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HEARING BEFORE THE
SUBCOMMITTEE ON HEALTH AND THE ENVIRONMENT
COMMITTEE ON ENERGY AND COMMERCE
U.S. HOUSE OF REPRESENTATIVES

Risks Posed by Lead Poisoning and Environmental Contamination During Bridge Renovation and Other Construction Work
March 3, 1993

INTRODUCTION

Good morning, Mr. Chairman and members of the committee. I am E. Dean Carlson, Executive Director of the Federal Highway Administration (FHWA). I am here on behalf of Secretary of Transportation Federico Peña to testify concerning the risks of lead poisoning and environmental contamination during bridge renovation and other construction work. You have asked that we specifically address the extent of the risks posed by lead poisoning faced by workers engaged in bridge renovation and environmental contamination associated with such renovation. You also stated your interest in the impact increased bridge renovation and construction resulting from additional Federal investments in infrastructure will have on worker safety and the environment. Finally, you wish to investigate impediments to avoiding lead poisoning and environmental contamination during bridge renovation and other construction activities.

In addressing these points, I will briefly outline FHWA initiatives and outreach efforts with regard to lead-based paint

removal on our Nation's bridges. I would like to submit my full statement for the record and briefly summarize it for you.

NATIONAL DATA ON STEEL BRIDGES

Permit me to begin my comments by stating that nearly all pre-1980 steel bridges are protected with lead-based paint, which was the most cost-effective protective coating then available. In terms of hard numbers, 185,928 of the 208,505 steel bridges (89.2 percent) carrying public roads in the National Bridge Inventory of the United States are believed to be protected with lead-based paint. The above figures include bridges on city streets, county roads, State highways, any privately-owned bridges that are part of a public facility, and bridges owned by Federal land management agencies.

Approximately 103,191 of the 208,505 steel bridges in the National Bridge Inventory are classified as deficient and eligible to receive Federal-aid Highway Bridge Replacement funds. Other Federal-aid funds may be used for repainting the remaining bridges.

THE EFFECT OF THE ECONOMIC STIMULUS INITIATIVE ON BRIDGE REHABILITATION

President Clinton's initiative to increase investment in our nation's highway infrastructure by increasing the obligation limitation for the Federal-aid highway program from $15.3 billion to $18.3 billion for this fiscal year (the maximum level authorized in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)) would result in increased obligations of

$2.976 billion and increased outlays of $316 million in Fiscal Year 1993. It is expected that the States would obligate these funds quickly for "ready-to-go projects" with a significant portion for fast-spending resurfacing, rehabilitation, and restoration projects. This is because the Administration's job stimulus element of its economic stimulus package would require a State to obligate and receive bids on projects for the increased amount within 60 days of the distribution of any increase in obligation authority. Otherwise, the remaining amount would be redistributed among States able to commit the funds within this time frame.

While some of these ready-to-go projects may involve repainting and removal of paint from lead-coated bridges, since project selection is made by the individual States, the FHWA cannot state with any reasonable certainty the specific number of ready-to-go projects that will involve removal of lead paint from bridges requiring rehabilitation.

RECOGNITION OF THE PROBLEM

The FHWA recognized the health and environmental risks associated with the removal of lead-based coatings some time ago. In the late 1970s through the 1980s, the FHWA sponsored research on the "Performance of Alternative Coatings on the Environment" (PACE) through a contract with the Steel Structure Painting Council (SSPC). Data published in 1983 revealed that 14 unleaded coatings of the 200 coatings tested performed as well as lead-based paint in protecting bridges. Since 1980 or so, many States have been using inorganic zinc-based paint systems as their

primary protective coating system for steel bridges. Other coatings that have been employed include epoxies and urethanes.

Bridge renovation work that calls for protecting steel members with non-lead coatings now generally requires the complete removal of any existing lead-based paint to be effective. High-pressure abrasive blasting is the most frequently used and most cost-effective method for removing deteriorated coatings and preparing the surface for repainting. Abrasive blasting, however, generates large amounts of airborne particulates that can travel significant distances from their source. In order to protect the worker and the environment from exposure to airborne particulate matter, typical job specifications include increased ventilation and containment requirements.

Studies indicate that lead-containing abrasive debris can be rendered stable by combining it with portland cement, making the material non-hazardous. The use of recyclable abrasives produces less waste and is the most cost-effective bridge paint removal alternative. This process requires significant capital investment by the contractor; the amortization of these costs, as well as the significant investment in containment hardware, are reasons for rapidly accelerating costs for bridge repainting. Historically, bridge repainting costs were in the area of $3.00 per square foot of steel surface area; as containment and disposal requirements have become more stringent, these costs have escalated to $10 to $12 per square foot. In the future, as increased requirements are added, repainting costs may rise as high as $20 per square foot (depending on the location and type

of bridge).

FHWA RESEARCH

In 1989, the FHWA initiated a research effort entitled "Removal, Containment, and Disposal of Lead-Containing Paint Waste" to address the health and environmental problems associated with the removal of lead-based bridge paints. In 1990 this research began to focus on containment design, industrial hygiene practices, and waste stabilization. A draft report of the results of this research effort is being prepared and is expected to be released in approximately six months.

The FHWA research report is expected to address and provide guidance on containment design and ventilation requirements. Well-designed and ventilated containment systems, coupled with worker and contractor training, prudent industrial hygiene practices, and the use of available air-feed protection equipment should provide a proper margin of safety.

The FHWA is also involved in an interagency effort with the Occupational Safety and Health Administration (OSHA) to address the worker safety issues associated with removal of lead-based paints from bridges and other highway appurtenances. In May 1991, the FHWA alerted its field staff to the challenges posed and the problems experienced by States concerning the removal and disposal of lead-based paint systems. An OSHA information pamphlet entitled "Working With Lead in the Construction Industry" was attached to the memorandum.

The memorandum stressed that our division offices should work with their State counterparts to review current contract

requirements and evaluate whether they adequately address environmental and worker safety issues. We further recommended that procedures be established to ensure that potential bidders are made aware of safety and environmental contract requirements prior to bidding. In addition, we suggested that a pre-bid conference be used as a mechanism to ensure that bidders are adequately informed of the special contract requirements in order to assure worker safety and environmental protection.

FHWA OVERSIGHT

The Federal-aid highway program is a federally-assisted State program. 23 U.S.C. § 145. States have responsibility for construction of all Federal-aid projects, and thus have primary enforcement responsibility for all federally-required contract provisions including health and safety requirements. FHWA regulations specifically require that all Federal-aid construction contracts include provisions that work performed by contractors on Federal-aid projects comply with all applicable Federal, State, and local laws governing safety, health, and sanitation. 23 C.F.R. § 635.108. The States are required to incorporate FHWA Form 1273, "Required Contract Provisions, Federal-Aid Construction Contracts" on all Federal-aid contracts and subcontracts. 23 C.F.R. § 633.102(b). Section VIII of the required contract provisions, "Safety: Accident Prevention," places the legal duty on the contractor to comply with all applicable laws governing health, safety, and sanitation. FHWA field engineers monitor State adherence to construction safety and health provisions as they do other contract provisions such

as labor standards. This oversight role is accomplished through the FHWA Division offices' monitoring program, which involves periodic reviews of the State process for project development and contract administration. If problems are discovered, as a result of a site-visit or process review, corrective action is required by the Division office.

Federal land management agencies own over 2,100 bridges open to public travel. These structures are eligible for improvement from Federal Lands Highway Program and, in some instances, other Federal-aid funds. Generally, the Federal agency owning the structure will initiate repairs including repainting of structures. In some instances, the FHWA Federal Lands Highway Division office may administer the repair work. In either case, Federal environmental and worker safety standards are followed.

THE RESIDENTIAL LEAD-BASED PAINT HAZARD REDUCTION ACT OF 1992

The Residential Lead-Based Paint Hazard Reduction Act of 1992 (RLBPHRA), Pub. L. 102-550, 106 Stat. 3897, is intended, in part, to reduce lead-based paint hazards associated with repainting highway bridges and other appurtenances. Section 1021 of the RLBPHRA amended the Toxic Substances Control Act (15 U.S.C. § 2601 *et seq.*) by adding a new Title IV, Lead Exposure Reduction. Section 402 of that title (15 U.S.C. § 2682) requires the Administrator of the Environmental Protection Agency, in consultation with the Secretaries of Labor, Housing and Urban Development, and Health and Human Services to promulgate regulations by April 1994 governing lead-based paint activities to ensure that contractors involved in such activities are

certified and that individuals engaged in such activities are properly trained. The definition of lead-based paint activities includes the removal of lead from bridges and bridge demolition. Section 1031 of the RLBPHRA requires the Secretary of Labor to issue regulations governing occupational exposure in the construction industry.

FHWA OUTREACH EFFORTS

We believe that education for the public and private sectors, as required by the RLBPHRA, is a key component for ensuring the health and safety of the worker and the environment surrounding the paint removal site. The FHWA's Bridge and Construction and Maintenance Divisions are emphasizing paint coating issues. The existing FHWA National Highway Institute training course, "Inspection of Paint Systems," is being updated and, through cooperative efforts with States and industry, a series of video tapes on good painting practices is being developed. We have contracted with an engineering firm for the development of guidelines for handling the removal of lead-based paint. We expect that the guidance will be issued in approximately six months.

Numerous workshops, forums, and seminars on the lead-based paint issue have been sponsored or cosponsored by the FHWA. At last year's three tri-regional Bridge Engineer Workshops the States and FHWA bridge engineers participated in briefings on lead-based paint issues conducted by experts in the coatings field. A special coatings conference to be jointly sponsored by FHWA Regions 4, 6, and 7 will be held late this summer. The FHWA

will continue to conduct substantial research programs and assist in disseminating information and expertise to the States through training courses, workshops, and seminars. We will cooperate with other Federal agencies, industry groups, contractors and work safety organizations to improve both the effectiveness of bridge coating systems and worker safety associated with the removal of lead-based paint from our Nation's bridges.

CONCLUSION

The environmental and worker safety issues involving the removal of lead-based paint from steel bridges are complex. The States, Federal land management agencies, the FHWA Federal Lands Highway Office, the contractor, and the subcontractor must comply with Federal environmental and worker health and safety requirements. We believe the FHWA outreach efforts to get the word out to the States concerning the risks to worker safety posed by removal of lead-based paint from bridges is working. While the effect of any increased investment in infrastructure may result in some incremental increase in bridge renovation, the FHWA believes increased worker education (required by RLBPHRP), initiation of prudent industrial hygiene practice, and sound containment and ventilation design will significantly reduce the risks posed to the environment and worker safety by bridge renovation.