

Navigating the Hazmat Transportation Training Requirements

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Introduction

In addition to the sense of duty that compels safety professionals to identify and control hazards, we frequently are subject to numerous regulatory standards that require the same. For many safety professionals unfamiliar with regulations, understanding what rules apply may seem daunting. A prime example is found in the rules and regulations regarding the transportation of hazardous materials and dangerous goods. To the uninitiated, navigating through the US Department of Transportation (DOT) Hazardous Materials Regulations (HMR), with all the various requirements, special provisions and exceptions may leave one feeling overwhelmed. Add to these requirements international regulations and standards, such as the International Civil Aviation Organization (ICAO), the International Air Transport Association (IATA), and the International Maritime Organization (IMO), and the task seems even more hopeless. The training requirements alone, understanding who needs training, what needs to be covered, and how the program is to be managed, can leave the safety professional scratching his head.

To raise the stakes a little higher, the minimum citation for a training violation is almost double the minimum for other violations, and the maximum fines can reach into the hundreds of thousands of dollars for civil penalties, with the potential for criminal penalties, including prison time, for extreme violations (DOT 2011). Furthermore, according to 49 Code of Federal Regulations (CFR) Section 171.1(g), violations can be compounding, with each new day being a new violation. This can make failures to identify employees who need training costly. Even still, training violations are still listed in the top ten most frequently cited violations (DOT 2011). This is partly because there is no shortage of agencies and groups looking over the shoulder of those involved in the hazardous materials transportation process. A non-exhaustive list includes the Pipeline and Hazardous Materials Safety Administration (PHMSA), the Federal Aviation Administration (FAA), the Federal Motor Carrier Safety Administration (FMCSA), the Federal Rail Administration (FRA), the US Coast Guard, state transportation agencies such as Highway Patrol, international agencies, and sometimes local agencies.

Furthermore, a pillar of safety programs that meets their goals is effective training programs. A recent RAND study on the effectiveness of the California Injury and Illness Prevention Program (IIPP) regulations suggested that the element of an IIPP most associated with a decreased injury rate was training (Mendeloff et al. 72). With training being such an important element in both the eyes of regulators and to the effectiveness of our safety programs, as safety professionals our goal should not be to merely meet the minimum standards, but to identify areas

where compliance can be leveraged into the safety programs to meet the overall goal of preventing all injuries and illnesses.

This article seeks to help safety professionals in one aspect of their training programs by providing an introductory survey of the training requirements found in the DOT HMR, as well as some of the international standards for the transportation of hazardous materials and dangerous goods. Once identified, a review of how these training programs can be managed and implemented into the broader training programs of an organization will be discussed.

Who Needs Training?

Perhaps one of the most common areas of confusion regarding the training programs for those involved in the transportation of hazardous materials is who within an organization is required to be trained. For some organizations the answer is rather obvious. If a trucking company specializes in hauling tankers full of hazardous materials, there really isn't a question. However, not every organization is so obviously involved in hazardous materials transportation. And even in those organizations where the need for training is obvious, who needs the training within the organization is not so clear. Does everyone in an organization need training? Is it needed by only a select few who manage the transportation programs?

The crux of the question of who needs to be trained under the HMR and other hazardous materials transportation regulations comes in the definition of "hazardous materials transportation". If your organization is not involved in hazardous materials transportation then you can stop reading this article right now and move on to more pressing issues, because training under the HMR is not required. For the rest of us, we need a little more clarity before moving forward.

The phrase "hazardous materials transportation" should be separated into two elements – "hazardous materials" and "transportation", because if an organization is involved with one but not the other, then the HMR doesn't apply. For example, if your organization is a transportation company, or a company that frequently ships out materials, but you don't ever ship materials that would be considered "hazardous materials" under the HMR or other relevant regulations, then you do not need training. In the same way, if your company frequently handles and stores hazardous materials, but you don't perform functions that would fall under the broad definition of transportation, then training is not necessary (DOT 2011).

Hazardous Materials

The first question that must be answered then is – what materials are "hazardous materials"? It turns out that the definition for hazardous materials is somewhat complicated. 49 CFR 171.8 contains most of the definitions of terms found in the DOT HMR, and in this section hazardous materials are defined this way:

Hazardous material means a substance or material that the Secretary of Transportation has determined is capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and has designated as hazardous under section 5103 of Federal hazardous materials transportation law (49 U.S.C. 5103). The term includes hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (see 49 CFR 172.101), and materials that meet the defining criteria for hazard classes and divisions in part 173 of subchapter C of this chapter (DOT 2011).

Basically speaking, a hazardous material is anything the DOT says in a hazardous material, especially those materials that meet the definition of one of the DOT's hazard classes or divisions. Given the complexity involved in classifying a hazardous material, a thorough discussion is beyond the scope of this article. A thorough determination of whether or not materials that an organization ships or transports should be conducted by consulting the applicable regulations, a Material Safety Data Sheet, and any further needed analysis of the materials. Those employees who perform this determination must be thoroughly trained in the applicable requirements of the HMR and other applicable standards.

Transportation

Once an organization determines that hazardous materials are indeed handled and stored the next question is whether or not the functions that employees perform while handling and/or storing these materials would be considered part of "transportation" under the HMR. First, a clarification must be made, because the author has taken some liberties for the sake of saving space. "Transportation" as regulated by the HMR and other applicable standards generally only apply to "transportation in commerce." This means that the transportation requirements generally only apply when the transportation of the materials is done for business purposes. In accordance 49 CFR 171.1(d)(6), private citizens that are transporting materials for personal, non-commercial, purposes are not subject to the HMR and therefore don't need to be trained (DOT 2011).

Furthermore, the word "transportation" as used in this article, can sometimes be substituted for "jurisdiction of the DOT HMR or applicable standard," because technically, many of the functions that those who need hazardous materials transportation perform do not meet the technical definition of "transportation" as found in the HMR. However, given that "transportation" is much easier to say and write than "jurisdiction of the DOT HMR or applicable standard", and given that the liberties taken with the definition of "transportation" shouldn't cause significant problems in the application of the regulations to an organization's safety program, the word "transportation" will be used as shorthand to note when an organization should comply with the HMR or applicable standards for the balance of the article.

As stated previously, there are numerous organizations that obviously are involved in hazardous materials transportation. If materials that have been determined to be hazardous materials in accordance with the HMR are placed onto a truck, the driver of that truck clearly is involved in transporting the hazardous material. If one thinks of transportation as a timeline, those involved in the middle portions of the timeline are clearly involved in transportation and would therefore need training if the transportation involves hazardous materials.

The more difficult question comes when one looks at the extreme ends of the transportation timeline. Chiefly, the question becomes – when does transportation begin and when does it end? In 49 CFR 171.1 specific definitions are found that provide clarity for when the transportation timeline begins and ends. The first of these terms is one that is applicable to a large portion of those reading this article – *pre-transportation functions*. Those who do not actually transport hazardous materials (i.e. drive the trucks, fly the planes, etc.), what the HMR calls *offerors* or *shippers*, usually fall within the pre-transportation functions, as defined by the regulations. Unfortunately the regulations do not offer a specific definition for pre-transportation functions, but rather give a list of actions that would be defined as pre-transportation functions. These include, but are not limited to:

- Determining the hazard class of a hazardous material.
- Selecting a hazardous materials packaging.

- Filling a hazardous materials packaging, including a bulk packaging.
- Securing a closure on a filled or partially filled hazardous materials package or container or on a package or container containing a residue of a hazardous material.
- Marking a package to indicate that it contains a hazardous material.
- Labeling a package to indicate that it contains a hazardous material.
- Preparing a shipping paper.
- Providing and maintaining emergency response information.
- Reviewing a shipping paper to verify compliance with the HMR or international equivalents.
- For each person importing a hazardous material into the United States, providing the shipper with timely and complete information as to the HMR requirements that will apply to the transportation of the material within the United States.
- Certifying that a hazardous material is in proper condition for transportation in conformance with the requirements of the HMR.
- Loading, blocking, and bracing a hazardous materials package in a freight container or transport vehicle.
- Segregating a hazardous materials package in a freight container or transport vehicle from incompatible cargo.
- Selecting, providing, or affixing placards for a freight container or transport vehicle to indicate that it contains a hazardous material. (DOT 2011)

Note that the regulation states that the list is not all-inclusive. The basic rule is that if an employee directly affects the safety of hazardous materials transportation, then they should be trained. For example, note one of the functions listed is “filling a hazardous materials packaging.” Employees who place materials, such as hazardous wastes regulated by the Resource Conservation and Recovery Act (RCRA), into packages that will be used to transport the materials off-site are performing a pre-transportation function and would need training. If you have employees that merely sign a shipping document, they are “certifying that a hazardous material is in proper condition for transportation” and are performing a pre-transportation function and would need training.

The other term found in 49 CFR 171.1 that helps define our transportation timeline is *unloading incidental to movement of a hazardous material*. This term is defined as the following:

Unloading incidental to movement of a hazardous material. Removing a package or containerized hazardous material from a transport vehicle, aircraft, or vessel; or for a bulk packaging, emptying a hazardous material from the bulk packaging after the hazardous material has been delivered to the consignee when performed by carrier personnel or in the presence of carrier personnel or, in the case of a private motor carrier, while the driver of the motor vehicle from which the hazardous material is being unloaded immediately after movement is completed is present during the unloading operation (DOT 2011).

Note first of all that the word “consignee” means basically the final destination to where the hazardous material is being shipped. The above definition for unloading incidental to movement of a hazardous material basically says if unloading from a vehicle is conducted while the carrier, or transporter, is still around then unloading is considered to be part of “transportation” and is regulated. The implication being that if the carrier leaves before the hazardous materials are unloaded from the vehicle or bulk package (e.g. rail car) then the unloading actions are not considered to be “transportation” and are therefore not regulated. For example, if your employees remove freight from the pack of a trailer with forklifts while the carrier is still there, then those

employees need training. If the carrier leaves the area, in the specific case of motor transportation, then those employees would not need training (DOT 2011).

So how can all of this be summed up? To paint in broad strokes, we can say that if you have hazardous materials, as defined by the HMR or other applicable standards, that employees prepare for transport in a way that affects the safety of the shipment, that employees physically transport, or that employees unload when the carrier is still around, then those functions are regulated and employees performing these functions must be trained. This is a bit of an oversimplification, as certain specific exceptions and limitations apply to groups and types of hazardous materials (e.g. government agencies) but it is a good overall rule.

Hazmat Employer and Hazmat Employee

Another way of looking at this question is to understand the definition of a *hazmat employer* and a *hazmat employee*. The reason these terms should be understood is because when you finally start to look at the HMR training regulations, found in 49 CFR 172 Subpart H, section 172.702 states that it's the hazmat employer's job to ensure that hazmat employees are trained (DOT 2011). In fact, no one else needs training in accordance with the HMR except for hazmat employees. So, at the end of the day, the employees that need training within an organization are hazmat employees.

According to 49 CFR 171.8, hazmat employees are those who meet one of the following definitions:

- Employed on a full-time, part time, or temporary basis by a hazmat employer and who in the course of such full time, part time or temporary employment directly affects hazardous materials transportation safety;
- Self-employed (including an owner-operator of a motor vehicle, vessel, or aircraft) transporting hazardous materials in commerce who in the course of such self-employment directly affects hazardous materials transportation safety;
- A railroad signalman; or
- A railroad maintenance-of-way employee (DOT 2011).

Again, the HMR relies on the general thought process that if an employee directly affects the safety of hazardous materials transportation then that employee is a hazmat employee and should be trained. The definition for hazmat employee goes on to give some examples of functions these employees may perform:

- Loads, unloads, or handles hazardous materials;
- Designs, manufactures, fabricates, inspects, marks, maintains, reconditions, repairs, or tests a package, container or packaging component that is represented, marked, certified, or sold as qualified for use in transporting hazardous material in commerce.
- Prepares hazardous materials for transportation;
- Is responsible for safety of transporting hazardous materials;
- Operates a vehicle used to transport hazardous materials (DOT 2011).

One aspect of a hazmat employee that needs further clarification is the definition of a hazmat employer; because if an employee is not self-employed, they can't be a hazmat employee unless they are employed in some capacity by a hazmat employer. A hazmat employer is defined as any person who employs hazmat employees, is self-employed, or a government that:

- Transports hazardous materials in commerce;

- Causes hazardous materials to be transported in commerce; or
- Designs, manufactures, fabricates, inspects, marks, maintains, reconditions, repairs or tests a package, container, or packaging component that is represented, marked, certified, or sold by that person as qualified for use in transporting hazardous materials in commerce (DOT 2011).

So, to sum this up, you are a hazmat employer if you have hazardous materials that you either transport or cause to transport, or if you are involved in package manufacturing. If you're a hazmat employer then you need to make sure that your hazmat employees are trained. Hazmat employees are any employees who will affect the safety of your hazardous materials shipments (DOT 2011).

Designing a Hazardous Materials Transportation Training Program

Once you determine that you are a hazmat employer and that you need to train your employees, the next question is how you should train them. The place to start in developing your hazardous materials training programs is to see what the regulations say. 49 CFR 172 Subpart H defines the training requirements for the HMR and includes some important requirements for developing and delivering a training program.

The basic requirement of hazardous materials transportation training, as discussed above, is that hazmat employers are responsible for ensuring that hazmat employees are adequately trained (DOT 2011). This seems rather obvious and basic, but it is vital that organizations understand the implications of this requirement. Most organizations send employees to training courses taught by third-party instructors or consultants. If those third-party instructors or consultants provide poor and/or inaccurate training, the hazmat employer is the one who failed to ensure that their hazmat employees were properly trained and the hazmat employer can be cited, not the third-party. There is no such thing as a DOT-certified instructor. In fact, an interpretation letter dated September 21, 2007 to Mr. Steve R. Tekosky notes that if a consultant or instructor is not performing any transportation or pre-transportation functions they don't even have to be trained (PHMSA 2007). It is a fact that the author of this article needs less training from a regulatory perspective than most of the readers of this article. Therefore, it is important the hazmat employers ensure that the training programs they use to meet the HMR and other applicable standards are effective. This isn't to say that third-party organizations can't be used to help achieve compliance. They just can't be used to avoid responsibility. The responsibility to ensure that hazmat employees are properly trained is the hazmat employer's.

Training must be provided to all new employees and employees who change job functions to become hazmat employees within 90 days of employment. If the hazmat employee must perform functions that are regulated by the HMR before they are trained this is allowed, as long as they are supervised by a hazmat employee who is knowledgeable and able to ensure that the non-trained employee's work is done in accordance with the requirements of the HMR. Once trained, employees must receive recurrent training every three years. This training must cover the same elements covered in the initial training course.

Another general requirement for training programs that meet the HMR and other applicable standards is that a test must be included (DOT 2011). Section 172.702(d) isn't specific about the methodology of the test, except to say that the test must be "appropriate" on the "training subjects covered". This means the test can either be written or not, and hazmat employees don't even necessarily have to "pass" the test, as long as they can demonstrate that the training was effective.

Finally, as with all training, records must be kept to provide proof of training when needed. The HMR doesn't specify the format for the records, but training records must contain specific information to be compliant. To be compliant with the HMR a training record must include:

- The employee's name;
- The date of course completion;
- A description, copy, or location of the training materials used in the course;
- The name and address of the person who provided the training; and
- Certification that the employee is trained and tested according to the applicable requirements

These records must be kept for three years, until a more current training record from the recurrent training replaces them. If an employee leaves the company the records must be kept for 90 days after the employee leaves the company (DOT 2011).

Training Topics

The topics that are required by the HMR, discussed in 49 CFR 172.704, and other applicable standards can be grouped into four basic categories:

- General Awareness/Familiarization
- Function Specific
- Safety
- Security (DOT 2011)

General awareness/familiarization training must provide hazmat employees with familiarity with the basic requirements of the HMR and enable hazmat employees to recognize and identify hazardous materials (DOT 2011). So an introductory overview of the HMR along with a basic discussion of what DOT considers to be a hazardous material, including a discussion of the hazard classes, and the ways to identify these materials would meet the requirements for this aspect of the training.

Function specific training is fairly self-explanatory. Whereas the general awareness/familiarization training was a brief overview, the function specific aspect covers specific elements of the HMR and any special permits issued under the HMR relative to the employee's job function. If employees load trailers, a discussion of segregation requirements, blocking and bracing of packages, and requirements relative to securing the trailer before loading would be necessary. Whereas if an employee signs manifests of hazardous wastes, certifying that they are in all respects in proper condition for transport, discussion of all classifying, packaging, marking, labeling, and placarding, in addition to documentation requirements, is necessary (DOT 2011).

Safety training must provide hazmat employees with specific procedures they can follow for protecting themselves from the hazards associated with hazardous materials, accident prevention measures, and emergency response information. Note that these procedures must be specific. For example, it is not enough to tell employees to wear gloves when working with corrosive chemicals. You must specify which gloves must be worn, the proper procedures for wearing them, and decontamination procedures (DOT 2011).

Security training is a relatively new requirement, required for all employees after 2003. All hazmat employees must receive security awareness training at a minimum, which must cover the security threats and risks employees face, methods that employees can use to prevent security threats, and procedures for responding to security threats. Additionally, those hazmat employers

who are required to develop a written security plan under 172 Subpart I are required to also provide employees with in-depth security training. This training must cover the elements of the organization's security plan, security objectives for the facility, organizational security structure, specific security procedures employees must follow, specific security duties and responsibilities for each employee, and specific actions taken in the event of a security breach (DOT 2011).

In addition to the above four topics, other training requirements may apply, depending on the employee job functions, mode(s) of transportation used, and even location where the materials are transported to. For example, 49 CFR 175.20 notes additional training requirements for air carriers, found in 14 CFR 121 and 135. For drivers of motor vehicles that transport hazardous materials additional training requirements are found in 49 CFR 177.800 and 177.816 (DOT 2011). Generally these modal specific training requirements cover specific procedures for driving or piloting the vehicle being used. Additionally, the motor vehicle training requirements note that drivers must be trained on pre-inspection procedures and the proper, safe use of the motor vehicle, which are typical topics covered in a defensive driving safety class anyway.

It should also be noted that certain groups or types and quantities of hazardous materials do not require employees to be trained. For example, combustible liquids, such as diesel fuel, when transported in packages with a quantity less than 119 gallons that are not hazardous wastes or hazardous substances, when transported by ground are not subject to the HMR. Another example is the small-quantity exceptions, found in 49 CFR 173.4. If a material is transported under these requirements the requirements for training do not apply (DOT 2011). Therefore it pays to do some research when deciding what regulations apply because sometimes exceptions may be found that will provide relief from some or all of the HMR or other applicable requirements.

International Requirements

With the economy becoming more global, many hazmat employers are shipping or transporting materials to, through, and/or from other countries. The good news is that DOT has recognized this and has made a concerted push towards making the HMR more consistent with international standards. However, there are differences between the HMR and international regulations for hazardous materials transportation, and simply taking a training course that meets the HMR requirements does not guarantee compliance with international standards. Furthermore, 49 CFR 171.22(b) states that when a hazardous material is offered for transportation or transported in accordance with international regulations it must meet international requirements in addition to the HMR. In effect, this means that DOT can cite an organization for failing to meet an international standard if a material is offered for transportation or transported in accordance with the international standard (DOT 2011).

This puts hazmat employers into a difficult spot. There is significant overlap between HMR requirements and international standards, but there are also areas where the requirements differ. Do hazmat employees have to take two courses that will largely repeat the same information with some minor variations? No, the HMR and other applicable international standards make an allowance for these international trainings. 49 CFR 172.704(a)(2)(ii) notes that international training may take the place of function-specific training as long as the international training covers all relevant areas of the employee's job function and meets HMR requirements. Note that HMR requirements that are not covered in the international training must be covered in a training course for employees (DOT 2011).

Although there are numerous potential international standards that may apply to hazardous materials shipments, depending on where the material is transported to, through, and/or from, two specific international standards are mentioned by the HMR training requirements. These requirements are the International Civil Aviation Organization (ICAO) Technical Instructions for the Safe Transport of Dangerous Goods (Technical Instructions) and the IMO's International Maritime Dangerous Goods (IMDG) codes. Both ICAO and IMO are United Nation's (UN) organizations, meaning that the majority of UN member countries will have regulatory requirements that are relatively close to their requirements, although there can be differences.

International Air Transportation

As can be seen in the name of the group, ICAO regulates air transportation. However, many organizations that offer hazardous materials for transport by air internationally don't even know who ICAO is. This is because the organization that is often referenced for international air shipments is not ICAO but the International Air Transport Association (IATA). IATA is not under the UN and is not affiliated with any government. Rather, IATA is essentially a trade association of air carriers that make standards for air transportation (IATA 2012). Most major air carriers are members of IATA, which is why most air carriers prefer that hazardous materials air shipments are sent in compliance with IATA's Dangerous Goods Regulations (DGR) even for shipments that are not international and some air carriers, such as FedEx require it as a matter of policy (FedEx 2012).

The good news is that IATA bases its regulations off of the ICAO Technical Instructions, and where there are differences IATA is more stringent. So if an organization ships materials in compliance with the IATA DGR, they are essentially in compliance with the ICAO Technical Instructions. A look at the IATA DGR training requirements shows very similar requirements as the HMR, including the need for general awareness/familiarization training, function-specific training, safety training, and security training. One significant difference between the international air requirements and the HMR is that recurrent training must take place every 24 months for international air hazardous materials transportation (IATA 2012).

International Vessel (Ocean) Transportation

The only international organization of substance that regulates vessel (ocean) shipments is the IMO through their IMDG code. The IMDG code training requirements, like the international air shipment requirements, are very similar to the HMR requirements. As with the international air shipment requirements, one difference with the HMR is the recurrent training requirements. In the case of the IMDG code however, they do not state a specific recurrent training frequency, but rather leave it up to the authority having jurisdiction to decide on the frequency (IMO 2010). In the case of hazmat employers that transport to, through, or from the United States, the authority having jurisdiction is DOT. This means that, by default, the recurrent training requirements for IMDG training is every three years.

Other International Requirements

Those involved in international shipping should keep in mind that every country, even UN member countries, can create their own version of the DOT and therefore can have their own regulations. For example, Canada has its Transportation of Dangerous Goods (TDG) regulations. These regulations often are very similar to the HMR and international standards. But there can be significant differences, and hazmat employees are encouraged to research the requirements in each country that they plan to transport materials to, through, and/or from.

Incorporating Hazardous Materials Transportation Training into Existing Programs

Looking closely at the four areas that must be covered to meet HMR, IATA, and IMDG requirements, the general awareness/familiarization, function-specific, safety, and security training, one can easily see overlaps with other training requirements that are likely met by an active training program at a facility that handles hazardous materials and/or wastes. For example, to meet the safety training requirement the hazmat employer must provide specific procedures that employees can use to protect themselves from the hazards of hazardous materials (DOT 2011). These requirements sound a lot like the Occupational Safety and Health Administration (OSHA) Hazard Communication training requirements found in 29 CFR 1910.1200(h)(3)(iii) (OSHA 2011).

As with international training, the HMR and international standards recognize that duplicating training is inefficient and many times ineffective and therefore allowances are made for “relevant training”. If other training programs, such as those required by OSHA or the Environmental Protection Agency (EPA), meet the requirements of any of the elements required to be in a hazardous materials transportation course, the training does not have to be duplicated (DOT 2011). So if your employees who sign Hazardous Waste Manifests receive thorough RCRA training that covers some of the elements of packaging, marking, labeling, and description hazardous wastes on a manifest, some of the function-specific elements have likely been met. In the same way, the training employees may get at a chemical plant that falls under the security requirements from the US Department of Homeland Security may not have to duplicate employee security training

This allowance creates opportunities for the savvy training coordinator. By looking for opportunities to combine training courses, the training coordinator can achieve lowered training costs and potentially more effective training. By combining training courses so that they are covered topically it can increase the relevancy of the training programs to employees. Rather than taking a RCRA course one day and then taking a DOT HMR course the next day, employees can take a “Hazardous Waste Handling and Transportation” course, which meets all applicable requirements and covers the process of handling and disposing of hazardous wastes from beginning to end in a more logical flow that employees can understand, which in turn will increase the likelihood of information retention.

Furthermore, by thinking of training programs in this way, it also forces training coordinators to think about what’s required to make training effective and efficient, thereby cutting out unnecessary portions of training. After all, if we put employees into a two-day DOT course when a six hour course is all that is necessary, the employee may realize that the information does not apply to her and begin to tune out the training, potentially missing important safety information. In this case the fault lies not with the hazmat employee for failing to pay attention, but with the hazmat employer for failing to ensure that the training was appropriate for the employee.

What the HMR and international training requirements have done here is to force training coordinators to think about training more as a part of an overall safety program, rather than as another hurdle to cross before reaching compliance. 49 CFR 172.700 defines training as a “systematic program,” meaning that the training should not be an afterthought, but rather a planned-out process (DOT 2011). The regulations give considerable leeway in how the training requirements can be met. Although the overwhelming majority of hazmat employers put their employees through structured classroom training, that is not a requirement in an hazardous materials transportation regulations. Systematic hands-on training supervised by a knowledgeable hazmat employee can help meet the training requirements and may be more effective for certain

job functions or facilities. The point is that the training coordinator should use the HMR training requirements as a tool that can be used to help ensure that employees are adequately trained in the proper procedures to ensure their own and other's safety.

Summary

Training in the transportation of hazardous materials is an important element of the overall training programs for organizations involved in these functions. Not only does training in hazardous materials transportation protect an organization from costly fines, but effective hazardous materials training can be leveraged to the benefit of the health and safety programs within an organization. It is important, though, that training coordinators for organizations conduct a thorough training analysis involving a review of the job functions that employees perform and the types of materials they handle and ship to determine if the training requirements of the HMR and other applicable standards apply. This analysis should consider training requirements from multiple agencies and organizations to identify overlaps where training can be combined to increase efficiency and effectiveness. Once identified, a systematic program to deliver the training should be developed that includes ensuring that the best training methods, not necessarily the most convenient, are used whenever possible. Understanding and taking advantage of the DOT HMR, ICAO Technical Instructions, IATA DGR, IMO IMDG codes, and other applicable requirements can help the training coordinator transform the training regulations from hurdles to opportunities that help the organization meet its goals.

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