

# Lead in the Work Environment: Exposure Management



**CLYDE ERETH  
NDDOT  
MAINTENANCE DIVISION  
SAFETY**

# Elements of Control



- 1. Monitoring
- 2. Medical Surveillance
- 3. Training
- 4. Regulated Area Establishment
- 5. Engineering & Work Practice Controls
- 6. Personal Protective Equipment (PPE)
- 7. Housekeeping and Hygiene Practices
- 8. Signage of Worksite Hazard

# Monitoring



- Must do an exposure assessment that includes monitoring if any employee is exposed above the action level.
- Until monitoring is completed to show levels below action exposure levels (30 ug/m<sup>3</sup>) employees will be treated as though they are above the permissible exposure limit (PEL) (50 ug/m<sup>3</sup> average over an eight hour day).
- Personal monitoring samples must be representative of a full shift for each employee.
- Employees MUST be provided the monitoring results no later than 5 days after receipt of results
- Notification can be accomplished either individually in writing or posting in an employee accessible area

# Medical Surveillance



- All employees exposed to the *action level* or above (30ug/m<sup>3</sup> averaged over an eight hour day) will receive medical surveillance including biological monitoring (blood tests).
- Tests are for blood lead and Zinc Protoporphyn (ZPP) level.
- Tests done at least every two months following initial for the first 6 months and every 6 months thereafter.
- Within 5 working days of test results receipt employees will be notified of the results.
- Temporary medical removal for blood lead tests above 40[ $\mu$ ]g/dl and f/u physical exams is required.
- There are additional medical monitoring requirements when respirators are used. This includes medical examination and fit testing.
- OSHA also requires PE's in other situations such as when there are symptoms of lead intoxication.

# Training



- **Inform employees of the potential hazards associated with over exposure to lead**
- **Respiratory protection program**

# Regulated Area



# Regulated Area



# Regulated Area



# Engineering and Work Practice Controls



- **Engineering controls**
- **Work practice controls that reduces an employees TWA exposure to lead**
- **This can include mechanical ventilation**

# Personal Protective Equipment



- Includes Respiratory Protection if an employees requests a respirator, or if an employee is exposed to levels at or above the PEL after engineering/administrative controls are in place.
- Coveralls
- Shoe covers
- Head covers
- Eye Protection
- Gloves

Protective clothing must be provided at no cost when levels above the PEL

# Housekeeping/Hygiene Practices



- Facilities for handwashing, showering, eating facilities, and change areas that prevents cross contamination.
- Clothing must be replaced/repared as necessary to maintain effectiveness.
- Surfaces must be maintained as free as practical of accumulations of lead.
- Minimize creating airborne lead when cleaning.
- Shoveling, dry or wet sweeping, and brushing can only be used when vacuuming has been tried and found to be not as effective.
- Vacuums must have HEPA filters and emptied minimizing reentry of lead to the workplace.

# Signage of Worksite Hazard – NEW 6/1/2016



- **DANGER**
- **LEAD WORK AREA**
- **MAY DAMAGE FERTILITY OR UNBORN CHILD**
- **CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM**
- **DO NOT EAT, DRINK OR SMOKE IN THIS AREA**

# Recordkeeping Requirements



- **Exposure assessment/monitoring**
- **Medical surveillance**
- **Medical removals**
- **Objective data for exemption from requirement for initial monitoring**