TEXAS A&M UNIVERSITY

HAZARDOUS MATERIALS TRANSPORTATION PROGRAM

Compiled by:
Environmental Health & Safety Department
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I. INTRODUCTION

Texas A&M University (TAMU) is committed to protecting the faculty, staff, students, and visitors, as well as the general public and the environment, from the harmful effects of exposure to hazardous materials and dangerous goods. The University is also committed to compliance with all applicable regulatory requirements imposed by the U. S. Department of Transportation (DOT) and International Air Transportation Association's (IATA). The Hazardous Materials Transportation (HMT) Program at Texas A&M University (TAMU) exists to accomplish that commitment.

This document establishes the procedures and defines the responsibilities under that program. This Program applies to all TAMU and TAMU System Components at College Station and in Brazos County. As part of the program, TAMU faculty, staff, and students who are involved in transportation-related activities will be informed about hazardous materials/dangerous goods transportation regulations. At TAMU, hazardous materials and dangerous goods include, but are not limited to, alcohol, acid, solvents, compressed gas, dry ice, most laboratory samples and chemicals, radioactive material, as well as certain cleaners, pesticides and paint.

Compliance with the program is critical and requires full cooperation by all entities. The TAMU Environmental Health and Safety Department (EHSD) will administer the program and assist all TAMU departments or System Components in compliance with the program. Additional information not contained in this document for specific responsibilities and procedures may be obtained by calling **845-2132.**

II. HAZARDOUS MATERIALS TRANSPORTATION REGULATION

The U. S. Department of Transportation (DOT) regulates both surface and air shipments of hazardous materials shipped in the Domestic United States. Regulations for compliance are found in 49 Code of Federal Regulations (CFR) Parts 171-177, the Hazardous Materials Transportation Act (HMTA), and the Hazardous Materials Transportation Uniform Safety Act of 1990 (HMTUSA). The Hazardous Materials Regulations (HMR) are enforced by Research and Special Programs Administration Office (RSPA) and DOT's modal administrations: the Federal Aviation Administration (FAA), the Federal Highway Administration (FHWA), the Federal Railroad Administration (FRA), and the United States Coast Guard (USCG). International and U.S. domestic air shipments are also regulated by the International Air Transportation Association's (IATA) Dangerous Goods Regulations (DGR) and are enforced by the FAA.

These regulations set out the responsibilities for institutions and individuals involved in transportation-related activities of hazardous materials and dangerous goods, which include the following hazard classes: explosives, compressed gases, flammable liquids and solids, oxidizers, reactives, poisons, infectious substances, radioactive materials, and corrosive materials. In addition, the regulations specify: proper classification, packaging,

labeling, security assessment, and documentation of all shipments. The regulations require training for anyone who prepares, offers, or receives materials for shipment and establish penalties and fines for noncompliance. Failure to comply with the regulations may not only result in substantial fines and penalties for the University, but the individual(s) causing the violation can also be held personally liable.

III. GENERAL

The HMT Program will only be effective when persons who engage in day-to-day transportation-related activities make a concerted effort to ensure their own compliance, as well as that of others through whom they may ship. To that end, the following shall be adhered to:

1. All hazardous materials must be prepared and shipped according to DOT Hazardous Materials (HazMat) or IATA Dangerous Goods Regulations.
2. Any faculty, staff, and students involved in shipping, receiving, and/or transporting hazardous materials/dangerous goods are considered TAMU HazMat employees and must obtain the appropriate training commensurate with their duties.
3. TAMU must test and certify HazMat employees before shipping hazardous materials.
4. When necessary, security plans will be developed and implemented in accordance with 49 CFR Part 172 Subpart I.
5. All radioactive material shipped to Texas A&M University must come through EHSD. Radioactive material shipped by or from TAMU must be approved by EHSD. Radioactive material must be shipped according to the EHSD "Radionuclide Laboratory Procedure Manual".
6. All infectious substances, select agents, or dry ice must, at a minimum, be shipped in accordance with the EHSD "Biological Material and Dry Ice Shipping Manual".

IV. RESPONSIBILITIES

The regulations stipulate that TAMU as a HazMat employer is ultimately responsible for compliance; however this program sets forth individual responsibilities as follows:

1. EHSD will provide technical information, oversight, training, and emergency response and will be responsible for:
   A. Coordinating and facilitating DOT training opportunities for all on-campus shippers;
   B. Testing and certifying individuals to ship hazardous materials; and
   C. Auditing all campus shipping centers for compliance.
2. Department heads must identify all faculty, staff, and students who require training and ensure that they are trained before being allowed to ship, transport, and/or receive hazardous materials.
3. All faculty, staff, and students must properly handle, classify, package, label, and document all shipments of hazardous material and must not ship materials for which they are not trained and certified.

4. Faculty, staff, and students shipping radioactive material must have each shipment approved by EHSD and adhere to the EHSD "Radionuclide Laboratory Procedure Manual". This does not apply to the transportation of soil moisture/density gauges being used in field research activities.
5. Faculty, staff, and students shipping infectious substances or select agents must:
   A. Properly handle, classify, package, label, and document all shipments,
   B. Develop and implement a security plan, and
   C. Maintain compliance with the Select Agents and Toxins Regulation, 49 CFR Part 73.

V. TRAINING

Depending on the functions of the employee and type of hazardous material, DOT/IATA training curriculum will vary in subject matter and training duration. This training involves testing and certification. Training is required within 90 days after employment or a change in job function. Recurrent training is required every two years. 49 CFR Part 172 Subpart H and Subpart I detail the following type of training the employee must receive:

1. General Awareness/Familiarization Training-- provide familiarity with the requirements of the regulations, and to enable the employee to recognize and identify hazardous materials consistent with the hazard communication programs required by federal regulatory agencies.
2. Function-specific Training -- provide training on the requirements of the HMT regulations related to the employee's job duties.
3. Safety Training-- provide instruction on emergency response procedures, personal protective equipment, and accident prevention.
4. Security awareness training-- provide training that affords an awareness of security risks associated with hazardous materials transportation and methods designed to enhance transportation security. This training must also include a component covering how to recognize and respond to possible security threats.
5. Comprehensive security training – provide to each HazMat employee training concerning the security plan and its implementation. Security training must include University security objectives, specific security procedures, employee responsibilities, actions to take in the event of a security breach, and the organizational security structure.

VI. CLASSIFICATION and IDENTIFICATION

The shipper is responsible for all aspects of the classification and identification of hazardous materials being shipped. The DOT regulations set forth the procedures and criteria for determining the **proper shipping name** and the **hazard class** for hazardous materials. Some materials are so hazardous that they are specifically designated as "**forbidden"** in the Hazardous Materials Table in 49 CFR 172.101 (the DOT Table) and may not be offered for transportation or transported in commerce. Some require special

review and approval. Others are designated as "forbidden" from transportation by specific modes, such as air transportation. 49 CFR 173.21 extends the "forbidden" designation beyond those materials listed by name in the DOT Table to additional general categories, including materials (other than materials classed as explosives) that will detonate in a fire; combinations of materials that are likely to cause a dangerous evolution of heat, create flammable or poisonous gases or vapors, or produce corrosive materials; and packages that give off a flammable gas or vapor likely to create a flammable mixture with air in a transport vehicle.

The IATA regulations set forth the procedures and criteria for determining the **proper shipping name** and the **hazard class** for hazardous materials that are most likely to be shipped by air in the List of Dangerous Goods in Dangerous Goods Regulations Section 4.2. Some materials are designated as "passenger and cargo aircraft" or may be designated "cargo only". Others are so hazardous that they are specifically designated as "**forbidden"** and may not be offered for transportation by air.

The DOT Table and the List of Dangerous Goods are key elements and primary guides to offerors, carriers, and enforcement personnel in determining compliance with the regulations. For each entry, they specify the proper shipping name, hazard class or division, identification number, packing group and required hazard warning labels. Furthermore, they identify modal-specific rules, such as quantity limitation requirements for transportation by passenger aircraft.

VII. PACKAGING

The shipper is responsible for all aspects of the packing of hazardous materials. The packaging required for a hazardous material is the first line of defense in ensuring that the material is not released during transportation. The regulations specify various performance levels for packagings for hazardous materials, based on the nature and level of hazards posed by the specific material to be packaged therein. An inadequately packaged hazardous material may not be offered for transportation, accepted or transported. All packagings must be designed to ensure that under normal conditions of transportation there will be no release of the contents, and that the effectiveness of the packaging will not be substantially reduced by temperature changes. Packagings used to transport liquids by aircraft must be able to withstand significant changes in ambient pressure.

In the case of combination packagings, the inner packagings containing a liquid must be packed so that the closures are properly installed and tight, are upright, and the outer packaging must be marked to show the proper orientation. All inner packagings must be adequately secured and cushioned within the outer packaging to prevent breakage or leakage and to control their movement within the outer packaging under conditions normally incident to transportation. Substances that may react dangerously with each other may not be placed within the same package.

The DOT Table and the List of Dangerous Goods specify the packing requirements for each shipping name in the tables. For each entry, they specify the packaging authorizations, per-package quantity limitations for passenger and cargo aircraft, and special provisions. These packing instructions must be followed.

VIII. DOCUMENTATION, MARKING, AND LABELING

The shipper is responsible for all necessary marking and labeling of each package of hazardous materials being shipped. Essential elements of hazard warning information are required to be communicated through shipping documents, package markings and labels, placards on transport vehicles and bulk packagings, written emergency response information, and emergency response telephone numbers to be used in the event of an emergency involving the hazardous material.

Shipping papers can be in the form of a bill of lading, freight bill, hazardous waste manifest, or other shipping document. The "shipper's certification" on the shipping paper is a positive endorsement that the offeror is required to provide when tendering a shipment of hazardous materials to a carrier for transportation. The person signing the certification must be trained in appropriate areas of the HMR (e.g., classification, description, packaging, marking, and labeling) pertaining to the shipment. At a minimum, a properly prepared shipping paper clearly identifies a hazardous material by its proper shipping name, hazard class or division number, identification number, packing group (if any), and total quantity. Additional hazard warning and handling information, such as "POISON" and "CARGO AIRCRAFT ONLY", must be entered on the shipping paper. This information is intended to enhance safety by informing hazmat employees of the presence of hazardous materials and prompting them to ensure that required actions, such as placarding and segregation of incompatible materials, are accomplished. Emergency responders in responding to incidents and accidents involving hazardous materials use this same information.

Package markings and labels convey information on packages, such as the proper shipping name, identification number, and hazard class of a hazardous material. This information readily identifies that a package contains a hazardous material. Carrier personnel and other persons use hazard warning labels and package markings to ensure that hazardous materials are properly segregated or stowed. This ensures compliance with loading and stowage requirements designed to prevent potentially dangerous situations that may occur with adjacent stowage of incompatible hazardous materials, or to prevent contamination of foodstuffs, feed, or other edible materials. For example, the regulations generally prohibit the loading of Class 8 (corrosive) material above or next to Division 4.1 (flammable solid) materials or Division 5.1 (oxidizing) materials.

In addition, emergency responders can use the information provided by package markings and hazard warning labels when shipping papers are destroyed or otherwise not immediately available. Hazardous materials markings must be durable, in English, and unobscured by other information appearing on the package. Hazard warning labels must

conform to size and color specifications, be placed on the package near the marked proper shipping name, be clearly visible and be unobscured by other information.

Hazard warning placards and identification numbers are displayed on the outside of motor vehicles, freight containers, and bulk packagings loaded with hazardous materials. They provide a readily visible warning that hazardous materials are present. The information they provide can be critical to emergency responders in mitigating the impacts of a hazardous materials incident or accident.

Emergency response information and an emergency response telephone number must be provided by the offeror and maintained by the carrier for use in the mitigation of an accident or incident involving the hazardous material. The emergency response telephone number, including the area code or international access code, for use in the event of an emergency involving the hazardous material must be:

1. Monitored at all times the hazardous material is in transportation, including storage incidental to transportation and
2. Answered by a person who is either knowledgeable of the hazards and characteristics of the hazardous material being shipped and has comprehensive emergency response and incident mitigation information for that material, or has access, without delay, to a person who possesses such knowledge and information.

The offeror must provide information concerning immediate hazards to health, risks of fire or explosion, immediate precautions to be taken in event of an accident or incident, immediate methods for handling fires, initial methods for handling spills or leaks in the absence of fire, and preliminary first-aid measures. Furthermore, the shipping paper must contain the emergency response telephone number of a person who is either knowledgeable of the hazardous material and has comprehensive emergency response and incident mitigation information for that material, or has immediate access to a person who possesses such knowledge and information. The required emergency response information provided by the offeror must be immediately accessible to train crew personnel, drivers of motor vehicles, flight crewmembers, and bridge personnel on vessels.

IX. SECURITY

For shipments of hazardous materials regulated by 49 CFR Part 172 Subpart I, security plans will be developed and implemented. The security plan must include an assessment of possible transportation security risks for shipments of the hazardous materials and appropriate measures to address the assessed risks. At a minimum, a security plan must include the following elements:

1. Personnel security -- procedures will be developed to confirm information provided by job applicants hired for positions that involve access to and handling of the hazardous materials covered by the security plan. Such confirmation system must be consistent with applicable Federal and State laws and requirements concerning employment practices and individual privacy.

2. Unauthorized access -- procedures will be developed or measures employed to address the assessed risk that unauthorized persons may gain access to the hazardous materials covered by the security plan or the vehicle transporting the hazardous materials covered by the security plan.
3. En route security – procedures to address the assessed security risks of shipments of hazardous materials covered by the security plan en route from origin to destination, including shipments stored incidental to movement.

The plan must be in writing and must be retained for as long as it remains in effect. Copies of the plan, or portions thereof, must be available to the employees who are responsible for implementing it, consistent with personnel security clearance or background investigation restrictions and a demonstrated need to know. The plan must be revised and updated as necessary to reflect changing circumstances. When the plan is updated or revised, all copies of the plan must be maintained as of the date of the most recent revision.

X. RECORD KEEPING

For compliance with the hazardous materials transportation regulations, the following records are required to be retained for inspection by an authorized official of a federal, state, or local government agency:

1. Record of current training, inclusive of the preceding two years, in accordance with the regulations shall be created by each HazMat employer and retained for as long as that employee is employed by that employer as a HazMat employee and for 90 days thereafter. The record shall include:
   A. HazMat employee's name;
   B. Most recent training completion date of the hazmat employee's training;
   C. Description, copy, or the location of the training materials used to meet the requirements;
   D. Name and address of the person providing the training; and
   E. Certification that the HazMat employee has been trained and tested, as required.
2. When a shipping paper is required by the regulations, each person shipping or receiving a hazardous material must retain a copy or an electronic image thereof, that is accessible at or through its principal place of business and must make the shipping paper immediately available, upon request. For a hazardous waste, each shipping paper copy must be retained for three years after the initial carrier accepts the material. For all other hazardous materials, each shipping paper copy must be retained for 375 days after the initial carrier accepts the material. Each shipping paper copy must include the date of acceptance by the initial carrier.

APPENDIX A: Definitions

Dangerous Goods -- a substance or material which is capable of posing a risk to health, safety, property, or environment and meets the criteria of one or more of the nine United Nations (UN) hazard classes and, where applicable, to one of three UN Packing Groups according to the provisions of DGR Section 3. The nine classes relate to the type of hazard where as the packing group relate to the applicable degree of danger within the class.

Hazardous Materials -- a substance or material which has been determined by the U. S. Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and which has been so designated. The term includes items such as samples, reagent chemicals, infectious substances, select agents and commercial products [dry ice, alcohol, acetone, formalin, etc.].

HazMat Employer -- uses one or more employees to:

3. Transport hazardous materials in commerce,
4. Cause hazardous materials to be transported or shipped in commerce, or
5. Represent, mark, certify, sell, offer, recondition, test, repair, or modify containers, drums, or packages as qualified for use in the transportation of hazardous materials.

HazMat Employee – an individual employed by a HazMat Employer in a manner that directly affects hazardous materials transportation safety. Activities of a HazMat employee include:

1. Loads, unloads, or handles hazardous materials,
2. Tests, reconditions, repairs, modifies, marks, or otherwise represents containers, drums, or packaging as qualified for use in the transportation of hazardous materials,
3. Prepares hazardous materials for transportation,
4. Responsible for safety of transporting hazardous materials, or
5. Operates a vehicle used to transport hazardous materials.

Infectious Substances -- means a material known to contain or suspected of containing a pathogen. A pathogen is a virus or micro-organism (including its viruses, plasmids, or other genetic elements, if any) or a proteinaceous infectious particle (prion) that has the potential to cause disease in humans or animals.

Select Agents – Specific viruses, bacteria, rickettsiae, fungi, toxins, and recombinant organisms/molecules listed in 42CFR Part 73.