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ABSTRACT

This paper examines the lead issue in school buildings, noting that even minimal exposures to lead can create diagnosable health problems in children. It includes comments about current regulations and laws pertaining to the areas of soil, water, air, debris disposal, surfaces, and level of lead in the blood. It also lists responses to lead that schools should take and those that they should avoid. (Includes a list of safeguards for schools undergoing renovation or remodeling programs to reduce or remove lead, a suggested school board policy statement for lead poisoning prevention, and a lead metal information sheet.) (GR)

Lead in American Schools:

What School Districts Should and Should Not Do

INSTITUTE for ENVIRONMENTAL ASSESSMENT

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LEAD IN AMERICAN SCHOOLS: WHAT SCHOOL DISTRICTS SHOULD AND SHOULD NOT DO

There is lead in schools, and new health concerns and regulations regarding potential lead exposures will change the way schools are run.

The fear, confusion and costs schools experienced regarding abestos must and can be avoided if administrators come to understand, early on, what the lead risk issue really is and is not.

Risk and Regulation

- Risk

Responsible environmental regulation is based upon perceived risk. When there is a new finding of perceived risk, federal, state and local units of government attempt, in good faith, to move to eliminate the risk. Depending upon how complex the issue is, there are often periods of confusion when the regulatory system seems unsteady. This is not reassuring to those who manage property. In the case of asbestos, there had been regulations for years--both employee safety regulations under OSHA, which were rarely enforced, and EPA regulations, which were periodically altered and communicated to school districts. School administrators of the late 1970s and early '80s remember receiving a different-colored EPA asbestos manual each year for five consecutive years. The manuals were rarely read and the guidelines rarely followed; enforcement was sporadic or negligible. What changed with asbestos in the late 1980s was the passage of the federal asbestos act. For the first time, there was an enforcement structure in place and a requirement that parents and employees be told if a "carcinogen"--asbestos--was in their children's school buildings. Now, with new concerns regarding lead, the eventual enforcement of regulation will become just as real, based on Federal Title X, existing OSHA law and the federal mandate for enforcement, though it is important not to confuse the recommended response to lead with that for asbestos.

The lead law and its federal enforcement structure are driven by the clear public health realization that even minimal levels of lead exposures to children and somewhat more extensive exposures to adults really do create diagnosable health problems. The general health risk from lead has been understood for literally hundreds of years; knowledge of the profound harm to children from low levels of exposure is recent, definite and without question.

There is nonpartisan commitment among American policymakers to deal with lead and risk to children. Dr. Louis Sullivan, Secretary of Health and Human Services in the Bush Administration, called lead exposure the most serious environmental health threat to American children, and enforcement of new laws will be carried out with vigor by the Clinton Administration, probably using the states as key enforcement arms.

Today, between 5-17% of children in the United States have blood lead levels which theoretically are causing lower IQs; once discovered by parents, this won't be tolerated. It is the concern of students, parents and employees, combined with empowering regulation, which will drive schools to respond. It's important that they are prepared to respond wisely.

• Regulation

We will comment on the current status of regulation and law, moving from the least significant in terms of health risk and school responsibility to what in our view are the most significant factors in terms of responsibilities of school administrators.

1. Soil

Regulations regarding soil vary from state to state. The theory here is that if there is lead in the soil, children are likely to ingest or inhale it as part of outdoor play. This is probably not a major source of exposure except in unique locations--underneath bridges or water towers that have been scraped; sites of former industrial/heavy metal activities; and possibly playgrounds near freeways where decades of lead-bearing vehicle exhaust fumes have created lead deposits. There is less concern where there is grass because plant life absorbs and dilutes lead burden in soil. Typically, the thresholds which indicate that soil needs remediation are between 100 and 1,000 parts per million. Again, the regulation and threshold vary by state. The testing of a small sample of playground soil, perhaps at the foot of a slide, is generally a straightforward and inexpensive process. Remediation is equally inexpensive.

2. Water

Water is a major source of lead exposure but the pattern for and history of testing water systems has been in place for years. The threshold is generally 15 ug per liter of water. This standard, established by EPA 40 CFR, Part 141.80, was adopted for virtually all water systems in the United States, although several states have amended the thresholds and established different protocols for testing and systems for response. Regulations are now being amended in many states based upon new concerns regarding risk and the new blood lead thresholds for risk.

The water in drinking fountains and in food service areas should be tested by an accredited laboratory and records of the tests and protocol for response carefully archived. Above all, after any remediation or as part of any flushing protocol, retesting should be done to assure that the system is working.

3. Air

While air was a major source of contamination with asbestos, it generally is not for lead, except among direct-contact workers. While asbestos particles can float for days because of their weight and shape, particles of lead, with their high specific gravity and non-aerodynamic shape, will rapidly drop out of the ambient air to become a persistent, hard to remove component of the dust matrix.

The ambient air standard for lead is a time-weighted scale found in EPA 40CFR 50.12; it is extremely high and is unlikely to be encountered in other than work sites. Testing to see if there are lead problems in the ambient air of a school building does not typically make sense unless something has occurred, i.e. use of lead-bearing products in a kiln, an activity which engenders metal fumes or high-abrasion construction activity.

There is concern regarding airborne lead for workers engaged in hands-on construction. Under OSHA 29CFR 1926.62, a threshold is established for those working near metal fumes or sawing/scraping lead-bearing material where 30 micrograms per cubic meter become airborne. Essentially, the district or contractor must prove that this level was **not** reached if a lead paint-coated surface is broken. Certain engineering controls and personal protection may be required if this threshold is reached.

OSHA 29CFR 1910.1025/29CFR 1926.62 set a standard of 50 micrograms per cubic meter PEL (permissible exposure limit), above which workers **must** use personal protection, i.e. a respirator, and other, more stringent controls.

The Institute recently tested a small sampling of adults working on renovation of two buildings within a school district and found that they had blood lead levels indicating high exposure--an average of 25 ug/deciliter. These were construction workers who were removing walls, scraping lockers and performing general renovation/ remodeling. The concern for workers regarding air contamination is real, and the personal protection air test on site is the standard which must be used.

4. Debris Disposal

There is a process defined in EPA 40CFR 261 which states that if debris goes through a Toxicity Characteristic Leachate Procedure (TCLP), where water is essentially poured through the debris and, if the test fails, i.e. lead leaches out of the debris, the debris must be maintained in a certain type of landfill, usually termed a Class C landfill. This will influence how districts handle debris from renovation and remodeling. Essentially, the dust from construction projects should be separated from rougher debris, bagged and disposed of separately. There are efforts at the national level to bring

consistency to lead disposal requirements; different states may handle disposal in different ways.

5. Surfaces

Regarding painted surfaces, present Consumer Product Safety Commission (CPSC) guidelines indicate that paint may not contain lead in excess of 0.06% by weight. Based on the specific gravity of lead vs. the specific gravity of paint, this represents minimal concern, but one should be aware that lead may still be bound into paint, especially as a pigment. There should be no concern regarding lead in newer commercial paint unless leaded paint is specified for purchase. Out of nearly 400 paint samples tested by CPSC, only one brand and pigment was above the threshold, and then only by a small margin.

While new commercial paints for buildings are safe, paint used in fine arts classes in schools are not. Since young children suffer the most profound effects from exposure, and such exposure usually occurs from the dust matrix on surfaces, these paint standards are extremely important. More detailed guidelines will evolve through the EPA under Title X but, at present, there are only the HUD interim guidelines for dust. There is a presumed dangerous situation if one finds 200 micrograms/sq. ft. on floor surfaces. On windowsills reachable by children, the threshold is 500 micrograms/sq.ft. On areas outside the child's reach, the threshold is 800 micrograms/sq.ft. Windowsills nearly always have higher levels of lead present because lead is typically found in the paint used on outdoor surfaces of windows, and the impact of opening and closing the window tends to abrade the paint and result in dust containing lead. Some states have enacted more stringent standards for windowsills, as well as floors and window wells. The EPA has actually set a standard of 100 micrograms per sq. ft.

In our view, if any detectable lead is found in the dust matrix in a school classroom, the room should be cleaned with a chelating agent (a product containing a component that attracts and removes some heavy metals, e.g. Spin and Span), and the source of exposure identified and arrested to the degree possible. We believe this upgraded cleaning regimen should be the foundation of a school district's lead management plan.

6. Blood

In our recent experience with school districts, the concerns of parents and employees are greatest when high blood lead counts are discovered--undeniable proof that a child has had exposure to lead, which exposure can be expected to degrade the child's intelligence. The current threshold under OSHA for workers (OSHA 29CFR 1910.1025 and OSHA 29CFR 1926.62) is 40 micrograms per deciliter. The exposure threshold for children is 10 micrograms per deciliter, with strong pressure from the medical community to lower that threshold still further. It must be emphasized that exposure to even tiny doses of lead can create elevated blood lead levels in children.

Blood lead levels serve as a clear indicator of exposure; understanding blood lead counts will be important in establishing safe work practices and responsible property management.

Responses to Lead Which Schools Should Avoid:

• Do not Undertake Wholesale Removal

Regarding asbestos, the first tendency for many school districts was to create "asbestos-free" buildings. This was understandable. Parents were afraid to have their children housed in buildings containing a known carcinogen and employees were worried about working in such buildings. By law, districts had to annually tell everyone that the building contained a potential cancer-causing compound. The results were historic, both in terms of unnecessary abatement and unnecessary human exposure due to poorly executed abatement methods.

With lead, the situation could be much the same. One state health department has been willing to go on record as stating that 25% of the high blood lead levels in children are the direct result of improper abatement of lead, i.e. people scraping lead off surfaces without using proper engineering controls. Most lead abatement firms were once involved in asbestos abatement and removal and there is a tendency for them to treat lead like asbestos--even though the two compounds are extremely different--focusing on ambient air rather than debris and cleanup.

Removal should be avoided unless generated by special concerns, then on a limited, carefully monitored basis. A pipe with peeling lead-bearing paint would be a prime and proper candidate for removal and repainting (encapsulating) by workers with proper protection and commonsense hygiene controls. Wholesale removal because of the mere presence of lead in a painted surface does not now and may never make sense. The lead abatement industry is generally untried and untrained at present.

DO NOT UNDERTAKE REMOVAL UNLESS THERE IS A SPECIAL SITUATION OR CONCERN, and then proceed with caution.

• Do not Accept or Purchase Property Without a Proper Lead Assessment

Some of the more sophisticated private property managers have been getting into the business of selling or even giving away property, sometimes to schools, that contains lead-bearing materials or where lead debris was created as part of industrial processes. This has happened, too, with buildings containing polychlorinated biphenyls or asbestos. By 1996, under Title X, no piece of property in America can change hands without a proper lead assessment and/or a stringent federal lead warning. This may devalue some poorly-managed property, including homes, schools and factories built before 1978 that is likely to have lead-bearing paint, and especially those constructed before 1960. Assessing the lead situation will become important in purchasing, selling or dealing with properties in other ways.

Decisions regarding relocation of students in various buildings should take into consideration some sort of lead assessment process. Laws proposed in Congress requiring assessment of schools focus only on elementary schools. All things being equal, putting elementary students in an older building likely to have lead-bearing components generally should be avoided. Understanding potential lead exposures will be important in terms of how and where you locate students in buildings and how you assess your portfolio of property.

• Postpone Formal Lead Inspections

Lead poison prevention procedures are important, but the Institute advises against undertaking a formal, detailed lead inspection of your property at this point. This is an expensive undertaking and may have to be completed again, under regulation, at some time in the future, using special guidelines. The use of XRF technologies may be required and the costs could be high. **Districts need to know how to perform a basic inspection** in case there is a problem such as a cluster of high blood lead counts, or **how to conduct an assessment of a specific area** if a painted surface is to be disturbed. Formal inspections, however, would be premature because of still evolving federal regulations.

The Institute will perform lead inspections in situations where parents or local public health officials are worried because of high blood levels in children. In such cases, it is usually worth a few thousand dollars for administrators to determine if the building could be contributing to the endangerment of a specific set of students. It should be noted that such inspections may have to be partially or completely redone when new federal guidelines are in place.

Responses to Lead Schools Should Undertake:

• Sample the Dust

The district should use wipe sampling techniques to test the floors, windowsills and other surface areas in PreKindergarten, Kindergarten, First and Second Grade classrooms, and should consider such sampling in other areas where hand-to-mouth (pica) activity is present, i.e. areas housing students with developmental disabilities, food preparation areas etc. The sampling process can easily be completed by district staff and is inexpensive.

In some districts, the Institute has been asked to conduct dust sampling in elementary classrooms in conjunction with Third-Year asbestos (AHERA) reinspections. Dust sampling quickly indicates whether or not the area is a source of what has been viewed as the major route of lead exposure for younger children. If there is no lead in the dust, the likelihood of exposures in the school is dramatically diminished, no matter what is on the walls in terms of paint. If lead counts are high, the response is usually straightforward: a thorough cleaning of surfaces with trisodium phosphate (Spic & Span) or other chelating compounds, an upgrading of general hygiene measures in the building and, where necessary, encapsulating and isolating lead bearing painted surfaces. Removal may be necessary after a thoughtful assessment.

• Provide Lead Information and Warnings to Staff

Schools in most states have a mandate under the Hazard Communication Standard, i.e. Employee Right to Know Law, to provide warnings to employees regarding products or situations in the workplace which may be harmful. The safety data sheet for lead as a generic compound is attached to this document and should be accessible to those employees in areas typically involving sources of direct exposures to lead--maintenance, fine arts, some lab sciences and industrial arts. Because of the newly understood risk from lead exposure and the importance of general hygiene as a preventive measure, there is a necessity to inform those who may come into contact with lead of the potential risks. Basic training and

communications to staff regarding risks from heavy metals are necessary and almost certainly required by statute in your area.

• Determine Sources of Lead Exposures through Review of Products and Processes

Products that are lead bearing, particularly in elementary art, need to be removed from use or used only with the proper personal protection or controls. Metalworking, soldering or welding with exotic metals, jewelrymaking and some activities relative to kiln use, printing or photography should be assessed to determine doses and potential routes of exposure.

The need for these precautions helps to emphasize the importance of a districtwide policy regarding lead. The person in charge of lead poison prevention in the district must have the authority to identify and at least potentially remove products that are being used in any portion of the school district. Lead control within a district must logically move beyond property maintenance and construction standards toward a public health-based decisionmaking process.

The Institute has identified areas where lead-bearing products may potentially be found in schools. Now that we understand the risks to children from lead exposures, the district must be involved in controlling exposures, at least through warnings, just as asbestos manufacturing companies must now include health warnings in the production and distribution of asbestos. The district must not directly poison students with unwisely purchased educational products.

Rules regarding purchase and use of products must be institutionalized throughout the district. It is not an expensive process but it does require administrative knowledge and authority.

• Gain an Ability to Inspect and Assess for Lead

The district needs the competency to contract for or coordinate internally a formal, detailed lead inspection if a problem should arise or if there is some concern or suspicion on the part of parents or employees that there may be exposure and risk. The only protocol for inspection at this point has been developed through HUD and, unfortunately, information about how to handle lead in a housing situation does not usually translate well into how to most efficiently handle lead in a school building. Typically, the lead inspection involves use of an XRF (portable x-ray machine). As with asbestos, the use of a lead abatement/removal contractor to do a building assessment is generally unwise as there is an inherent tendency for over-response. The assessment should be conducted by individuals financially detached from the abatement industry who will review the building from a public health perspective. Since, at this point, there are no firm and clear regulations regarding building status, it is open to subjective interpretation.

• Understanding Blood Lead Levels

Discovery of high blood lead counts which cross the new federal thresholds will understandably trigger serious and intense parental concern if the building is thought to be contributing to the poisoning. A knowledge of what blood readings mean can help a district defend its governance of the property. For instance, certain types of blood tests have an extremely high level of false positives, i.e. it will look as though someone has been harmed by exposures, yet when better testing is conducted, it will show that that is not the case. Understanding the different blood

analysis protocols, what the different blood lead thresholds mean, and identifying and interpreting that into the potential liability of the building will become important for building administrators regarding workers and students.. It is also important to understand that, unlike asbestos, alleged lead exposures can be medically measured; this has worked to the advantage of property managers. Blood assessment is now the standard that must be used under the OSHA lead standard for all potentially exposed workers.

• Lead Safeguards in Renovation/Remodeling Specifications and Contractor Conduct

The most obvious and immediate change for the district regarding lead will be in its handling of renovation and remodeling projects. Such projects and the resultant debris are a major cause of exposures for children in the United States, whether in the home, daycare center or school, or carried home on the clothes of working parents.

The following are lead-oriented safeguards we have developed and suggest for incorporation in renovation/remodeling project specifications for school districts. Specific recommendations and standard operating procedures may evolve but we believe the following make sense at this point, given a liberal reading of Title X (29CFR 1926.62), and each can be implemented without great expense. Some of these should be folded into the construction project specifications and others should be carried out separately from the renovation or remodeling contractor.

1. Do Background Testing

Prior to the renovation/remodeling, the building owner should take a sample of paint from surfaces to be broken, abraded or otherwise impacted. The sample should be tested by a qualified laboratory using atomic absorption (AA) as the analytical method. An alternate would be to use the XRF detection method, although our sense is that, at this point, most individuals using the XRF method do not have the hands-on experience necessary to gain an accurate reading, nor is the method inherently accurate. Recently, Consumer Products Safety Commission and Massachusetts Institute of Technology researchers have seriously questioned the **sole** use of XRF in property assessment as a guide for engineering controls. An alternate method would be to use chemical testing with some selective AA validation of XRF readings. Atomic absorption is the premier testing mechanism but the costs can be prohibitive if used extensively; AA can properly be complemented by chemical and XRF assessments.

Remember, at this point there are no certified laboratories for anything other than water analysis for lead. You must use a reliable, trusted laboratory that has no inherent financial investment in finding or not finding lead burden in paint, air, soil or dust. Remember, XRF assessment can be subjective.

We also believe wipe sampling/testing prior to construction, renovation or remodeling is wise. You essentially use a kit to sample the existing dust matrix for lead burden.

2. Communicate with Contractor

It is important to communicate to the contractor, in writing, that there is lead on surfaces which may be abraded. Without this formal communication, and a record of it, the warning to the contractor's employees or subcontractors will fall to the district and any consequent harm in terms of worker exposures or exposures to the worker's family could rest with the district. If the construction area appears to require lead monitoring, the district should consider contacting a third party for performing or monitoring the testing.

3. Control Regulated Area

Within the project specification, there should be guidelines to control the area, to separate people in the area from contact with debris. This may involve a higher standard of isolation, using polyethylene to seal off corridors, and use of warning signs and rules regarding access to the construction area. These controls can be designed and submitted by the contractor or included within the specification guidelines. Use of negative air should be considered but typically are not necessary, considering how rapidly lead particles drop out of ambient air.

4. Cover Carpeting

One possible route of lead exposure may be through lead burden in debris which is nesting in the carpeting. Directing that carpeting in the construction area be covered with two layers of polyethylene is inexpensive and good policy. There is not a regulatory standard for testing carpeting for lead burden, yet, efforts to do so may be one of the most effective ways to protect children. There are guidelines established by HUD and some states have suggested protocols.

5. Lock Out Air Handling System

While lead settles out of the ambient air rapidly, any dust or debris that might be pumped throughout the building could result in extensive exposures and create a need for major cleaning. Simply shutting down the air handling system is often not enough; construction workers who are working overtime in dead-air conditions are likely to turn on the air handling system because of heat, cold or simply a desire for fresh air. Physically locking out the air handling system during renovation or remodeling should be part of the specification or actually performed by the building owner. This will complement the OSHA-mandated plan for lockout/tagout, as well as providing an important safeguard. It's important to study the location of vents and defusers; in some remodeling, they may passively collect debris.

6. Control Debris

Rules regarding how debris is controlled should be incorporated in the project specification, e.g. a request that loose, dust-type debris be segregated from rough debris at the end of the working day, bagged and placed in a locked dumpster. Different states may have differing regulations in this matter. The work site should not be allowed to have inches of dust and debris accumulating as cleaning will be difficult and the potential for

contamination will be greater. The specification should direct that the area be wet-mopped periodically throughout the project. Though sewering of the soiled water should not represent a risk, we suggest that the district contact a local waste water authority to verify the disposal. The filtering of water is neither expensive nor complicated, and we believe it is always good policy.

7. Implement Cleaning Rules

Rules requiring basic mopping of the area, precluding the use of blowers, and guidelines for basic construction hygiene should be enumerated as part of the specification. Under some conditions, HEPA (High Efficiency Particulate Air) cleaning should be considered, but it will not be as standardized as for asbestos.

8. Entry/Exit

Rules should be established by the building owner, or the contractor should be directed to establish rules, that will prohibit the tracking of debris beyond the construction area, especially through occupied areas of the building This should probably be enforced through physical barriers in addition to rules. Rules should be implemented for how debris is hauled out of the building, segregated and stored so that it is separated from children and other occupants and cannot reasonably be expected to contaminate the building or neighborhood.

9. Disposal

Under Toxicity Characteristic Leachate Procedure (TCLP) guidelines, it may be necessary for portions of the debris to go to a controlled landfill. This makes it extremely cost effective to separate coarse debris from dust-type debris. Under no circumstances should lead-bearing debris be incinerated.

We have confronted recent situations where school administrators have been persuaded to treat all debris as potentially hazardous, i.e. lead bearing, to avoid liability problems. We consider this unnecessary. A reasonable segregation of the dust from the coarse debris should eliminate the expense of using a sited landfill for all the material. Given the governance of existing landfills, assuming they're not near aquifers, folding lead back into soil should not represent a meaningful risk in terms of environmental policy or public health. While different state regulations may be forthcoming on this matter, for now, bagged dust containing heavy amounts of lead belongs in a controlled landfill, but rough debris does not.

10. Post-Project Procedures - Cleaning/Clearance Testing

The most important procedure in renovation/remodeling is a background cleaning/testing before children reoccupy the area. While particularly true around younger children, this should happen with all renovation and remodeling. The contractor should be required to clean, generally using trisodium phosphate or other chemicals with a chelating action, and HEPA cleaning should be considered or required. Most typical cleaning procedures will not effectively pull lead out of the dust matrix; chelating

agents will make a substantial difference. The most common of these cleaners is Spic & Span, although there are several new compounds on the market, and straight trisodium phosphate can also be purchased.

Following the cleaning, the district itself--not the contractor--should use a wipe sample testing procedure to make certain that there is no lead debris on horizontal surfaces at a level which may potentially cause contamination of children. A post-construction, dust-controlling cleaning should be required and the area retested.

All of the above should be carefully recorded and archived with the construction documents. If children are identified with high blood lead counts under the new CDC guidelines, it will be important to prove that the school buildings and rooms which children occupied were managed to appropriate hygienic standards during renovation/remodeling.

◦ School Policy

Attached is a one-page description of what we view as a responsible outline for a school board lead policy. This has been created by the Institute with input from several state school board associations, but it has not been formally adopted or supported by the National School Boards Association. We have recommended it to a number of individual school districts and state school boards associations, where it was well received. Every district handles policy development in different ways, but to us, this policy provides the proper perspective and will help to inspire support for the administrators charged with managing the district's lead policy.

• Water Testing

Laws have been in effect for many years regarding testing for lead in water coolers and food service areas. Proper testing procedures, use of certified laboratories and properly archived records are important in this matter. Records of how, where and when the samples were drawn and how they were analyzed should be saved by the district. The Institute has a list of water cooler brands and models that have been identified as containing lead components; if any of these are in place in the building, they should be reconfigured or eliminated. Several states are amending their protocol for flushing water so districts should check with their State Department of Health.

◦ Curriculum

An environmental curriculum dealing with lead has been developed by the Minnesota Institute of Public Health, a nonprofit group which for 20 years has provided health programming and curricula for schools. Their pattern for teaching about lead involves selectively folding the different lesson plans regarding heavy metal risk into existing curricula at different grade levels, in nondisruptive ways. Incorporating this type of curriculum will demonstrate that the district is helping to safeguard children from lead poisoning using its strongest asset--its ability to teach. Since the most salient exposures occur to children of preschool age in homes, this can have great value,both in the present home life of students with younger siblings and for our next generation.

• Cleaning Regimen

The standard regimen and guidelines for cleaning buildings may need to be altered, given our new understanding of routes of lead exposures. Particularly where lead is found in the dust matrix, it would be important to consider wet-mopping using special cleaning agents, or implement procedures for wet-vacuuming carpeting more frequently with chelating agents. A problem with lead dust is that it tastes good (sweet) to young children, and lead dust will adhere to a toy or hands and be readily ingested by a child, so efforts must be undertaken to clean up as much dust as possible. Lead does not clean up well using traditional methods and vacuuming will be unlikely to pick up lead because of its lack of charge and high specific gravity. Wet cleaning methods with a chelating agent may need to be employed in pre-1978 buildings, especially those housing younger children.

CONCLUSION

The problem before school administrators is real, and the Institute would like to help in its resolution. We have designed a lead program for school districts to help assure safety and compliance, especially regarding renovation/cleanup.

If you would like additional information regarding the Institute's lead poison prevention program, please contact:

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SUGGESTED SCHOOL BOARD POLICY FOR PREVENTION OF LEAD POISONING

This suggested policy was prepared by the Institute for Environmental Assessment on behalf of the Michigan Association of School Boards and presented to the State School Boards Association Directors at a Meeting of the National School Boards Association.

WHEREAS, it is now understood that exposures to lead in doses much smaller than previously thought represent a definable risk to children's health and their ability to learn,

NOW, THEREFORE, the _____ School District will undertake the following efforts:

- The District will attempt to control the use and maintenance of lead-bearing building products and avoid the use of any educational or maintenance procedures and products which may create lead exposures.

- The District assures that a curriculum and a parent/guardian outreach program will be implemented to properly communicate information regarding risks from lead and other heavy metals in an attempt to help prevent exposures.

IEA PRODUCT SAFETY DATA

The information on this form is generally supplied by manufacturers or wholesalers of the products or compounds. Considering the changing findings regarding compounds and health, the information contained herein may not be the final word in health and safety but should represent a sound starting point.

REVIEWED INDEPENDENTLY:

YES ☐ NO ☐

Date: 10/11/90

PRODUCT: LEAD METAL

Chemical Name or Synonyms: Lead Metal, Granular

Mfr.: Sargent-Welch Scientific Company
Address: 7300 N. Linder Avenue
Skokie, IL 60077 Phone: 312-677-0600

SAFETY EQUIPMENT:

Safety equipment is sometimes required only under specific conditions, but even if it is not suggested here, it still should be considered for use. (See PRECAUTIONS section for more information.)

EMERGENCY:

Emergency Phone: 312-677-0600 Carcinogenicity: Not available
NTP: IARC: OSHA:

EMERGENCY FIRST AID:

EYES: Flush with flowing water for at least 15 minutes. Seek medical attention.

SKIN: Wash contact area thoroughly with soap and water.

INHALATION: Move to fresh air. Seek medical attention.

INGESTION: If conscious, have patient drink water and induce vomiting. Seek immediate medical attention.

ROUTES OF ENTRY: Not available INHALATION: INGESTION: SKIN:

SIGNS & SYMPTOMS OF EXPOSURE: Inhalation of dust or fumes from melted lead or ingestion may cause lead poisoning.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Not available

HEALTH HAZARDS (Chronic and Acute): Not available

LIMITS OF SAFE USE (TLV): 0.2 mg/m3

PRECAUTIONS:

BREATHING PROTECTION: NIOSH approved respirator if creating dust or fumes.

VENTILATION: Local exhaust if creating dust or fumes.

PROTECTIVE GLOVES: Rubber gloves.

EYES: Eye protection recommended and emergency eyewash.

OTHER: Laboratory apron or coat.

CHEMICAL FAMILY:
FORMULA:

PRODUCT: LEAD METAL

POTENTIALLY HAZARDOUS INGREDIENTS:

	%	OSHA PEL	TLV
Not applicable			

PHYSICAL DATA:

APPEARANCE AND ODOR: Metalic - odorless.

BOILING POINT: 2935°F

SPECIFIC GRAVITY (Water=1): 11.34

VAPOR PRESSURE (MMHG): Not applicable

% OF VOLATILES BY VOLUME: Not applicable

VAPOR DENSITY (AIR=1): Not applicable

EVAPORATING RATE: Not applicable

SOLUBILITY IN WATER: Insoluble

MELTING POINT: Not available

FIRE, EXPLOSION & REACTIVITY:

FLASH POINT: Non-flammable
FLAMMABLE LIMITS: Not applicable LEL: UEL:
EXTINGUISHING MEDIA: Use extinguishing media appropriate to surrounding fire.
SPECIAL FIREFIGHTING PROCEDURES: Wear self-contained breathing apparatus and full protective equipment.
UNUSUAL FIRE AND EXPLOSION HAZARD: Harmful lead fumes will be evolved at red heat temperatures.

REACTIVITY:
STABILITY: Stable CONDITIONS TO AVOID: Not available
INCOMPATIBLE MATERIALS: None
HAZARDOUS DECOMPOSITION PRODUCTS: Lead fumes will be evolved at red heat temperatures.
POLYMERIZATION: Will not occur. CONDITIONS TO AVOID: Not available

SAFE HANDLING & USE:

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WASTE DISPOSAL METHOD: This material has value on a recycle basis. Recycle.

Additional information may be obtained by looking up specific information on compound ingredients in the NIOSH/OSHA GUIDE TO CHEMICAL HAZARDS (See: Laboratory Sciences Reference Document) or by contacting the Institute for Environmental Assessment (IEA), Box 101, Anoka, MN 55303; (800) 233-9513, (612) 323-9770.

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