a defined schedule and training expectations.

KEY ELEMENTS IMPLEMENTED

- Defined work practice controls to reduce ingestion and inhalation risk, including hygiene expectations and storage practices for lead materials
- Specified equipment and materials, including HEPA vacuuming, lead-removal wipes, and lead cleaning agents
- Established a repeatable cleaning procedure for workstations, tools, and surrounding floors, including HEPA passes and wet cleaning steps
- Provided disposal guidance tied to RCRA and Texas industrial waste classification, including TCLP-based decision support
- Set an implementation schedule of weekly cleaning while lead materials are in use and defined minimum training topics for affected personnel

RESULTS

The facility received a standardized, repeatable protocol that supports OSHA housekeeping expectations, reduces the likelihood of lead dust migration beyond production areas, and provides a clear framework for ongoing monitoring and continuous improvement. The approach pairs operational practicality with regulatory alignment to help maintain a cleaner work environment and lower long-term exposure risk.

PROJECT IMPACT

Workplace exposure management is most effective when it is built into daily operations rather than treated as a one-time response. By translating industrial hygiene findings into a clear, implementable cleaning and training program, ESE helped the facility reduce uncertainty, protect workers, and strengthen compliance readiness through a protocol that can be maintained, audited, and updated as conditions evolve.