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Office of Pollution Prevention and Toxics (OPPT) Environmental Protection Agency
1200 Pennsylvania Ave., NW, Washington, DC 20460-0001
ATTN: Desk Officer for EPA, 17th St., NW Washington, DC 20503

SUBJECT: Comments Regarding Two New Studies in the Rulemaking Docket

Re: Docket ID: EPA-HQ-OPPT-2005-0049

EPA is in the eleventh year of determining whether and how to regulate renovation, remodeling, and painting (RRP) activities conducted on the interior and exterior of pre-1978 housing. A protective RRP rule is one of the key ways to prevent the completely preventable disease of lead poisoning. We believe that the additional information that EPA has posted in the docket confirms the danger of unsafe renovation, remodeling, and painting work and the imperative to prohibit dangerous practices and require post-work clearance dust testing. Immediate plans must be made to finalize the RRP regulation to ensure that families in the United States have the chance to enjoy the full the benefits of the requirements.

This letter responds to EPA's request for comments on two new studies in the rulemaking docket:

1. Characterization of Dust Lead Levels after Renovation, Repair, and Painting Activities (January 23, 2007). In an effort to support a thorough risk assessment and cost-benefit analysis of the proposed rule, EPA designed and conducted a field study to characterize dust lead levels during various stages of renovation, repair, and painting activities.

2. Lead-Safe Work Practices Survey Project (November 9, 2006). The National Association of Home Builders (NAHB) conducted an assessment of renovation and remodeling activities to measure levels of lead dust generated by home improvement contractors. The objective of this project was to measure the amount of lead dust generated during typical renovation and remodeling activities and assess whether routine renovation and remodeling activities increased lead dust levels in the work area and property.

EPA requested comments on the proposed methods of containment, cleaning, and cleaning verification in light of the information contained in these studies. In addition, the Agency requested comments on whether certain practices should require additional protective measures or should be prohibited based on the study findings.

Characterization of Dust Lead Levels after Renovation, Repair, and Painting Activities (January 23, 2007)

Comments on this study are organized by two of the key areas for which EPA is seeking comment--Prohibited Practices (and Lead-Safe Work Practices) and Cleaning Verification.

Prohibited and Lead-Safe Work Practices

EPA conducted the field study to examine the impact of using only the protective work practices (e.g., the use of plastic containment in the work area and a multi-step cleaning protocol) required under EPA's proposed RRP rule on the amount of lead dust left behind after the renovation, remodeling, and painting work has been completed. The RRP activities conducted during the study included most activities permitted under the proposed rule, including several of the dangerous methods of disturbing paint that are prohibited by HUD and numerous state and local governments, as well as EPA's own abatement rule, because the activities generate and disperse such significant lead hazards.

Although the study generally demonstrates that the work practices required by the proposed rule (containment, specialized cleaning including "verification") result in lower levels of lead dust remaining on window sills and floors after RRP activities than the amount of lead remaining after baseline cleaning practices (sweeping and vacuuming with a non-HEPA vacuum), many of the practices result in dust lead levels that are above EPA standards.

For some job types, substantial amounts of lead were measured in the collection trays that were placed outside the area on which the proposed rule requires that plastic sheeting be placed to prevent the dispersal of lead dust. Trim/soffit replacement, power sanding, and door replacement all resulted in substantial amounts of lead measured outside the area covered by plastic required by the rule. The door planing and high heat gun jobs resulted in the highest lead levels following the work.

The study also shows that even if the proposed rule's specific work practices are followed, the amount of lead dust left behind is above EPA's own hazard standard. Post-work dust levels for only two of the fifteen tests conducted consistent with the rule met EPA clearance standards and those two involved drywall cutouts. It is unclear from the study documents whether the areas disturbed by these cutout procedures were greater than two square feet. The painted surface disturbed should be measured by multiplying the length of the cut by its width, as opposed to the total size of the cutout. If the cut-outs are excluded from the analysis, the study shows that none of the tests met EPA clearance levels.

Of concern is that the study may have resulted in an understatement of the extent of lead left behind:

- The crews did not wait the full one hour after the completion of work to check the dust levels; measurement may underestimate the true levels (p. 4-7)
- The crews did not test hard-to-clean floors, again underestimating total dust lead left. (p. 4-8).
- Bulk samples were excluded from analysis because contractors would supposedly pick this up, which creates a bias toward the low side (p. 6-10).

It should also be noted that the one-hour wait period may be an insufficient amount of time to wait to check for hazards after torching because lead fume is composed of smaller particles and that may not settle out for a considerably longer period of time.

A few additional conclusions may be drawn from this study:
1) Containment through the use of plastic is needed: the highest level of post-verification dust lead was identified when no plastic was used. Importantly, it is the plastic together with cleaning that produces the positive results.

There is little question that removing or disturbing lead paint without proper controls causes substantial contamination, posing serious risks to occupants, workers and others. Eight studies, which EPA should have fully considered in its development of the proposed rule and should now consider, support this contention.[1] For example, one recent study found that children with blood lead levels greater than or equal to10 µg/dL were six times more likely to live in homes that had dust from painted surface preparation.[2] Another study showed that the use of power sanding on the exterior of a house undergoing repainting resulted in soil lead levels in the child's play area of over 130,000 ppm and interior floor dust lead levels of 27,600 micrograms per square foot (the respective EPA standards are 400 ppm and 40 micrograms per square foot). In another case study, the cleanup costs were nearly $200,000 for a single house; these costs could have been entirely avoided if a safer method of paint removal was used instead.[3]

Although sufficient evidence already existed to document that dangerous work practices should be banned, the study provides further support for such a ban. Importantly, figure 9-1 shows that the use of traditionally prohibited practices (heat gun above 1100 degrees and dry scraping) results in failed clearance.

Cleaning Verification Versus Clearance
This study also showed that the EPA-specified cleaning verification procedure does not work. The failure rate of this procedure is far too high to be used; instead, the validated clearance testing procedure should be used. A clearance dust test is the only standardized and valid method for determining whether a home is safe following renovation, repair, and repainting.

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[1]Rabinowitz M, Leviton A, Bellinger D. Home refinishing: Lead paint and infant blood lead levels, American Journal of Public Health. 1985; 75:403-404.
Shannon M, Graef J. Lead Intoxication in Infancy. Pediatrics. 1992; 89(1):87-90. Farfel M, Chisolm J. Health and environmental outcomes of traditional and modified practices for abatement of residential lead paint,1990; American Journal of Public Health. 80:1240-5. Amitai Y, et al. Hazards of deleading homes of children with lead poisoning. American Journal of Diseases of Children. 1987; 141:758-760. Page 11 of 13
Swindell S, Charney E, Brown MJ, Delaney J. Home abatement and blood lead changes in children with class III lead poisoning, Clinical Pediatrics. 1994; 33:536-541. Feldman, R. Urban lead mining: lead intoxication among deleaders. New England Journal of Medicine. 1978; 298:1143-1145. Fischbein, A, et al. Lead poisoning from do-it-yourself heat guns for removing lead paint: Report of two cases. Environmental Research. 1981; 24:425-431. Marino, P, et al. A case report of lead paint poisoning during renovation of a victorian farmhouse. American Journal of Public Health.1990; 80(10):1183-1185.
[2] Reisman, et al. Is home renovation a risk factor for exposure to lead among children residing in New York City? Journal of Urban Health. 2002;79(4):502-11.
[3] Jacobs, D, Mielke H, Pavur N. The high cost of improper removal of lead-based paint from housing: A case report. Environmental Health Perspectives. 2003;111:185-186.

Under the conditions of the study, the cleaning verification process was not always accurate in identifying the presence of dust lead levels above EPA standards for floors and sills. Factors such as floor condition, contractor performance, job type, and dust particle characteristics invalidated cleaning verification in the study.

All interior experiments did result in final passed cleaning cloths for all floor zones and for all window sills, but nearly half of the experiments in the study ended with average work room floor lead levels above EPA's standard of 40 µg/ft2 on floors. Lead levels for the cases above the floor standard were distributed as follows: 10 between 40 and 69, 6 between 70 and 99, 5 between 100 and 199, 3 between 200 and 499, and 5 greater than 500.

Extensive research supports the fact that visual examinations are not sufficient to determine whether a unit contains invisible lead dust. A 2002 NCHH study found that of 121 units enrolled, 54% passed a visual yet failed the 1995 EPA clearance levels (at that time clearance levels were 100 µg/sq.ft. on floors, 500 µg/sq.ft. on window sills, and 800 µg/sq.ft. on window troughs).[4] This study further corroborates that a clearance test is the only objective method for determining whether a home is safe following renovation, remodeling, or repainting.

Lead-Safe Work Practices Survey Project (November 9, 2006)

The Lead-Safe Work Practices Survey Project supports the prohibition of unshrouded (or uncontrolled) sanding devices and the use of wet sanding/scraping. The study showed that shrouded tools generated about 65% less airborne dust lead (p. 74). Events that employed misting had 84% lower airborne dust lead levels than events without misting (p. 74). When these types of lead-safe work practices were used, the contractors were able to generate less airborne dust lead than was generated when routine work practices were used.

Unfortunately, conclusions cannot be drawn from the settled dust samples in this study due to serious methodological shortcomings. Specifically, the settled dust lead loadings in this study are not representative of the type of housing that renovation, remodeling, and painting contractors most commonly work. On page 31 of the report, it states that the range of data is similar to the data in the Evaluation of the HUD Lead-Based Paint Grantee Program (the Evaluation), "therefore the pre-work dust [lead] loadings in the subject study were within the range of occupied housing." This is incorrect. When comparing the geometric mean pre-work floor dust lead loadings in this study to the pre-work floor dust lead loadings in occupied dwellings in the Evaluation, the loadings are substantially higher in the NAHB study (239 ug/ft2 vs. 17 ug/ft2).

The settled dust lead results cannot be used either in support of or against any of the provisions in the EPA rule. Furthermore, not only were the homes not representative of occupied homes, but the study design does not allow the study to answer a key question posed by the study "Do typical renovation and remodeling activities create lead hazards?" Although the study shows that the contractors were able to reduce the settled dust lead levels from their extremely high starting levels, it does not show that they could have prevented new dust lead hazards in an average home in the U.S.

[4] National Center for Healthy Housing. 2002. An Evaluation of the Efficacy of the Lead Hazard Reduction Treatments Prescribed in Maryland Environmental Article 6-8. April 30, 2002. Forthcoming. *Environmental Research.*

Conclusion

We are troubled that EPA extended the deliberations to accommodate the industry-sponsored study and spent scarce taxpayer resources on its own study. It has been long established that certain methods of disturbing lead-based paint will invariably generate and disperse huge amounts of lead dust, and that only clearance testing assures the absence of lead hazards. Specifically, the engineering controls made possible by containment in the proposed rule are insufficient to prevent the dispersal of hazards resulting from the "worst of the worst" paint disturbance methods. Studies have shown that visual assessments alone cannot be used in lieu of clearance to determine whether a home is safe following activities disturbing lead-based paint. We are unsurprised that the results confirm the imperative to prohibit dangerous practices and require post-work clearance testing, and expect EPA to prioritize public health and enact these demands. The final rule should be issued as rapidly as possible and should include lead-safe work practices, prohibit dangerous methods of paint removal, and adopt clearance testing.

Sincerely,

Rebecca L. Morley
Executive Director
National Center for Healthy Housing

Robert Zdenek
Executive Director
Alliance for Healthy Homes