

CURRENT TRENDS IN OCCUPATIONAL AND ENVIRONMENTAL HEALTH

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Abstract

Much of the focus of environmental, health and safety issues in the 1990's centered on lead. No single hazard occupied the regulatory, public and media spotlight more than lead, and its impact was felt across the entire construction community. As lead fades from the spotlight, other potential hazards begin to emerge. OSHA is considering a comprehensive health standard on hexavalent chromium, the American National Standards Institute is drafting a standard on Hearing Loss Prevention in Construction, EPA and state environmental agencies are focusing attention on asbestos on bridges. These and selected other emerging issues are briefly discussed to identify health and safety issues on the horizon that may impact painting contractors and facility owners. Much of the information is taken directly from the respective agency's published regulatory agenda, supplemented by anecdotal information gathered from various professional journals, seminars and conferences. All issues are presented in the order of reported implementation date, with OSHA related activities discussed first, followed by EPA activities.

OSHA

Consensus Standards Update

On November 24, 2004 OSHA announced it was engaging in an effort to update OSHA standards that reference or include language taken directly from outdated consensus standards (e.g. ANSI standards). The agency planned to use a variety of regulatory approaches, including notice and comment rulemaking, direct final rulemaking, technical amendments updating or revoking outdated references to consensus standards or updating text of rules adopted directly from the language of outdated consensus standards. In the September 13, 2005 *Federal Register*, OSHA published what may be one of a series of changes. OSHA revoked references to outdated consensus standards on guarding of portable power tools, flammable and combustible liquids, and arc welding and cutting. OSHA claimed that "By eliminating these outdated references we are clarifying employer obligations and reducing administrative burdens on employers and OSHA." The agency continues to undertake this multiyear project, but has encountered opposition to some of these updates. No timeline for further changes has been published.

Lead in Construction

OSHA began a “look back” review of the Lead in Construction rule (29 CFR 1926.62) at the request of home builders and remodelers, under the auspices of the Regulatory Flexibility Act. The review was to consider the continued need for the rule, impacts of the rule, complexity of the rule, overlap or conflicts with other regulations, and the degree to which technology, economic conditions or other factors may have changed since the rule was published as an Interim Final Rule. The purpose of the review is to determine whether there are ways to modify the rule to make implementation more practical, to reduce regulatory burden on small business, and to improve its effectiveness, while still protecting workers. For instance, one of the ways the rule might be made less burdensome is by specifically excluding housing built after 1977. Comments from the public were due in September 2005, but the deadline was recently extended to November 7, 2005. OSHA requested comments on 28 different issues, grouped to address cost, compliance, industrial construction, health and compliance. SSPC has queried members in order to formulate a response for the docket.

Assigned Protection Factors for Respirators

In January 1998, OSHA issued the final Respiratory Protection standard (29CFR1910.134) except for reserved provisions on assigned protection factors (APFs) and maximum use concentrations (MUCs). APFs are used to determine the type of respirator required to protect workers in various hazardous environments. MUCs establish the maximum airborne concentrations of a contaminant in which a respirator with a given APF may be used. Currently, OSHA relies on the APFs developed by NIOSH in the 1980s, unless OSHA has assigned a different APF in a substance-specific standard (e.g. lead). However, many employers and health professionals rely on more recent APFs published in an industry consensus standard (ANSI Z88.2 – 1992). For some classes of respirators, the NIOSH and ANSI APFs vary substantially.

In June 2003, OSHA published a Notice of Proposed Rulemaking (NPRM) containing a proposed APF table. The extended comment period closed in October 2003, and OSHA held informal public hearings in January 2004, followed by post-hearing comment periods. OSHA has considered allowing the current situation to continue but recognizes the confusion it is causing. Final action was to be taken by September 2005. As of this writing, no formal action has taken place.

Payment for Personal Protective Equipment

Generally, OSHA standards require that protective equipment (including personal protective equipment – PPE) be provided and used when necessary to protect employees from hazards that can cause them injury, illness or physical harm. In 1999 OSHA proposed to require employers to pay for PPE, with few exceptions. The agency continued to address the issue and re-opened the record in July 2004 to get input on issues related to PPE considered to be a “tool of the trade.” The last proposal excludes safety shoes and prescription eyewear if they are allowed to be used for personal use. This exclusion may also extend to “tools of the trade,” depending upon how that term is ultimately defined. That comment period ended in August 2004 and a final action was to be taken by October 2005.

Confined Spaces in Construction

In January 2003, OSHA published a general industry standard to protect employees who enter confined spaces (29CFR1910.146). According to OSHA, this standard does not apply to the construction industry

because of the differences in the nature of the worksite in construction. As a result of a settlement agreement, OSHA agreed to issue a proposed rule to extend confined-space protection to construction workers appropriate to their environment. The NPRM is planned for December 2005.

The key differences between the existing standard in general industry and the draft standard for construction deal with the methods for conducting hazard assessments, the classification of confined spaces, and information exchanges. As recently drafted, the rule for construction would contain explicit guidance for how to classify a space, especially spaces encountered for the first time and spaces where the hazards change during the construction process. The construction rule may have as many as 4 classes of confined space: Permit Required, Continuous System Permit Required, Controlled Atmosphere or Isolated Hazard. Each will have explicit guidance on protective actions required. Finally, requirements for the exchange of information between the owner, general contractor (if any) and subcontractor(s) are to be explicitly detailed in the standard.

Hexavalent Chromium (CrVI)

OSHA had been petitioned to issue an Emergency Temporary Standard (ETS) to reduce worker exposures to hexavalent chromium (CrVI) back in 1993. OSHA denied the request for an ETS and initiated section 6 (b) rulemaking (i.e. notice and comment rulemaking). By 1997, OSHA was sued for unreasonable delay, but the courts ruled in OSHA's favor to continue data collection efforts. OSHA was sued again in 2002; this time the courts ruled against further delays by OSHA. It took nearly two more years, but OSHA issued a NPRM in October 2004, and held public hearings in February 2005. OSHA indicates it is on track to meet a court-order final rule date of January 2006. However, there continues to be considerable debate on whether Portland Cement will be covered by the rule as well as OSHA's proposed Permissible Exposure Level (PEL). OSHA plans to lower the PEL for CrVI from 52 to 1 $\mu\text{g}/\text{m}^3$. Industry is opposed, saying it's too low and requested 3 years to comply, while proponents of a new rule want the level to be even lower – 0.25 $\mu\text{g}/\text{m}^3$. The proposed standard was similar in many ways to the Lead in Construction standard, but there were notable exceptions. For instance, the proposed CrVI standard did not contain specific exposure assessment criteria (i.e. monitoring requirements), there were no requirements for regulated areas, job rotation was prohibited as a control method, and medical surveillance was triggered only after evidence of signs or symptoms of exposure or following exposure during an emergency. Much of this could change, however, by the time the final standard is issued.

Crystalline Silica

Many construction workers have exposure to crystalline silica, including silica sand abrasives. Chronic silicosis is considered a uniquely occupational disease resulting from exposure of employees over long periods of time. High enough exposures can cause accelerated forms of silicosis that are ultimately fatal. In addition, the International Research Agency on Cancer (IARC) has designated crystalline silica as a known human carcinogen. OSHA's PEL for General Industry is based upon a recommendation of the American Conference of Industrial Hygienist (ACGIH) in 1971 [PEL = 10 mg/m^3 /(% silica +2), as respirable dust]. The current PEL in construction and maritime is derived from the ACGIH's 1962 Threshold Limit Value, which is based upon obsolete particle counting technology. Multiple industry and labor groups are pushing OSHA to adopt a comprehensive health standard that includes provisions for methods of compliance, exposure monitoring, training and medical surveillance. OSHA is to complete a Peer Review of Health Effects and Risk Assessment by December 2005 and issue a NPRM by April 2006. The current draft rule delineates about a dozen tasks that

are presumed to have exposures above the PEL and requires specific controls and respirator combinations to reduce exposures (similar to the Lead in Construction standard).

Hazard Communication

OSHA's Hazard Communication Standard (HCS) requires chemical manufacturers and importers to evaluate the hazards of chemicals and prepare labels and material safety data sheets (MSDS) to convey the hazards and associated protective measures to users of the chemicals. Within the US there are other federal agencies that also have requirements for classification and labeling of chemicals. Internationally, there are a number of countries with similar laws. These laws vary with regard to scope of substances covered, definitions of hazards, the specificity of requirements (e.g. format of MSDS), and use of symbols and pictograms. The inconsistencies between the various laws are substantial enough that different labels and safety data sheets must often be used for the same product when it is marketed in different nations.

As a result, there has been a longstanding effort to harmonize these requirements and develop a system that can be used around the world. In 2003 the United Nations adopted the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). Their goal was to have as many countries as possible implement the GHS by 2008. OSHA is considering modifying its HCS to make it consistent with the GHS. This would involve changing criteria for classifying health and physical hazards, adopting standardized labeling requirements, and requiring a standardized order of information for safety data sheets. An Advanced Notice of Proposed Rulemaking (ANPRM) was to be issued by August 2005. As of this writing, it has not been published in the *Federal Register*. The agency also plans on issuing proposed guidelines on MSDS later in 2005, followed by final guidance in 2006. OSHA hopes to provide sample data sheet format, provide information on training workers and increasing the focus on the accuracy of the MSDS.

Hearing Conservation Program

OSHA issued a section 6 (b) health standard mandating a comprehensive hearing conservation program for noise-exposed workers in general industry. A number of studies have shown that construction workers experience significant noise-induced hearing loss. OSHA published an ANPRM in August 2002 to gather information on the extent of noise-induced hearing loss among workers in different trades, current practices to reduce this loss, and additional approaches and protections that could be used to prevent such loss in the future. The agency received comments and held public hearings as recently as August 2004. While OSHA reports that it is still doing research, Hearing Conservation in Construction has been moved onto the long-term regulatory agenda with no short term actions planned. This does not sit well with many labor groups and professional associations which may try to compel further action from OSHA. Meanwhile, an ANSI Standard of Hearing Loss Prevention in Construction and Demolition (ANSI A10.46 – 20XX) has been approved and work is actively underway to resolve reviewer comments. Several of the provisions of the draft standard are very controversial (e.g. mandatory hearing protection if there is a potential for even instantaneous noise levels above 85 decibels, de-rating hearing protective devices, annual audiometric testing, and others). Committees at both the American Industrial Hygiene Association and the American Society of Safety Engineers are among those attempting to resolve these issues. A specific timeline has not been established for release of the ANSI standard.

EPA

Asbestos-Containing Materials on Bridges

Region 4 of the EPA (Atlanta) issued an interpretation in 2004 that a bridge meets the definition of “facility” under the National Emission Standards for Hazardous Air Pollutants (NESHAP) for asbestos. Under the NESHAP for asbestos, inspections for asbestos-containing material (ACM) must be made by owners or operators prior to repair, renovation or demolition operations that might impact suspect ACM. Notifications must be submitted to local/regional environmental agencies, and the ACM must be removed by contractors (in accordance with mandatory removal practices) prior to undertaking the repair, renovation or demolition activity. Inspectors and contractors may, depending on the specific state or locale they are working in, have to be certified. Asbestos might be found in cementitious finishes on concrete bridges or abutments (e.g. decorative coatings), in equipment (e.g. bearing pads, scuppers, drains), siding or roofing on movable bridge control housing, and even in certain coatings (e.g. some coal tar mastics) and caulking. An unscientific poll of other region/state environmental regulatory agencies indicates that they have either already adopted or are in the process of adopting similar interpretations. Note that the presence of ACM also triggers OSHA’s asbestos standard for the protection of workers.

Lead in Paint, Dust and Soils

The EPA has issued changes in agency policies, proposed some regulatory changes, and is mulling over still other changes affecting its regulation of lead in paint, dust and soils.

In August 2000, EPA issued a policy statement clarifying that contractors can manage residential lead-based paint (LBP) waste as household waste, which means the waste could be disposed of as a municipal waste, and managed according to local and state requirements. EPA encouraged common sense measures to minimize any lead hazards and pointed out that worker training and certification requirements must still be followed.

In August 1996, when EPA finalized regulations for LBP activities in target housing and child-occupied facilities, EPA indicated it was delaying regulations of LBP activities in buildings and structures. Based upon comments to the 1994 proposed rule, EPA determined it needed more time to gain additional information on buildings and structures. In August 1997, EPA announced public meetings and identified issues it needed to consider before proceeding. After gathering this information, EPA determined that it had sufficient information to move forward and develop a proposed rule on bridges and structures. More information, however, was needed to characterize LBP activities in public and commercial buildings. Therefore, EPA has decided to proceed with development of a proposed rule on bridges and structures, and delay rulemaking on public and commercial buildings until a later date. The agency has not published a timeframe for either activity.

The EPA is facing potential lawsuits from a coalition of more than a dozen public health organizations over its nine-year delay in adopting specific regulations governing repairs and renovations in residential housing. In 1992 Congress mandated these regulations be in place by October 1996. EPA issued voluntary guidelines late in 2004, but in May 2005, just 5 months after issuing the guidelines, withdrew the voluntary program. EPA indicates it is now working on new regulatory approaches but has not indicated what it may propose or the associated timeline.

On March 6, 2001, 40 CFR 745, Lead; Identification of Dangerous Lead Levels became effective for lead in paint, soil and dust. This regulation was specifically limited to residential housing and identified maximum levels of lead in paint, soil, and dust. This regulation adopted the established HUD standards for the above media. The definition for lead-based paint remained at 0.5 % by weight, 5,000 ppm, and 1 mg/cm². EPA revised the thresholds for allowable levels of lead dusts on interior surfaces to: 40 µg/ft² for bare and carpeted floors, 250 µg/ft² for window sills, and 400 µg/ft² for window troughs. EPA also revised the allowable level of lead in residential soil to 400 ppm by weight in play areas; and an average of 1,200 ppm in the remainder of the yard.

Resource Conservation and Recovery Act (RCRA)

In May 2001, EPA issued a notice of proposed rulemaking to reduce the recordkeeping burden and streamline manifesting requirements for hazardous waste. EPA issued a final rule, "Hazardous Waste Management System; Modification of the Hazardous Waste Manifest System" on March 4, 2005. Correcting amendments were subsequently published on June 16, 2005. Full implementation of the new manifests is mandated by September 5, 2006. There are significant changes to the manifest process including a standardized Federal Manifest (replacing the previous Federal and state versions); revised generator certification language that allows individuals with pre-transportation responsibilities, other than the generator, to sign the manifest; and elimination of other selected fields on the form. The revised regulation also requires that manifest forms be obtained from a registered source who must assign unique manifest numbers for each generator. The breadth of the changes is far too expansive for the purposes of this paper; the authors will publish a separate paper dedicated to this topic in the March 2006 edition of Journal of Protective Coatings & Linings.

EPA is evaluating a number of other environmental issues that go beyond the scope of this paper. Investigations continue in the area of VOC regulation of architectural and industrial and marine (AIM) coatings, changes to particulate matter standards for PM-10 and PM-2.5, development of a revised lead and copper drinking water standards and evaluation of the current ambient air standards for lead. The authors recommend that the coatings industry continue to monitor proposed regulatory changes from OSHA and the EPA on a regular basis through review of regulatory round-ups and industry websites.