

A GENERIC HAZARDOUS WASTE MANAGEMENT TRAINING PROGRAM\*

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### BACKGROUND

The Resource Conservation and Recovery Act (RCRA) is the primary Federal law governing the generation, transportation, and disposal of hazardous waste. All nuclear power facilities have processes which produce waste chemicals that are now regulated under this law and its amendments. Some of the more demanding aspects of the RCRA regulation are the training requirements outlined in title 40 of the Code of Federal Regulations, section 264.16<sup>1</sup>. This section requires semi-annual training of personnel involved in the use, storage, transport, and disposal of hazardous waste. Because the definition of hazardous waste includes relatively inert materials, this training requirement impacts many of the personnel at a nuclear facility.

Oak Ridge National Laboratory is developing a generic, i.e., applicable to all major commands and installations, three-hour RCRA training program for the United States (US) Air Force which is directed towards people responsible for day-to-day use, storage, transport, and disposal of hazardous materials and wastes, and first-line supervisors of these operations. The program highlights major compliance requirements and chronologically follows a hazardous material from its arrival on-base to its departure through a disposal contract. It focuses on both individual responsibilities and the importance of teamwork. Most of the training program also appears to be applicable to the nuclear power industry. The program consists of seven main elements; each of which is addressed below.

### I. INTRODUCTION TO RCRA

The main purpose of this training program element is to familiarize personnel involved in hazardous waste management with the goals of RCRA and how they are to be achieved. These goals include:

- o To protect health and the environment.
- o To conserve valuable material and energy resources.
- o To prohibit future open dumping on the land.

- o To assure that hazardous waste management practices are conducted in a manner which protects human health and the environment.

- o To insure that hazardous waste is properly managed thereby reducing the need for corrective actions in the future.

- o To establish a national policy to reduce or eliminate the generation of hazardous waste, wherever feasible.

Another objective of this program element is to present a brief overview of the RCRA regulations and how they are implemented/enforced by the Environmental Protection Agency (EPA) and each of the fifty states. This element also discusses where the RCRA regulations are published and how they are updated. In addition it details who is responsible for compliance with the regulations. Finally, this part of the training program provides an overview of the activities and materials that are regulated.

## II. IDENTIFICATION OF HAZARDOUS WASTE

The objectives of this program element are three-fold. The first is to present the regulatory and statutory definitions of a number of different types of hazardous waste, i.e., ignitable, reactive, corrosive, toxic, listed (non-specific source, specific source, and commercial chemical) wastes. The second objective is to familiarize personnel with typical hazardous materials and wastes generated or managed at Air Force facilities. The last objective is to describe how an item can become a hazardous waste and how to determine if a generated waste is a hazardous waste.

## III. ACCUMULATION POINT MANAGEMENT

The purposes of this training program element are to provide guidance to people regarding RCRA regulations that apply to temporary storage of hazardous waste and instructions for the proper management of waste accumulation points and satellite accumulation points. These accumulation points are defined in terms of the amount and length of time the waste is stored. Location requirements and safety equipment/guidelines for the accumulation points are also described. The equipment includes personal protective clothing (gloves, boots, eyewear, face masks, respirators, self contained breathing apparatus, and encapsulated suits), fire response equipment, and grounding/bonding. This program element additionally discusses how to:

- o Determine which wastes may be accumulated in each container (through use of the Department of Transportation [DOT] hazardous materials table and drum specifications).

- o Determine waste compatibility.

- o Minimize the volume and toxicity of the hazardous waste generated.

Also, the segregation of wastes according to type, compatibility, reutilization potential, and ultimate waste treatment method is presented. Finally, this element discusses the inspection requirements for permitted facilities and accumulation points and record-keeping requirements.

#### IV. CONTAINER SELECTION AND MANAGEMENT

The objective of this training program element is to provide personnel with information needed: to select a container which is acceptable for the accumulation and transportation of the hazardous wastes generated and to comply with relevant RCRA and DOT regulations. Instructions regarding container selection, marking, labeling, management, and on-site transport are described. The DOT requirements for hazardous waste containers, i.e., container condition, use of reconditioned containers, reuse of single trip containers, and non-reusable containers, and labeling are provided. EPA marking requirements are also presented. Lastly, the proper steps for the transportation of hazardous waste are discussed. This includes:

- o Ensuring that the waste is accumulated in DOT specified drums and the drums are in good condition.
- o Verifying that the waste analysis is up-to-date.
- o Ensuring that the truck is properly loaded.

#### V. MANIFEST AND TRANSPORTATION OF HAZARDOUS WASTE

The objective of this element of the training program is to provide personnel involved in the management of hazardous wastes with instructions for satisfying the manifest and placard regulatory requirements which must be met prior to shipping a hazardous waste off-site. The following topics are covered:

- o When to use a hazardous waste manifest.
- o Selection of the appropriate manifest.
- o Step-by-step procedures to complete the manifest.
- o Manifest certification.
- o Who should sign the manifest.
- o Record-keeping requirements.
- o Reporting requirements.

- o Requirements for off-site hazardous waste transportation.

## VI. SPILL PREVENTION AND RESPONSE

There are two objectives of this training program element. The first is to familiarize personnel with contingency plans and spill prevention and response plans. Examples of actions taken to implement the plans are provided. The other objective is to present guidance for incidents such as spills, leaks, and environmental contamination. The guidance includes:

- o Operation of communication and alarm systems.
- o Who is responsible for directing and coordinating response activities.
- o Emergency notification requirements.
- o Reporting fires and explosions.

## VII. PERSONNEL AND FIRE SAFETY

The objectives of this program element are to provide personnel with safety information that can be utilized when using or while exposed to hazardous materials and waste. The elements of safe and unsafe environments and guidance on the handling of corrosive, toxic, and reactive materials are described. In addition, key terms to examine when assessing the degree of hazard are defined. Criteria for the use of personal protective clothing, i.e., donning and doffing, maintenance, decontamination, and limitations, and how to decide on levels of protection are also presented. Finally, sources of safety information are discussed. The sources include:

- o Material safety data sheets.
- o Hazardous materials information systems.
- o Environmental coordinator.
- o Fire department.
- o Reference materials.

## TRAINING PROGRAM COURSEWARE

The courseware for the training program consists of both narrative/textual material and 35mm slides. The textual material is written at a 12th-grade reading level. The slides include:

- o Representative photographs of hazardous waste activities.

- o Word slides (i.e., overview, checklist, and summary).
- o Cartoon characterizations of hazardous waste management activities.

There is, on-the-average, one slide for every thirty seconds of narrative. The slides are color-coded to correspond to the seven elements of the training program. Each slide has five icons shown across the top of it. These icons are used to help augment the person's understanding of the applicability of the hazardous waste management procedures and requirements regarding duties involving the management of hazardous waste. The icon system is used to trace the sequence of events which occurs during the generation and management of hazardous waste from item supply to the ultimate transportation of hazardous waste off-site.

#### NOTES

The research described in this paper was sponsored by the Air Force under the US Department of Energy (DOE) interagency agreement 40-1489-84 with Martin Marietta Energy Systems, Inc. under contract number DE-AC05-84OR21400 with DOE. It is one of many projects managed by the Hazardous Waste Remedial Actions Program (HAZWRAP). The training program has not as yet been approved or adopted by the Air Force. Also, the views and opinions are those of the authors and should not be interpreted or construed as the official position of the HAZWRAP or Air Force.

#### REFERENCE

1. OFFICE OF THE FEDERAL REGISTER, NATIONAL ARCHIVES AND RECORDS ADMINISTRATION, "Code of Federal Regulations, Title 40 (Protection of the Environment)", US Government Printing Office (1986).