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OFFICE OF SOLID WASTE AND EMERGENCY RESPONSE

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MEMORANDUM

SUBJECT: Lead-Based Paint Residues and Lead Contaminated
Residential Soils and Private/Public Housing Units

FROM: Jeffery Denit, Deputy Director.
Office of Solid Waste (WH-562)

TO: Walter Kovalick, Deputy Director
Office of Emergency and Remedial Response (WH-548)

The following information is being provided in response to your draft memorandum requesting classification of lead-based paint residues.

BACKGROUND

As you are aware, the question of lead-based paint disposal has been of concern for a long time. As early as 1904, it was recognized that ingestion of paint and paint chips poses a serious health hazard to children. Many buildings, both individual residences and public housing units, especially those built before 1950, contain lead-based paints on interior and exterior walls, window sills, and other surfaces accessible to young children. In addition to paint, some plasters and putties have also been found to contain high levels of lead. Some older primers have been found to contain from 30,000 to 600,000 mg lead per kg of primer. Soils adjacent to residences also have been found to contain high levels of lead due to the leaching of the lead as a result of the weathering of the painted surface. For instance, in a study of lead contamination in Urbana, Illinois, lead was found in concentrations up to 12,000 ppm in soil. Many other cities throughout the United States have similar problems.

Numerous state and Federal agencies have been aware of and concerned about the problem for some time and are pursuing programs to identify lead poisoning and to remove lead-based paint from residences. The Lead-Based Paint Poisoning Prevention Act, as amended, provides the Department of Housing and Urban Development (HUD) with authority to eliminate the hazards of lead-based paint poisoning in HUD-financed and other public residential housing. Unfortunately, the program has been hindered by the lack of a determination of whether or not lead-based paint residues (paint chips, peelings, etc.) should be managed and disposed of as a hazardous waste.

ISSUES

Currently, the question of whether or not lead paint wastes are hazardous is confused by Section 261.4 "Exclusions" of 40 CFR Part 261, Identification and Listing of Hazardous Waste. If these wastes are generated at a commercial facility and exceed the EP toxicity limit of 5 ppm for lead, then they will be hazardous wastes. However, when the paint residues are generated at private and public residential units, the question arises as to whether the household waste exclusion applies (See 40 CFR 261.4(b)). This provision excludes household wastes from regulation as solid wastes, and therefore, as hazardous wastes. Household wastes are defined as "any material (including garbage) trash, and sanitary wastes (in septic tanks) derived from households (including single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day recreation areas.)"

In the preamble to the Federal Register notice addressing hazardous waste identification and listing (Vol. 49, No. 220, November 13, 1984, page 44998), EPA states that "there is no basis for extending the household waste exclusion to waste such as debris produced during building construction, renovation, or demolition in houses or other residences, as EPA does not consider wastes from these sources to be similar to those generated by a consumer in a home in the course of daily living." Furthermore, in the preamble to the Final Hazardous Waste Rules, Federal Register, Vol. 45, No. 98, May 19, 1980, EPA noted that wastes generated by Federal agencies are not subject to the household exemption since they cannot qualify as households.

Paint wastes are exempted from regulation as a hazardous waste if they are generated at individual households by the houseowner doing his own removal. On the other hand, if the removal at an individual residence is done by a contractor, the residues are solid wastes and must be evaluated with respect to their hazardousness (EP Toxicity) and must be disposed of according to hazardous waste regulations if found to be hazardous.

In cases where paint residues are regulated under Subtitle C, then commercial contractors who are performing the renovation work and who generate less than 100 kg per month of paint residues (which we believe is likely), will be a conditionally exempt generator (Section 261.5) and their waste will not be subject to regulation under Sections 262 through 266 of RCRA. We believe that only large renovation projects will exceed the 100 kg per month limitations.

While paint residues may not be regulated as hazardous wastes, especially at private individual households or small housing units, information should be made available to homeowners warning them of the hazards associated with improper disposal of paint residues. Directors should be provided regarding the proper disposal of these wastes.

In the case of a larger commercial contractor whose activities result in the generation of more than 100 kg per month of waste, for instance, at a public housing renovation project, then the "hazardousness" of the waste must be determined. In the case of lead-paint wastes, the EP Leachate Test should be performed. If the leachate lead concentration exceeds 5 ppm, then the paint waste is a hazardous waste. If the residues are indeed hazardous, then the generator (removal contractor) must comply with all appropriate regulations, (e.g., Parts 262 Standards Applicable to Generators of Hazardous Wastes and Part 263 Standards Applicable to Transporters of Hazardous Waste), and must send the waste to a facility that is permitted or operating under RCRA interim status.

PROCESSES THAT MAY GENERATE HAZARDOUS WASTE

There are several methods available for removing lead-based paints; however, the conventional lead paint removal techniques currently available are not totally effective and may exacerbate the lead problem by dispersing lead-containing particles throughout the residence. Newer, more effective abatement methods which may be used for lead removal include:

- * Peel Away - This consists of a caustic paste that is covered with a plastic film (calcium, magnesium, and sodium hydroxide). This paint removal system can be used on wood, metal, stone and brick, flat and irregular surfaces. It should be noted that in a demonstration project conducted in Baltimore, waste water from the peel away process was found to have a lead content greater than 66 ppm, which was well in excess of the EP toxicity limit of 5 ppm.
- * Off-Site Dipping - Wood trim, woodwork, and doors are stripped of paint in enclosed chemical tanks containing methylene chloride. When used for this purpose, spent methylene chloride is a listed hazardous waste.
- * High Efficiency Particle Accumulator (HEPA) Sander - This is a power disk sander that attaches to a HEPA vacuum to trap debris. It is used on flat surfaces only. This method would generate a dust which could, depending upon the lead content, fail the EP Toxicity Test.
- * Replacement - Removal and replacement of wood trim and old windows with new materials. All of the painted wood products from the residence should be sampled and the EP performed on the wood samples.

In any of the above methods, if the extractable lead exceeds 5 ppm in the waste, then it is a hazardous waste. If the household waste exclusion does not apply then the wastes must be handled and disposed of in accordance with the requirements of 40 CFR Parts 262, 263, and 264, 265 and 270 as appropriate.

CONTAMINATED SOILS

In addition to painted surfaces, the soils immediately adjacent to residences may have high concentrations of lead, due to the lead being leached from the exterior of the structure as the paint weathers and ages. For example, in a study of lead concentration in Urbana, Illinois, concentrations of the lead in the soil were found to range from 132 to 11,760 ppm adjacent to and 240 to 6,640 ppm away from the houses.

Whether or not "contaminated" soils are considered hazardous wastes depends upon whether or not they are 1) removed and transported off-site or left in place, and 2) exceed the lead toxicity limit of 5 ppm.

If the contaminated soil is removed for off-site disposal, it must be evaluated against the characteristics to determine whether or not the soils are hazardous. If the soils fail the existing EP toxicity characteristic, then they must be taken to a RCRA Subtitle C facility. In the case of CERCLA sites such soils must be taken to a RCRA facility which is in compliance with CERCLA requirements for off-site disposal. (See OSWER Directive Number 9834.11 "Revised Procedures for Planning and Implementing off-site Response Actions; November 13, 1987.)

The requirements for on-site treatment of lead-contaminated residential soils, which may seldom be practical, differs for CERCLA and RCRA sites. For CERCLA sites, such on-site treatment can be performed without a permit being required. However, for on-site treatment of RCRA sites, a permit is required unless treatment is performed in tanks or containers in compliance with Section 262.34. It should be noted that any on-site treatment must consider the requirements of the individual states in question, which may be more stringent than Federal requirements.

In the case of soil left on site, the property owner will not normally be required to determine whether the soil is a hazardous waste. For soils that are left in place, EPA or the appropriate state agency should set clean-up levels that will ensure that the site will not pose a hazard when returned to normal residential use. I know that the CERCLA program often makes such determinations. For your information, described below is the procedure OSW plans to provide in the RCRA Clean Closure and RFI Guidance Manuals for determining when contaminated soils may safely be left in place and the site returned to residential use. We have had a number of discussions with your staff and we think that there is a general agreement on this approach.

There are two approaches which should be used in making a determination if further soil removal is required. The first is to look at health-based concentration limits in surface soils; the second is an acid precipitation leach test (method 1312 in SW-846).

The health-based limits should be used to determine how much contaminated soil will have to be removed. The RCRA Clean Closure and RFI guidance Manuals provide direction on the appropriate health-based soil no longer exceeds the health-based concentration limits.

At that point, method 1312 should be run on soil samples to determine the threat, if any, that might be posed by remaining residual contaminants leaching into ground water. For testing for lead, a ph of 4.2 should be used. In the absence of better numbers, the 5 ppm threshold used for the EP should be the limit for method 1312 as well. Since method 1312 is new, no data on its use is available. Once such data are available, the ppm limit may be revised.

The removed soil should be tested against the EP after removal to see if it fails the 5 ppm limit. If so, it must be sent to a Subtitle C facility. If it does not fail, it can be sent to a Subtitle D facility.

If you have any questions pertaining to the above, please do not hesitate to contact Jerry Coalgate of my staff.

Attachment