

# Environmental Training for Hazardous Materials Management

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Keith C. Swearingen and Robert E. Tatman, *Ohio Department of Transportation*

Departments of transportation are today, more than ever before, affected by a staggering load of rules and regulations designed to control and manage hazardous waste. Federal and state environmental protection agencies, the federal Occupational Safety and Health Administration, and local environmental regulators all promulgate rules and regulations that can create a nightmare for transportation managers. In 1989, the Ohio Environmental Protection Agency issued findings and orders to the Ohio Department of Transportation (ODOT) concerning mismanagement of hazardous waste in five separate locations. The lack of required training was the item most cited as causing ODOT's management problems with hazardous waste. The best way for departments of transportation to minimize hazardous waste management problems is to have a well-trained staff. With that in mind, ODOT developed hazardous waste training courses for all employees whose job requires hazardous waste management. If ODOT's training program had been in place during the mid-1980s, there is a good chance that the agency would not have been found in violation of environmental regulations. The \$12 million to \$15 million now being spent to remediate these sites could be spent on new county facilities or other capital improvement programs. Transportation officials must place priority on employee training in order to decrease environmental liability.

**D**epartments of transportation are today, more than ever before, affected by a staggering load of rules and regulations designed to control and manage hazardous waste. Federal and state environmental protection agencies (EPAs), the federal Occupational Safety and Health Administration (OSHA), and local envi-

ronmental regulators all promulgate law, rules, and regulations that can create a nightmare for transportation managers. The Ohio Department of Transportation (ODOT) became painfully aware of the consequences of its failure to properly manage hazardous waste in the late 1980s. Apathy, poor training, and fear all contributed to enforcement action taken against ODOT by the Ohio EPA.

Federal and Ohio laws provide for "cradle to grave" regulation of hazardous wastes. The federal hazardous waste law is known as the Resource, Conservation and Recovery Act of 1976 (RCRA). It is under this act that the Ohio EPA found that ODOT mismanaged its hazardous waste.

In 1989, the Ohio EPA issued findings and orders to ODOT concerning violations of environmental law at the following locations:

1. District 4 headquarters at Ravenna,
2. District 5 old garage site at Newark,
3. District 6 headquarters at Delaware,
4. District 11 headquarters at New Philadelphia, and
5. Traffic sign shop at West Broad Street.

All of the citations are similar. The findings and orders cite mishandling, improper storage, and improper disposal of hazardous waste. In addition, ODOT was found to be in noncompliance with employee training requirements and was fined \$124,000, which was ordered spent on an employee training program.

The Division of Operations is responsible for carrying out EPA's findings and orders at ODOT. The Division of Administration, Bureau of Health, Safety and Claims, is

responsible for establishing a training program and providing technical assistance to the Division of Operations.

The Division of Operations proceeded with the first step in compliance with EPA's order by hiring consultants to prepare closure plans. The plans were completed and submitted to EPA for approval in 1990. The second and final step of the process required the development of bidding specifications and subsequent advertisement of the projects. This last prework phase will be completed in 1994 for all five projects.

The complexity and unknown variables of RCRA projects add to the difficulty in completing a closure plan. This paper will use the District 5 project, located in Newark, Ohio, as an example of how an RCRA closure is accomplished.

ODOT is currently in the project or remediation phase of its RCRA closures. Since the ODOT has little or no experience in this type of work, it chose to complete the projects one at a time instead of doing all the work at once, in order to gain experience and perhaps reduce costs. The District 5 project, is typical of all the other violations. The constituents of concern are very similar from site to site. Generally, the department conducts work at the areas for a number of years. The garage at Newark opened for business in the late 1920s and remained an active facility until the early 1980s.

The site consists of five closure units located on approximately 3 acres of land. Area A was used by the ODOT Traffic Section to house pavement marking operations. The primary constituents of concern were lead and solvents, such as xylene and toluene. Area B was a storage building for new products associated with ODOT's testing laboratory. The primary constituent of concern is 1,1,1, trichloroethane. Area C was used to store waste testing solvents and also had spills associated with poor handling practices. The primary constituent concern was 1,1,1 trichloroethane. Area D was located next to ODOT's main garage and was used to paint equipment. The primary constituents of concern were lead and solvents, such as xylene. Finally, Area E was used to store waste oil and other petroleum-based products. The primary constituents of concern were lead, benzene, xylene, and other hydrocarbon products.

All of the information, as described, was included in the Findings and Orders issued by the Ohio EPA. Once the Findings and Orders were received by the department, the closure of each project had to follow RCRA guidelines as described below:

1. A closure plan was prepared by a consultant. This plan was then submitted to the Ohio EPA for approval.
2. Once approval was granted, ODOT prepared a bid document, which followed the procedures established by the approved closure plan.

3. The project was advertised for sale.
4. Bids were received and the project awarded.

Once the project became active, it also had to follow RCRA guidelines established in the closure plan. Generally, the work proceeded as follows:

1. Lay out the test sample pattern.
2. Obtain samples by geological drilling.
3. Follow health and safety plans for air monitoring and decontamination procedures (i.e., equipment and staff).
4. Initiate remediation based on the results of the sampling.

The cost of the District 5 RCRA project has been beyond ODOT's highest estimates. To date, ODOT has spent \$4.0 million and is not yet finished with all of the areas. ODOT will have to install a groundwater treatment system, which has not been designed at this time. Final costs could exceed \$7.0 million.

Costs for all of ODOT's RCRA projects, based on the Newark work, could range between \$12 million and \$15 million. As with most DOTs, ODOT has no excess funds for environmental cleanup. The agency has used funding from its capital improvements area, which is for facilities improvements. This has caused a setback for ODOT's long-range program of building new garages and outposts. The agency simply cannot afford to repeat its poor management of hazardous wastes. The best way to minimize future environmental liability is to have a well-trained staff that will follow ODOT's hazardous waste management programs. To accomplish this goal, ODOT has initiated an extensive training program.

Four levels of training classes have been designed on the basis of OSHA and EPA training requirements. ODOT also recognized the need to train the managers in the department to have the level of support and understanding. Without management support, the training and subsequent implementation of policy is very difficult to accomplish. The following is a description of the goals and course agenda for ODOT's hazardous waste management training classes.

#### MANAGEMENT COURSE—REGULATORY OVERVIEW

The goal of this course is to make managers aware of the numerous regulations that affect their operations. This course should provide an overview of the requirements of each regulation as it pertains to ODOT's operations. At a minimum, topics to be covered should include the following:

- RCRA waste generation and disposal requirements,
- 29 CFR 1910.120 Hazardous Waste and Emergency Response,
- OSHA requirements,
- SARA Title III,
- Management liability (civil and criminal), and
- ODOT's Hazardous Materials Program.

### HAZARDOUS WASTE SUPERVISOR

The goal of this course is to make supervisors aware of the numerous regulations that affect their operations. This course should provide an overview of the requirements of each regulation as it pertains to operations and identify specific areas that need daily supervision to ensure implementation. At a minimum, topics to be covered should include the following:

- RCRA waste generation and disposal requirements,
- Inspections,
- Manifests,
- 29 CFR 1910.120 Hazardous Waste and ER (plans, drills, experience),
- OSHA requirements (general),
- SARA (reporting requirements),
- Spill reporting,
- Labeling requirements,
- 49 CFR Part 172,
- Container management,
- Liability (civil and criminal), and
- ODOT hazardous materials program.

### EMERGENCY RESPONSE COURSE

The course must present the basic information as established in 29 CFR 1910.130. The program is to be a combination of classroom/lecture, problem solving, and hands-on exercises. It must also be tailored to ODOT operations by involving problems, scenarios, and examples of the potential operations ODOT employees may encounter as well as some specific chemicals used at the facilities. Each topic must include a discussion of the specific ODOT policies, procedures, and operations (ODOT's hazardous materials program).

The goal of this course is to provide the attendees with the ability to implement a safety plan; classify, identify, and verify known and unknown materials using basic monitoring equipment; function within an assigned role; select and use respiratory protection and personal protective equipment; assess hazards and risks; perform advance hazardous materials control operations within provided

capabilities; select and implement appropriate decontamination procedures; complete record-keeping procedures; and understand basic chemical, biological, and radiological terms and behavior. At a minimum, the following topics are to be covered:

- 29 CFR 1910.120 requirements;
- Chemical and physical properties of hazardous materials, both general and specific to operations encountered;
  - Recognition, identification, and risk assessment of hazardous materials;
  - Toxicology;
  - MSDS;
  - Respiratory protection;
  - PPE—selection, care, and use;
  - Medical surveillance—1910.120 requirements;
  - Heat/cold stress—symptoms and prevention;
  - Response techniques: containment, confinement, and so forth;
- Decontamination;
- Physical hazards;
- Communications;
- Safety issues
- Transportation/disposal;
- Incident command system;
- PUCO requirements 42 CFR;
- Termination procedures and recordkeeping;
- Public community relations issues/plan;
- Labeling;
- Emergency plan;
- Security and control; and
- Container management.

### AWARENESS COURSE

This course must present the basic information as established in 29 CFR 1910.120. The program is to be a combination of classroom/lecture, problem solving, and hands-on exercises. It must be tailored to ODOT operations by involving problems, scenarios, and examples of the potential operations ODOT employees may encounter as well as some specific chemicals used at the facilities. Each topic must include a discussion of the specific ODOT policies, procedures, and operations.

The goal of the course is to provide those persons who, in the course of their normal duties, may be the first on the scene of a hazardous materials incident with the competency to respond in a safe manner. These personnel are not expected to take any actions other than to recognize that a hazard exists, call for trained personnel, and secure the area. At a minimum, the following topics are to be covered:

- Toxicology;
- Physical and chemical hazards of hazardous materials;
- Recognition and risk assessment of hazardous materials by their labels, placards, shipping papers, and MSDS;
- Potential emergencies that may be encountered;
- Site security and control;
- U.S. Department of Transportation *Emergency Response Guidebook*;
- Site-specific emergency response plan;
- Additional resources available; and
- Expectations of role/actions within the emergency response plan.

## RESULTS AND DISCUSSION

ODOT has received positive feedback from the people who have taken these courses. The agency trained nearly 700 employees at a total cost of approximately \$60,000. The agency cannot relax its training efforts now, even though it has completed a large program. RCRA states that if an agency generates and disposes of hazardous waste, continuous training must be maintained.

The appropriate level of training for staff transfers and new hires must be identified and that training administered on a timely basis.

The benefits to the department from a well-conceived and presented training program quickly manifested themselves in positive management practices. The ODOT Waste Management Program was the basis of training presentations, not a generic program that did not reflect ODOT's operations. This resulted in an increase in employee interest. Instead of studying a lot of regulations from the Code of Federal Regulations, students were able to associate the rules and regulations with actual ODOT work practices.

Hazard communications and hazardous waste manifests, both critical in managing ODOT's hazardous waste program, have been sources of misunderstanding and improper use. The training of the ODOT staff has resulted in a much better application of how MSDS data and hazardous waste manifests tie into proper waste management. Employees now realize what information is important and where to look for it.

Housekeeping is another task that often does not receive due attention. Improper labeling, outdated waste, spills, and leaks all added to problems with proper waste management. The ODOT staff has improved its housekeeping chores and, in some cases, has developed new ways of preventing problems associated with housekeeping.

In one field district, the inventory system has been changed to incorporate a bar code system for product identification and tracking. The bar codes are affixed to each product as it is received and remain in place until the product is used. Additional information concerning the product may also be affixed with the bar code, such as stickers advising of flammability, toxicity, and required safety precautions.

The ODOT training program has resulted in much higher awareness of waste management among employees. They have a much better idea of why proper waste management is so important to the department.

One of the main challenges for the future is to maintain the level of interest shown by employees immediately after receiving training. As with most DOTs, waste management is not ODOT's primary work objective and can quickly be lost in the day-to-day business of building and maintaining highways. The challenge will be met with continuing education and inspections conducted by the department's environmental staff.

Another challenge will be to identify and properly manage all of the waste streams generated by the department. The Division of Operations has 244 garages and outposts, all with the potential of generating hazardous and nonhazardous waste. The need to identify these items and extend training to employees not already trained will be continuous. The training program will also have to address new hires and transfers on a timely basis.

If the department's training programs on waste management had been in place during the mid-1980s, there is a good chance that it would not have violated the RCRA. The \$12 million to \$15 million now being spent to remediate these sites could be spent instead on new county garages and other capital improvement programs. ODOT must continue to train its employees in an efficient and timely manner to reduce the chances of incurring future liability under environmental law. Transportation officials must place the priority of employee training at a high level to keep liability at a low level. These efforts must succeed because the alternative is unaffordable.