Course Learning Outcomes for Unit IV

Upon completion of this unit, students should be able to:

4. Describe how various hazardous materials are transported and relevant precautions.
   4.1 Identify U.S. Department of Transportation regulations for the transportation of hazardous materials.

Reading Assignment

Chapter 6:
Use of DOT Hazardous Materials Regulations by Emergency Responders

Unit Lesson

The transportation of hazardous materials has been an integral part of the economy within the United States. Hazardous materials are used in both industrial and household settings. Hazardous materials can provide cleaning agents for home areas, act as a cooling agent for a vehicle radiator, and can be used to purify water in a swimming pool. Hazardous materials can also fuel our vehicles, in addition to being used as beauty products and painting houses. As a result, the need to have an effective hazardous material transportation system is very essential to the livelihood of the U.S. economy. The U.S. government has enacted laws to ensure the safe transportation of hazardous materials by land, sea, and air.

As the key regulation in terms of hazardous materials, the Hazardous Material Transportation Act (HMTA) was enacted in 1975. The HMTA defines a hazardous material as any “particular quantity or form” of a material that “may pose an unreasonable risk to health and safety or property” (Environmental Protection Agency, 2014). The HMTA’s main goal is to ensure effective and substantial protection in terms of environmental health and public safety.

In terms of applicability, the HMTA ensures the following:

- Hazardous materials transportation is safe in terms environmental and public safety.
- Packaging, labeling, marking of hazardous materials is done correctly to ensure the safe and secured transportation process via the different transport mediums.
- Transporters attain the necessary permits to transport hazardous materials.
- Transporters have the appropriate means to store the hazardous material while it is in the process of being transferred.

The HMTA is enforced by the U.S. Department of Transportation (DOT) and has 4 key provisions:


Operational Rules: These encompass all policies and procedures, as well as information on labeling, marking, and packaging.

Procedures and Policies/ Marking Designations: These encompass rules governing marking labeling and packaging requirements, as well as emergency response information.
Marking: All hazardous material that is being transported must have durable markings in English and must have visible label with appropriate colorings. In addition, placards for the different hazard classes should be appropriately used (49 CFR).

Emergency Contact Information: This is a crucial factor in the transportation of hazardous materials. When an incident occurs, it is necessary for a transporter and/or consumer to be able to get important information that is needed to respond to a spill or release of hazardous materials. The emergency contact information can make a great difference when it comes to protecting life, property, and the environment. Within the maritime agency, the U.S Coast Guard along with the EPA have been involved in several response activities that were successful due to emergency contact information availability (49 CFR).


Regulations providing for immediate emergency response information in an incident, as well as requirements for the development and implementation of security plans, must be adhered by "any person who offers for transportation in commerce or transports in commerce" hazardous materials regulated under the act

Additional requirements include the use of shipping papers, an EPA hazardous material manifest. The shipping paper must have the following: a proper shipping name, an identification number, the hazardous material class and the total amount of what is being transported, the packing group (in roman numerals) and packaging types (49 CFR).

With regards to land, air and sea transportation, there are various agencies that regulate these different transportation methods.

The DOT: As the key enforcing agency of hazardous material transportation, the DOT regulates all forms of hazardous material management within the various forms of media. The DOT’s regulations can be found in several sections of the 49 CFR. Subchapter C of this document contains a lot of information on specific forms of transportation (49 CFR).

Federal Highway Administration (FHWA): This DOT agency regulates highway transportation of hazardous materials.

Federal Aviation Administration (FAA): This DOT agency enforces air transportation regulations of hazardous materials.

Pipeline & Hazardous Materials Safety Administration: This agency regulates hazardous material transportation by pipeline.

Federal Railroad Administration: This DOT agency enforces rail transportation regulations of hazardous materials (Department of Transportation, 2014).

U.S. Coast Guard (USCG): Formerly under the DOT and now under the Department of Homeland Security (DHS), the USCG regulates hazardous material transportation by water.

Environmental Protection Agency (EPA): The EPA regulates hazardous materials and waste as it relates to the environment.

Department of Energy (DOE): Through the Nuclear Regulatory Commission, the DOE regulates the transportation of radioactive materials.

National Fire Protection Association (NFPA): The NFPA sets standards for responding to hazardous material incidents that could occur during the transportation process.

Occupational Safety and Health Administration (OSHA): This agency regulates workers in the hazardous material industry.

In terms of regulation enforcement in the transportation of hazardous materials, the U.S. government has set up both civil and criminal penalties. Civil penalties can involving hazardous materials can range from $1 to
$75,000 and typically do not involve the loss of life or significant property damage. On the other hand, criminal penalties can have more significant consequences in terms of imprisonment and higher fines ($175,000) because it involves deaths and major property damage. In addition, criminal penalties are also imposed when there is evidence of willful violation of hazardous material transportation regulations. In recent times, several civil and criminal penalties have been imposed particularly within the private sector. The Deepwater Horizon Oil Spill in 2010 resulted in both criminal penalties and civil fines for various entities.

References


Suggested Reading

The article listed below can be accessed in the Academic Search Complete database within the CSU Online Library.

Transportation Science, 38(2), 188-196.