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Standard Guide for Developing a Hazardous Materials Training Curriculum for Initial Response Personnel¹

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1. Scope

1.1 This guide covers a format for a hazardous materials spill initial response team training curriculum. This guide is designed to assist trainers of initial response personnel in assessing the content of training curriculum by providing guidelines for subject content against which these curricula may be evaluated. The guide should be tailored by the trainer to fit specific circumstances that are present in the community or industry where a spill may occur.

1.2 Sections 56789 of this guide identify those training areas that should be considered in a curriculum. The area of preplanning is listed and this topic should be seriously considered by the user. Training is only a small part of an overall spill response contingency plan. A properly equipped and trained spill response team cannot operate without a previously agreed plan of attack.

1.3 Currently the Code of Federal Regulation 40 CFR 112, 40 CFR 265, and 49 CFR 173 specify that producers, handlers, and shippers of hazardous materials shall plan and train for hazardous spill response. The broad interpretation of these regulations could include the requirement to train state and local response organizations who may be required to handle hazardous materials in an emergency spill situation. Regardless of the above regulatory requirements, training is essential to a proper response in an emergency.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 Federal Regulations:

40 CFR 112—Oil Pollution Prevention²

40 CFR 265—Interim Status Standards for Owners and

¹ This guide is under the jurisdiction of ASTM Committee F20 on Hazardous Substances and Oil Spill Response and is the direct responsibility of Subcommittee F20.21 on Initial Response Actions.

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² Available from U. S. Government Printing Office, Washington, DC 20402.

Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities²

49 CFR 173—Shippers—General Requirements for Shipments and Packagings²

2.2 Other Documents:

DOT-P5800.2—DOT Emergency Response Guide Book³

NIOSH/OSHA—Pocket Guide to Chemical Hazards⁴

Emergency Handling of Hazardous Materials in Surface Transportation⁵

OSHA 20 or Materials Safety Data Sheets⁶

3. Summary of Guide

3.1 This guide covers the following areas:

3.1.1 Preplanning,

3.1.2 Initial Assessment,

3.1.3 Personal Safety Equipment,

3.1.4 Training, and

3.1.5 Implementation of Plan of Attack.

3.2 Preplanning covers the aspects of pre-accident planning that should be considered by the response team members. This includes identification of potential hazardous chemicals, spill locations, and resource identification.

3.3 Initial assessment outlines those assessments that should be made when arriving at the accident location to assist in the development of a plan of attack.

3.4 Personal Safety Equipment discusses those safety devices and their limitations that are available to the response team members.

3.5 Training describes the activities that could be conducted by the team on a regular basis and the improvement of training plans after training exercises are completed.

³ Available from U. S. Department of Transportation, 400 7th Street, S.W., Washington, DC 20590.

⁴ Available from U. S. Department of Health and Human Services, 200 Independence Ave, S.W., Washington, DC 20201. Or available from U. S. Department of Labor, 200 Constitution Avenue, N.W., Washington, DC 20210.

⁵ Available from the Association of American Railroads/Bureau of Explosives, 1920 L Street, N.W., Washington, DC 20036.

⁶ OSHA 20 or Materials Safety Data Sheets are available from the specific chemical manufacturers.

3.6 Implementation of plans describes how and in what order the plan of attack should be implemented.

4. Significance and Use

4.1 This guide summarizes the typical contents of a course to aid emergency response team training organizations in selecting important subjects for inclusion in existing or new training programs.

5. Preplanning

- 5.1 Identify all areas subject to hazardous materials spills:
 - 5.1.1 Fixed facilities that store or produce hazardous materials.
 - 5.1.2 Routes that are used by carriers to transport hazardous materials.
- 5.2 Determine the type of hazardous material:
 - 5.2.1 Stored or produced.
 - 5.2.2 Transported:
 - 5.2.2.1 Contact truck companies.
 - 5.2.2.2 Contact rail companies.
- 5.3 Identify physical, chemical, and hazardous characteristics of each material:
 - 5.3.1 Obtain OSHA 20 or Materials Safety Data Sheets for each hazardous material identified.
 - 5.3.2 Suggested reference documents for data include the following:
 - 5.3.2.1 Chemical handbooks; for example, Condensed Chemical Dictionary.
 - 5.3.2.2 DOT-P5800.2—DOT Emergency Response Guide Book, U. S. Department of Transportation.
 - 5.3.2.3 NIOSH/OSHA Pocket Guide to Chemical Hazards, U. S. Department of Health and Human Services, U. S. Department of Labor.
 - 5.3.2.4 Emergency Handling of Hazardous Materials in Surface Transportation, Bureau of Explosives/Association of American Railroads.
 - 5.4 Determine the mitigation resources available to respond.
 - 5.4.1 A suggested reference is *ASTM STP 825*.⁷
 - 5.4.2 Determine the number, qualifications, and location of knowledgeable personnel:
 - 5.4.2.1 Local community.
 - 5.4.2.2 Private industry.
 - 5.4.3 Determine type and quantity of mitigation equipment available:
 - 5.4.3.1 Neutralizer.
 - 5.4.3.2 Foams.
 - 5.4.3.3 Water sources.
 - 5.4.3.4 Sorbents.
 - 5.4.3.5 Dispensing equipment.
 - 5.4.3.6 Containment equipment.
 - 5.4.4 Determine the type, location, and method of activation of all automatic response systems at the potential spill site.
 - 5.5 Identify critical population and environment areas adjacent to hazardous material sites or routes:
 - 5.5.1 Schools, hospitals, shopping centers, etc.

- 5.5.2 Water supplies, soil conditions, recreational areas, etc.
 - 5.6 Estimate the volume of the potential spill as follows:
 - 5.6.1 Obtain potential spill volume estimates from storer, producer, or carrier.
 - 5.6.2 Calculate spill volume from tankage sizes.
 - 5.7 Determine spill drainage path for site or route as follows:
 - 5.7.1 Attempt to determine the final spill location.
 - 5.7.2 Determine accessibility to the spill location.
 - 5.7.2.1 Establish travel route, including alternates, to the location.
 - 5.7.2.2 Establish entry procedures.
 - 5.7.3 Evaluate resources that could be made available at final spill location (refer to 5.4).
 - 5.8 Determine vapor dispersion path for the site or route as follows:
 - 5.8.1 Obtain normal meteorological data for area.
 - 5.8.2 Select a dispersion model.
 - 5.8.3 Develop vapor hazard corridor estimation procedures.
 - 5.8.4 Develop dispersion estimates for appropriate accident scenarios.
 - 5.8.5 Evaluate dispersion modeling results uncertainties.
 - 5.8.6 Utilize dispersion model data in conjunction with population data to estimate exposure potential.
 - 5.8.7 Consider specific chemical health impacts to identify population risk.
 - 5.9 Establish an evacuation plan.
 - 5.10 Determine spill reporting responsibilities for the following:
 - 5.10.1 Local.
 - 5.10.2 State.
 - 5.10.3 Federal.
 - 5.11 Develop a response plan with site or carrier management.
- #### 6. Initial Assessment of Incident
- 6.1 *Hazardous Substance Physical Identification:*
 - 6.1.1 Identify source of spill (that is, tanker truck, railcar, storage facility).
 - 6.1.2 Accurately identify substance spilled and its hazards:
 - 6.1.2.1 *Substance Identification:*
 - (a) Department of Transportation (DOT) Placards.
 - (b) United Nations (UN) Numbers.
 - (c) Standard Transportation Commodity Code (STCC) Number.
 - (d) Markings or material labels.
 - (e) Shipping papers.
 - 6.1.2.2 *Hazard(s) Identification:*
 - (a) Department of Transportation (DOT) Labels/Placards.
 - (b) National Fire Protection Association (NFPA) Labels.
 - (c) Physical observations.
 - (d) Detector measurements.
 - 6.1.3 *Physical Characteristics:*
 - 6.1.3.1 Solids.
 - 6.1.3.2 Liquid.
 - 6.1.3.3 Vapor.
 - 6.1.4 Approximate the volume of spill or the total volume at source, or both.

⁷ *Guide to the Safe Handling of Hazardous Materials Accidents, ASTM STP 825, ASTM, 1983.*