AUTO BODY CERTIFICATION PROGRAM

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ABSTRACT

The Auto Body Certification Program provides a simpler and more useful way to regulate the auto body repair sector. The Department's Pollution Prevention Program, in partnership with the University of Rhode Island URI) Center for Pollution Prevention, the Department of Health's OSHA Consultative Services, and Davies Vocational School, has been working with a number of individual shops to identify both environmental and human health hazards. A major research and data gathering effort that included air monitoring, sanding dust characterization, and blood lead testing of shop workers has pointed to serious concerns that must be addressed by both voluntary methods and regulatory controls.

The Department has signed a Memorandum of Understanding (MOU) with its partners to establish a certification program covering training requirements, hazardous waste management, air quality concerns, occupational health and safety, and pollution prevention techniques in a question and answer format that will allow any auto body shop to determine its compliance status. A certification form that includes all of this information will be mailed to all auto body shops in the state. The Department will then be able to use this information to perform statistical analysis that measures compliance rates and to determine where best to focus its assistance and compliance efforts.

This initiative is being viewed as a first ever regulatory and assistance partnership involving state environmental and health departments, a state university and a vocational training institution that results in an environmentally measurable protection program. It leverages scarce resources, reaches a substantially higher segment of the regulated sector, and requires less effort by the regulated sector than any traditional permitting and enforcement program has before.

The Department is patterning this program after the very successful Environmental Results Program initiated by the Massachusetts Department of Environmental Protection (MADEP, 1999). Significantly higher compliance rates and improved environmental business practices have been reported. The Department aims to reproduce these results and go one step further by including measurable results for worker health and safety. The participation by the

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Department of Health, URI, and Davies Vocational will ensure that the program will be an environmental, occupational health, educational and economic success.

HISTORICAL PERSPECTIVE

In 1994, the Rhode Island Department of Environmental Management received the first of two U.S. Environmental Protection Agency (EPA), Region I Pollution Prevention Incentives for States (PPIS) grants for the integration of pollution prevention practices into automotive refinishing operations. Specific PPIS grant objectives included:

- Research and identification of cost-effective toxics use reduction equipment, methods and formulations
- Demonstrate toxics use reduction methods and technologies in a controlled environment
- In association with a leading regional vocational technical school, mentor local body shops and conduct training sessions for practicing professionals
- Disseminate findings through industry fact sheets and the peer-reviewed literature

To better understand this small business sector, the Office of Technical and Customer Assistance (OTCA), within which the Pollution Prevention Program is housed,[2] administered two statewide surveys – one in 1996 and a second in 1998 as part of the Department's RCRA Biennial Reporting Requirements. The surveys were multidimensional in that questionnaires sought detailed information on pollution prevention, environmental controls and occupational health and safety practices. Survey findings, for example, showed that a wide range of potential workplace hazards existed and that most shops (60%) employed four or fewer people. Risk reduction opportunities that could be addressed through product substitution or engineering controls were identified and targeted for further research; preliminary findings were published in the peer-reviewed literature (Enander et al., 1998).

Over the course of the PPIS projects, OTCA formed a close working relationship with members of the Rhode Island automotive refinishing industry, vocational training schools, and the Rhode Island Department of Health. A leading, regional vocational technical school became the focal point for technology demonstrations (such as VOC mass balance studies and the use of a new laser guided, high transfer efficiency HVLP spray gun technique), industry training, body shop mentoring, and student curriculum development. By October 1999, EPA PPIS objectives were met and surpassed as new research initiatives, outside the scope of the original grant projects, were already underway. In time, the

[2] The RIDEM Pollution Prevention Program is a function of the Office of Technical and Customer Assistance (OTCA). This office is a nonregulatory customer service unit that was specifically created to assist business and industry in environmental affairs.

collaborative among industry, state agencies and a leading technical school, formed a strong basis for all future research efforts.

NEW RESEARCH FINDINGS

Automotive refinishing, comprised of approximately 60,000 facilities nationwide, is a high hazard industry (Enander et al., 1998). Refinishing operations are generally conducted in a series of three steps: body repair, surface preparation and spray painting. In large facilities, dedicated body men engage in repair and surface preparation operations (such as frame straightening, sanding, grinding, welding, and priming), while professional spray painters apply the final coatings (i.e., base coats and clear coats); in many small to medium sized shops, however, painters double as repair technicians as production specialists are not employed.

In addition to potential solvent and isocyanate exposures among spray painters, recent investigations conducted in the State of Rhode Island have shown that "body men" are also at risk of exposure to metal particulates in sanding dust and methylene chloride vapors from vehicle paint stripping operations (Enander et al., 1999). Numerous samples of sanding dust, representing nearly 200 vehicles, were obtained from Rhode Island refinishing facilities over an 18 month period. Lead, arsenic, chromium, manganese and nickel were present in the sanding dust of every facility tested (e.g., Pb range: 180 - 7,300 mg Pb/kg dust). Laboratory analysis of ten commercially available body filler compounds also revealed that four contain lead; sample lead concentrations ranged from 3 to 1,500 mg/kg.

Personal air monitoring also confirmed the potential for excessive workplace exposure to lead (>OSHA 8-hr TWA Action Level) and methylene chloride (>8-hr TWA PEL), during chemical paint stripping, among body repair technicians. Wipe samples from the workers' hands taken before lunch break and at the end of the work shift showed lead concentrations in the range of 24 to 211 micrograms. Blood lead screening of 23 individuals at two facilities was conducted in 1998-99 showed that nonexposed workers (e.g., salesmen and front office workers) had blood lead (PbB) levels comparable to the U.S. geometric mean of 2.8 ug/dl. Body men who engaged in sanding operations for 6-8 hrs. per day had the highest PbB levels (up to 38 ug/dL). Based on personal monitoring data (total/respirable/inhalable particulates and hand wipes) the ingestion pathway appears to be an important pathway contributing to elevated PbB levels (Enander et al., 1999).

This new research data coupled with field observations of conventional work practices and potential exposures among spray painters to paint solvents and isocyanates, led to OTCA's investigation of new approaches to risk reduction in this industry sector.

PROGRAM ELEMENTS

Conclusions drawn from the analysis of the data indicated potential health and environmental problems from the metal bearing sanding dust. The risk from cumulative exposure to take home toxics, such as lead, was a major concern to the authors. Odors from painting and cleaning systems have caused problems to neighboring businesses that are in close proximity to the shops. Fugitive dust can escape on dry summer days and lead to additional exposure concerns in urban and crowded areas.

The Rhode Island Department of Environmental Management's Pollution Prevention Program began to address these problems in November of 1998 with the distribution of a letter to all autobody shop owners in the state. The letter urged caution in the management of the sanding dust and recommended methods to reduce worker exposure as well as cumulative exposure. Five health protection guidelines were provided to reduce workplace/home exposures:

1. Use high-velocity, low-volume ventilated sanders with adequate filter efficiencies.
2. Use laundry facilities, if available. If laundry facilities are not available, bring a change of clothes to work. Leave work clothes and shoes at work. If possible, shower at work.
3. Wear appropriate personal protective equipment.
4. Wash hands before eating.
5. Do not leave food or drink in the work area as dust can travel and contaminate these items.

Pollution prevention measures, such as eliminating solvents to clean skin surfaces and eliminating methylene chloride-based paint strippers, were strongly encouraged. Regulatory compliance assistance was offered and five fact sheets were included for posting in areas frequently accessed by the shop employees. Each single page fact sheet addressed the following subjects: Pollution Prevention, Safety Concerns, Hazardous Waste Management, Air Pollution Control, and Water Pollution Control. The fact sheets were presented in clear plastic envelopes on a key ring for ease of posting and handling.

The Pollution Prevention Program continued working collaboratively in this sector with the Rhode Island Department of Health, the U. S. Occupational Safety and Health Administration and the Davies Career and Technical High School. This partnership led to the signing of a Memorandum of Understanding in September of 1999. The MOU memorialized this unique joint venture and paved the way for the development of a new approach to assisting and regulating this high-risk industry.

The authors, through their association with the interstate group NEWMOA[3], became familiar with the Environmental Results Program (ERP) used in Massachusetts to regulate certain business sectors. Major elements of the ERP include:

- Certification replaces case by case permits.
- Clear standards and compliance assistance.
- Corporate accountability and self-evaluation.
- Inspections and enforcement.

The Massachusetts Department of Environmental Protection, administrators and regulators of the program, has reported a number of significant results from the program. The number of facilities regulated increased dramatically over the traditional permitting program. Environmental Business Practice Indicators were developed to measure industry performance. Statistically significant improvements to regulatory compliance were readily documented. Department resources were more efficiently utilized. The program was recognized as a better way to do business by the US Environmental Protection Agency, and has been expanded into a number of other sectors.[4]

The autobody industry in Rhode Island consists of mainly small and medium sized shops that are operated with minimal resources. The industry is subject to regulation by a number of state and federal agencies concerned with air and water pollution, hazardous waste generation, and worker health and safety. The self-certification method was recognized as an excellent template for addressing the full range of requirements that these shops are responsible for.

At a meeting with the autobody shop owners held in November of 1999 at the Davies Vocational High School, the Department introduced the concept of a certification program. The vision for this program includes development of a checklist with the following elements:

- Requirements for compliance with Air Pollution Control Regulations and Hazardous Waste generation rules regulated by the DEM.

- Worker Health and Safety requirements regulated by OSHA.

- Water Pollution discharge requirements regulated by local sewer authorities.

- Pollution Prevention recommendations developed by the DEM.

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[3] NEWMOA is the North East Waste Management Officials Association, a non-profit interstate association, consisting of the States of Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont.

[4] The Massachusetts Department of Environmental Protection utilizes the ERP in the Photoprocessing, Dry Cleaning and Printing Industries.

- An employee training program developed by a team with representation form the Davies Vocational High School, the University of Rhode Island Center for Pollution Prevention and the DEM's Office of Technical and Customer Assistance.

Completion of the checklist will be followed by the compilation of an instruction manual that will provide guidance to the shop owners completing the certificate checklist.

The Department established a stakeholder process consisting of a workgroup with members from the DEM, DOH, the Narragansett Bay Commission, which is Rhode Island's largest sewer authority, Davies, OSHA, and an Advisory Team consisting of autobody shop owners representing small, medium, and large shops in Rhode Island.

The workgroup and Advisory Team held their first meeting on March 7, 2000. Representatives from the Massachusetts DEP gave a presentation on the development and implementation of the ERP. The presentation resulted in a foundation for the future development of the Rhode Island Program.

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