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TRANSPORTATION SAFETY TRAINING

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Abstract

Over the past 25 years extensive federal legislation involving the handling and transport of hazardous materials/waste has been passed that has resulted in numerous overlapping regulations administered and enforced by different federal agencies. The handling and transport of hazardous materials/waste involves a significant number of workers who are subject to a varying degree of risk should an accident occur during handling or transport. Effective transportation training can help workers address these risks and mitigate them, and at the same time enable ORNL to comply with the federal regulations concerning the transport of hazardous materials/waste. This presentation will outline how the Environmental and Health Protection Division's Technical Resources and Training Section at the Oak Ridge National Laboratory, working with transportation and waste disposal personnel, have developed and implemented a comprehensive transportation safety training program to meet the needs of our workers while satisfying appropriate federal regulations.

Introduction

There are basically six laws administered by four federal agencies that regulate some aspect of the transportation of hazardous materials/waste. The Resource Conservation and Recovery Act (RCRA)[1] contains legislation requiring the EPA to regulate the transport of hazardous waste. Under RCRA the EPA currently requires transporters of hazardous waste to comply with DOT regulations in addition to preparing a waste

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manifest and meeting certain marking requirements. The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)[2] commonly known as Superfund, which is also administered by the EPA, requires that transporters of hazardous materials/waste include on a shipping paper and/or waste manifest the notation "RQ" if the material being transported is a hazardous substance and is above the reportable quantity as listed under 40 CFR Part 302. Title III of SARA (Superfund Amendments and Reauthorization Act), The Emergency Planning and Community Right-to-Know Act,[3] requires facilities using, producing, or storing toxic chemicals to participate in emergency planning committees and to inform the community on the safety of these chemicals. The Environmental Protection Agency (EPA) is responsible for the enforcement of regulations promulgated under RCRA, CERCLA, and Title III of SARA. The Occupational Safety and Health Act[4] authorizes the Occupational Safety and Health Administration (OSHA), within the Department of Labor, to set regulations governing the health and safety of workers in the private sector. OSHA has promulgated numerous regulations requiring the training of workers who handle hazardous materials through use of motorized and/or mobile equipment. The Superfund Amendments and Reauthorization Act (SARA)[5] contains legislation requiring the training of hazardous waste workers on health and safety issues which includes workers who transport hazardous waste. This training requirement is administered and enforced by the OSHA as well. The Hazardous Materials Transportation Act (HMTA)[6] provides the Department of Transportation (DOT) authority to promulgate and enforce regulations for all modes of transportation, to designate materials as hazardous, and to issue regulations governing packaging, handling, labeling, marking, placarding, and routing. The Federal Motor Carrier Safety Regulations issued by DOT outline the requirements for drivers of hazardous materials. The Department of Energy (DOE) conducts its transportation activities in compliance with the DOT regulations unless the national security exemption is applicable. The DOE has also issued orders of its own regulating transportation of hazardous materials.

As discussed above, the development of a comprehensive transportation safety training program that would address the needs of various job categories and at the same time meet the requirements of six laws administered by four different federal agencies could be cumbersome. The approach used by TRT to develop a program to meet ORNL needs can be broken into five steps:

- Review federal regulations
- Conduct needs assessment
- Review transportation logistics procedures
- Determine tasks performed by ORNL personnel
- Develop appropriate courses

A review of federal regulations has been discussed. The following is a discussion of the next four steps that were used in the development of the ORNL Transportation Safety Training Program.

Needs Assessment

During January and February 1988, Analysas Corporation assessed the training needs of the hazardous materials transportation safety program at ORNL.[7] The purpose of the task was to identify areas where additional effort needed to be applied to bring the overall training program into compliance with applicable Department of Energy, state, and federal regulations governing the transportation of hazardous materials, fissile and non-fissile radioactive material, and hazardous wastes. Recommendations include: increased training and testing for truck drivers transporting hazardous materials; increased training and testing for mobile equipment operators; creation of a dedicated position within each division with responsibility for all division training coordination and documentation; increased training for Receiving and Materials Distribution personnel involved in handling, storing, packaging, and transporting hazardous materials; and increased job-specific training to waste generators.

Regulations applicable to ORNL were reviewed (Table 1). Each regulation contained requirements for training personnel involved in some aspect of the job of handling, storing, packaging, and transporting hazardous materials or wastes. In order to assess facility compliance with these training requirements, a comprehensive list of training elements was compiled from the regulatory documents and is shown in Table 2. A detailed job/task analysis was not performed by Analysas; however, the staff in the various divisions was grouped into similar job categories as shown in Table 3.

Logistics Procedures

After reviewing Analysas' recommendations, ORNL's Office of Operational Safety asked TRT to develop and implement a comprehensive transportation safety training program that would address the recommendations of the Analysas report. Although there are many good transportation training programs available to DOE Contractors through outside contractors, TRT felt a site-specific transportation safety training program was needed. Armed with the Analysas report, TRT began designing a training program.

Program Development

The various courses in the Transportation Safety Training Program were developed after we had an understanding of the federal regulations, information obtained from a needs assessment, a description of the transportation logistics, and tasks performed by personnel in organizations involved in transporting materials.

The ORNL Transportation Safety Training Program is composed of four separate training programs. These programs are:

- DOT Regulations for Packagers and Shippers
- DOT Regulations for Incidental Materials Handlers

- Federal Motor Carrier Safety Regulations Compliance
- Tennessee Commercial Driver License Program Review

Below we will discuss the regulatory requirements for each of these programs, the intended trainees, length of the program, and the type of information included in the curriculum.

DOT Regulations for Packagers and Shippers

This program was designed to meet the requirements found in 49 CFR, Parts 100-177; 40 CFR, Parts 240-272; DOE Orders 1540.1, 1540.2, 5480.3 (and 5480.3A Draft), and ORNL Standard Practice Procedure 65.

The intended audience for this program is all ORNL personnel who are responsible for packaging and shipping hazardous materiais. The 32-hour program has been divided into 15 modules. All participants are required to attend a 10-module core program (approximately 20 hours). The attendees may attend any of the remaining 5 modules (12 hours) needed for their specific jobs.

Information in this training program includes a review of the interface among the Department of Energy, the Department of Transportation, and the Environmental Protection Agency; ORNL transportation logistics; identification of hazardous materials; hazardous materials table; packaging, labeling, marking, placarding; documentation; emergency procedures; hazardous waste; container storage; vehicle inspection criteria; radioactive material; and a review of the International Airline Transport Association regulations.

DOT Regulations for Incidental Materials Handlers

This program was designed to meet the requirements found in 49 CFR, Parts 100-177; 40 CFR, Parts 240-272; DOE Order 5480.3 (and 5480.3A Draft), 29 CFR, 1910.1200, and proposed DOT Rule HM-126F.

The intended audience for this program is all ORNL personnel who receive, store, or distribute inbound or outbound hazardous materials shipments. This is an 8-hour program.

Information in this training program includes identification of package condition; proper identification of hazardous materials; marking, labeling, packaging, placarding; documentation; correct segregation of materials; use of personal protective equipment; and correct emergency procedures.

Federal Motor Carrier Safety Regulations Compliance

This program was designed to meet the requirements found in 49 CFR, Parts 350-399; DOE Order 5480.3 (and 5480.3A Draft), and ORNL Standard Practice Procedure 65.

The intended audience for this program is all ORNL personnel who transport hazardous materials and wastes. In this training program, the participants get a quick review of the 49 CFR, Parts 350-399, regulations governing transport of hazardous mateirals.

At the end of this 3-hour program, the FMCS Written Examination is administered and reviewed. The FMCS Road Test is also administered if needed.

Tennessee Commercial Driver License Program Review

This program was designed to meet the requirements found in 49 CFR, Parts 383; and Tennessee Code Annotated, Title 55.

The intended audience for this program is all ORNL personnel who transport hazardous materials and who are required to hold a Tennessee Commercial Driver License and appropriate endorsements. This is a 10.5-hour review program of the CDL Manual issued by the State of Tennessee.

Summary

Because of the numerous pieces of legislation and the variety of administering federal agencies that play a part in regulating the transportation of hazardous materials and wastes, we have to understand what must be done to comply. It is essential that comprehensive transportation safety training programs inform workers what part they play in the overall scheme of transporting materials and the specific tasks that they are expected to perform. In addition it is important to make the transportation worker aware of the specific hazards and risks associated with the materials with which he/she may work. Therefore, a customized, yet comprehensive, transportation safety training program is important in addressing the specific transportation safety training needs at ORNL.

Acknowledgements

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REFERENCES

1. Resource Conservation and Recovery Act of 1976 (RCRA), Public Law 94-580, October 21, 1976, 90 Stat. 2795; Personnel Training, 40 CFR Part 265.16, Federal Register, 50 FR 4514, January 31, 1985.

2. Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund), Public Law 96-510, December 11, 1980, 94 Stat. 2795.

3. Title III of SARA, The Emergency Planning and Community Right-to-Know, Public Law 99-499, October 17, 1986.

4. Occupational Safety and Health Act, Public 91-596, USC 651 **et seq.**, 1970.

5. Superfund Amendments and Reauthorization Act of 1986 (SARA), Public Law 99-499, October 17, 1986, 100 Stat. 1613.

6. Hazardous Materials Transportation Act (DOT), Public Law 93-633, 49 USC 1801-1804, 49 CFR Parts 100-199, 390-399, 1975.

7. Roger S. Perkins and C. Jane Morgan, **Training Needs Assessment for the Hazardous Materials Transportation Safety Training Program at ORNL**, Analysas Corporation, February 19, 1988, INTERNAL REPORT.

8. Oak Ridge National Laboratory, Standard Practice Procedure No. 65, "Off-Site Transportation of Radioactive Materials, Hazardous Materials, and Hazardous Wastes," January 5, 1988, INTERNAL DOCUMENT.

TABLE 1. FEDERAL REGULATIONS DEALING WITH HAZARDOUS MATERIALS REVIEWED BY ANALYSAS CORPORATION

Title 10 CFR Part 71 - Packaging and Transportation of Radioactive Materials, Department of Energy Regulations.

Title 29 CFR, specifically, Parts 1910.120 and 1920.1200 - Occupational Safety and Health Standards as applicable to Hazardous and Radioactive Materials, SARA and HAZCOM.

Title 40 CFR, Resource Conservation and Recovery Act (RCRA) of 1976, Parts 262-265, Environmental Protection Agency.

Title 49 CFR, Parts 101, 171-179, 390-399, Regulations for Shippers and Carriers, Department of Transportation.

Public Law 96-510, The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, also known as Superfund, Environmental Protection Agency.

Department of Energy Orders:

1540.1, Materials Transportation and Traffic Management
1540.2, Hazardous Material Packaging for Transport - Administrative Procedures
5480.1A, Environmental Protection, Safety, and Health Protection Program for DOE Operators
5480.3, Safety Requirements for the Packaging and Transportation of Hazardous Materials, Hazardous Substances, and Hazardous Wastes
5480.3A (Draft, 9/8/87, not approved), Safety Requirements for Packaging and Transportation of Hazardous Commodities
5480.4, Environmental Protection, Safety, and Health Protection Standards
5483.1A, Occupational Safety and Health Program for DOE Contractor Employees at Government-Owned Contractor-Operated Facilities
5610.1, Packaging and Transporting of Nuclear Explosives, Nuclear Components, and Special Assemblies
5700.6B, Quality Assurance

TABLE 2. HAZARDOUS MATERIAL TRAINING PROGRAM ELEMENTS

OSHA Rights and Responsibility
Hazard Communication/Recognition: General
Hazard Communication/Recognition: Job Specific
Site Emergency Plans
Shipping Documentation: Papers
Shipping Documentation: COCs/SARP
Facility Spill Plan
DOE Transportation Data Base Use
Placards, Markings, and Labels
Packaging: Selection
Packaging: Inspection
Packaging: Use
Waste Management: General
Waste Management: Job Specific
Waste Management: Documentation
Fissile and Radioactive Material: Waste Disposal
Fissile and Radioactive Material: Packaging
Fissile and Radioactive Material: Storage
Fissile and Radioactive Material: Transportation
Fissile and Radioactive Material: Security
Personnel Protective Equipment Use
Mobile Equipment: Operation
Mobile Equipment: Material Handling Safety
Mobile Equipment: Repair/Preventative Maintenance
Mobile Equipment: Licensing/Testing
Mobile Equipment: Inspection

TABLE 3. JOB GROUPINGS IDENTIFIED BY ANALYSAS CORPORATION

Stores

Stores
Transfer
Clerical
Management

Traffic and Transportation

Clerical
Management
Inspectors

Isotope Production Operators

Product handlers
Hazardous waste generators
Packagers

Shipping and Receiving

Storage
Transporters
Packagers

Plant and Equipment

Users
Waste generators
Transporters
Packagers
Inspectors

Reactor Operation

Transporters
Users
Waste generators

Emergency Response Personnel

Miscellaneous

Clerical
Janitors
Laborers
Laundry

Truck Drivers

On-Site
Off-Site

Waste Management

Packagers
Storage handlers
Disposal workers
Transporters

Purchasing

Environmental, Safety, & Health Support

Outside Contractors

Quality Assurance