



U.S. Department  
of Transportation  
**Pipeline and  
Hazardous Materials  
Safety Administration**

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# **Transportation of Hazardous Materials**

## **Biennial Report to Congress**

2013-2014

**Under Title 49 of the United States Code  
and  
U.S.A. PATRIOT Improvement and Reauthorization Act of 2005**

**Submitted to Congress:**

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## Acronyms and Abbreviations

API	American Petroleum Institute
AVT	Alternative Validation Testing
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
DOT	Department of Transportation
EPA	Environmental Protection Agency
ERG	Emergency Regulations Guidebook
ERG	Emergency Response Guide
FAA	Federal Aviation Administration
FCA	Firework Certification Agency
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Association
HIP	Hazmat Intelligence Portal
HMEP	Hazardous Materials Emergency Preparedness
HMIC	Hazardous Materials Information Center
HMR	Hazardous Materials Regulations
HMSAT	Hazardous Materials Safety Assistance Team
IAEA	International Atomic Energy Association
LNG	Liquefied Natural Gas
MAP-21	Moving Ahead for Progress in the 21 <sup>st</sup> Century
MASFO	Multi Agency Strike Force Operations
MSA-HAMMER	Mission Support Alliance-Hazardous Materials Management and Emergency Preparedness
NCIP	National Container Inspection Program
NEPA	National Environmental Policy Act
NPRM	Notice of Proposed Rulemaking
NTSB	National Transportation Safety Board
oCFR	Online Code of Federal Regulations
OHMS	Office of Hazardous Materials Safety
OPS	Office of Pipeline Safety
OSRP	Oil Spill Response Plan
PHMSA	Pipeline and Hazardous Materials Administration
QMR	Quarterly Management Review
RAIRS	Railroad Accident/Incident Reporting System
RIN	Requalification Identifier Number
RMF	Risk Management Framework



## Acronyms and Abbreviations Continued

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SERC	State Emergency Response Commission
SISP	Systems Integrity Safety Program
SMS	Safety Management System
SPCP	Special Permits Conversion Project
TRIPR	Transportation Rail Incident Preparedness and Response Web Resource



# 1. Introduction

Section 5121(h) of Title 49 of the United States Code (49 U.S.C.) requires the Secretary of Transportation to prepare, once every two years, a comprehensive report on the transportation of hazardous materials (hazmat) during the preceding two calendar years. The U.S. Department of Transportation (the DOT) transmits this report to the Committee on Transportation and Infrastructure of the House of Representatives, the Committee on Energy and Commerce of the House of Representatives, and the Committee on Commerce, Science, and Transportation of the Senate.

This biennial report to Congress is a compilation of data and information summarizing the performance, evaluation, enforcement, and compliance with the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) for years 2013-2014.

The Pipeline Hazardous Material's Safety Administration's (PHMSA) 2015 Annual Report contains:

- An overview of the PHMSA mission and services;
- Review of the programmatic and policy achievements during the reporting period (2013-2014); and
- Discussion of the outstanding issues in hazardous materials and recommendations for legislation.

Specifically, the statute requires PHMSA's report to include:

- A statistical compilation of accidents and casualties related to the transportation of hazardous material;
- A list and summary of applicable Government regulations, criteria, orders, and special permits;
- A summary of the basis for each special permit;
- An evaluation of the effectiveness of enforcement activities relating to a function regulated by the Secretary under section 5103 (b)(1) and the degree of voluntary compliance with regulations;
- A summary of outstanding problems in carrying out this chapter in order of priority; and
- Recommendations for appropriate legislation.

Additionally, four Appendices that provide supplementary information expand upon the reporting requirements.

- [Appendix A](#) is a report on the regulation of methamphetamine by-products in Transportation. This is an additional reporting requirement under the U.S.A PATRIOT Improvement and Reauthorization Act of 2005. This provision requires the DOT to report to Congress every two years whether then-existing statutes and regulations cover methamphetamine by-products as hazmat.



- [Appendix B](#) is a list of rulemakings published during this reporting period.
- [Appendix C](#) provides a listing of special permit issues during this reporting period
- [Appendix D](#) is a list of all National Transportation Safety Board (NTSB) recommendations closed during this reporting period.

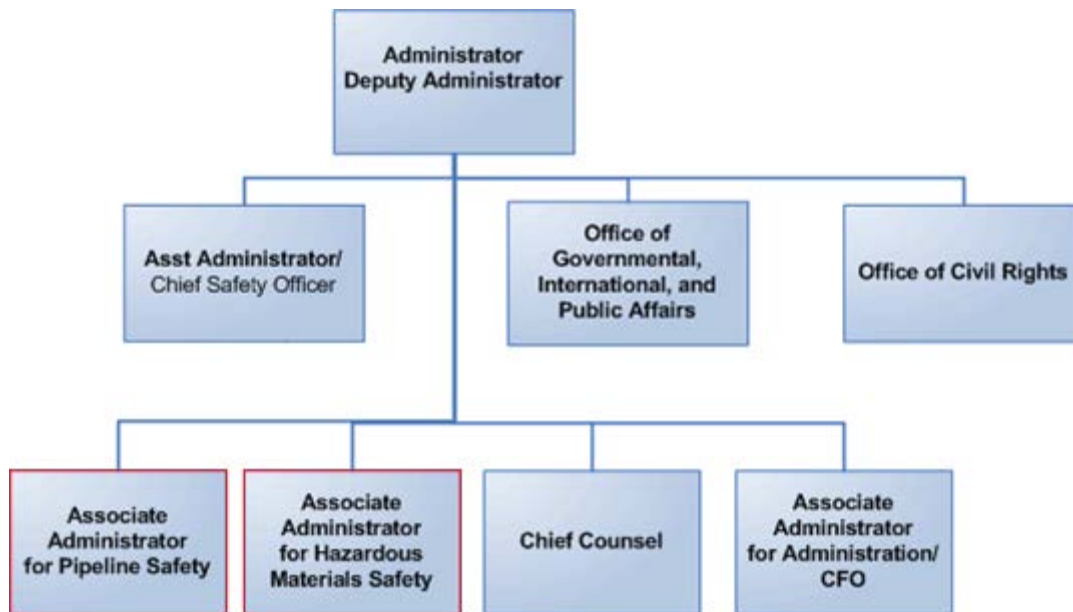
## 1.1 Statute of Authority

Under the Federal Hazardous Materials Transportation Law (Federal hazmat law; 49 U.S.C. § 5101 et seq.), the Secretary of Transportation is charged with protecting the nation against the risks to life, property, and the environment that are inherent in the commercial transportation of hazmat. The Federal hazmat law also authorizes the Secretary of Transportation to prescribe regulations for the safe transportation, including security of hazmat in intrastate, interstate, and foreign commerce. The Secretary has delegated this authority to PHMSA.



*PHMSA regulates hazmat transportation by all modes.*

PHMSA regulates the transport of hazmat by all modes (air, rail, highway, and water) and pipelines. Within PHMSA, the Office of Pipeline Safety (OPS) oversees the nation’s pipeline system and the Office of Hazardous Materials Safety (OHMS) oversees the modal transport of hazmat. These Offices are highlighted in the diagram below.



*Office of Hazardous Materials Administration Management Diagram*



Specifically, the OHMS:

- Evaluates safety risks;
- Develops and enforces standards for transporting hazardous materials;
- Educates shippers,
- Investigates failures,
- Conducts research, and
- Provides grants to improve emergency response.

This Office emphasizes safety in the manufacturing, fabrication, marking, maintenance, reconditioning, repair, or test of multi-modal containers marked, certified, or sold for use in the transportation of hazmat. The Office of Hazardous Materials Safety works with the four agencies below to help administer their hazardous materials safety programs. Each of these agencies has authority delegated by the Secretary of Transportation to enforce the provisions of the hazardous materials law and regulations promulgated thereunder.

- **Federal Aviation Administration (FAA)** enforces regulations governing the transportation of hazmat by air.
- **Federal Railroad Administration (FRA)** enforces regulations governing the transportation of hazmat by railroad.
- **Federal Motor Carrier Safety Administration (FMCSA)** enforces regulations governing transportation of hazmat by highway.
- **U.S. Coast Guard (U.S.CG)** enforces regulations governing certain transportation of hazmat by water.<sup>1</sup>

## 1.2 Mission

DOT's hazmat mission is to protect people, property, and the environment from the risks of hazmat in transportation. Annually, more than 2.5 billion tons of regulated hazmat—including explosive, poisonous, corrosive, flammable, and radioactive materials—valued at about \$2.3 trillion is moved 307 billion miles on the nation's interconnected transportation network.<sup>2</sup> These shipments move through densely populated or sensitive areas where the consequences of an incident could be loss of life or serious environmental damage.



<sup>1</sup> The Secretary first delegated this authority to U.S.CG prior to 2003, when U.S.CG was part of the Department of Homeland Security (DHS). [DHS Delegation No. 0170, Sec. 2(99) & 2(100); see also 6 U.S.C. §§ 458(b), 551(d) (2)].

<sup>2</sup> 2012 Commodity Flow Survey, Research and Innovative Technology Administration (RITA), Bureau of Transportation Statistics (BTS). See

[http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=CFS\\_2012\\_00H01&prodType=table](http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=CFS_2012_00H01&prodType=table).





In addition to fulfilling the primary safety mission, DOT operating administrations also ensure that hazmat transported for commerce can meet public demands. Hazardous materials underpin our economy. We use oil and natural gas to heat and cool homes and businesses, produce electricity, transport commercial products, travel to work or recreation, and provide the feedstock for many other commodities. We use hazardous materials to purify our drinking water, fertilize crops, produce medicines, and manufacture clothing, and many other products. Hazardous materials are essential to our quality of life. They also introduce inherent risks to the public, the environment, and property when they are transported.

### 1.3 PHMSA 2012-2016 Strategic Goals

PHMSA's overarching safety goals contribute directly to helping achieve DOT's goal—to improve public health and safety by reducing transportation-related deaths and injuries. We work to protect people and the environment throughout the transportation system and strive to meet a goal of zero deaths attributed to hazmat transportation. While, PHMSA strives to meet this goal it is understood that the transport of hazmat is inherently risky. Therefore, by 2016, we aim to:

- Reduce the number of pipeline incidents involving death or major injury to between 24 and 33 per year.
- Reduce the number of hazardous materials incidents involving death or major injury to between 20 and 31 per year.

Our environmental goals contribute to helping achieve DOT's goal to advance environmentally sustainable policies and investments that reduce carbon and other harmful emissions from transportation sources. We protect the natural environment, focusing especially on unusually sensitive areas. PHMSA conducts the National Environmental Policy Act (NEPA) process, as required by the NEPA and President's Council on Environmental Quality (CEQ) Implementing Regulations (40 CFR parts 1500–1508) for projects in our Agency's purview, i.e., in the transportation phase.

Our goals for organization excellence contribute to the DOT's goal of a diverse and collaborative workforce that will help advance a transportation system to serve the Nation's long-term social, economic, security, and environmental needs. By 2016, we aim to:

- Maintain and strengthen PHMSA's safety culture by demonstrating a collective commitment to emphasize safety over competing goals and demands.
- Substantially improve the work environment and employee satisfaction in PHMSA—to better than the government-wide benchmark—as measured through the Federal Employee Viewpoint Survey.
- Invest in our employees, with Individual Development Plans for every PHMSA employee and increased access to training and professional development.



## 2. Hazardous Materials 2012-2016 Strategic Plan

PHMSA's Office of Hazardous Materials Safety developed a 2013-2016 Strategic Plan as the driver for our safety initiatives and to keep our mission top-of-mind. Our goal is to improve public health and safety by reducing hazardous materials transportation-related deaths and injuries. In this section, we provide an overview of PHMSA's completed initiatives as they relate to our 2012–2016 Strategic Plan.

### Strategic Priorities for the Office of Hazardous Materials

- Streamline and Improve our Regulatory System
- Enhance Risk Management Framework
- Increase Compliance, Training, and Outreach
- Improve Preparedness and Response
- Foster Robust Research and Development, and Innovation

### 2.1 Streamline and Improve our Regulatory System

PHMSA continues to focus on the modernizing and streamlining our internal processes and harmonizing regulations to reduce the burden of regulatory actions. During the reporting period, PHMSA's regulatory program was able to address:

- Moving Ahead for Progress in the 21<sup>st</sup> Century Act (MAP-21)<sup>3</sup> mandates;
- National Transportation Safety Board (NTSB) recommendations;
- Harmonizing regulations; and
- Emerging safety risks such as the increased transportation of energy products and shipment of lithium batteries by air.

<sup>3</sup> Pub. L. No. 112-141, July 6, 2012.



Since the beginning of 2013, PHMSA's Office of Hazardous Materials Safety (OHMS) was able to:

- Initiate three rulemakings to address MAP-21 mandates;
- Finalize two rulemakings addressing MAP-21 mandates;
- Close sixteen NTSB recommendations;
- Publish two rulemakings to address the transportation of energy products; and
- Publish one rulemaking to address the transportation of lithium batteries.

In addition to managing these activities, OHMS also focused on streamlining and consolidating its current regulatory guidance, resulting in the publication of an additional 22 rulemakings. The program is based on Executive Order 13610, which urges federal agencies to conduct retrospective analyses of existing rules to determine their relevance and applicability given any technological modernization. Consistent with the Executive Order, PHMSA retrospectively reviewed all relevant regulations to identify inconsistencies, outdated provisions, and barriers to regulatory compliance.

During the past two years, OHMS was able to review:

- The HMR;
- Suggestions from modal partners;
- NTSB recommendations;
- Letters of interpretation;
- Petitions for rulemaking;
- Special permits and approvals;
- Enforcement actions; and
- International standards.

[Section 4](#) of this report (Hazardous Materials Regulations, Criteria, Orders, and Special Permits Summary) provides more detail into PHMSA's regulatory achievements in this area. A full list of the rulemakings and notices published during the reporting period are located in [Appendix B](#) of this document. Additionally, there are some notable achievements relative to PHMSA's goal to "Streamline and Improve our Regulatory System." Such as:

- **Streamlined the Special Permits Process**—OHMS Initiated the special permits conversion project that evaluated 1,168 special permits, representing 3,691 unique permit holders. PHMSA initiated a rulemaking action (HM-233F) to identify and incorporate any special permits PHMSA appropriate for adoption in the HMR. PHMSA also initiated the rulemaking action (HM-233E) to codify standard operating procedures for the special permit review. PHMSA will soon be finalizing these rulemakings and combined they will incorporate a significant number of special permits into regulations, and codify the special permit standard operating procedures in the regulations thus improving the public transparency of our program. Finally, OHMS incorporated 22



existing DOT-approved special permits representing more than 2,599 permit holders into the regulations in Calendar Year 13-14.<sup>4</sup>

- **Improved Fireworks Policy**—To help facilitate greater compliance with the HMR and the safe transportation of fireworks for nationwide celebrations, PHMSA published notices to clarify our fireworks policy. Furthermore, PHMSA facilitated work with industry to revise the American Pyrotechnics Association Standard 87-1. The result of this collaboration was the creation of a new, DOT-approved Firework Certification Agency (FCA). This gave manufacturers and designers an alternative means to submit approval applications. To date, PHMSA has approved six FCAs that have processed over 400 fireworks certifications.
- **Initiated the Online Code of Federal Regulations (oCFR) project**—In the Fall of 2014, OHMS began to develop an interactive online tool to better manage PHMSA's work products by linking specific products to the Code of Federal Regulations (CFR). This tool will meet the needs of PHMSA business procedures and policies in support of, and to be integrated with, other PHMSA systems. As a real-time management tool, the oCFR is comprised of multiple components to support PHMSA's strategic vision of using data to supporting technologies used across multiple business lines. Establishing a data-driven system now, will better position PHMSA to adapt to and support future capabilities.
- **International Harmonization**—In support of DOT's global connectivity goal, PHMSA worked to harmonize the HMR with international standards to facilitate the safe and efficient transportation of hazmat through ports of entry and the supply chain. During CY 2013-2014, PHMSA completed regulatory actions by publishing final rules (HM-215K and HM-215L) on January 7, 2013, and an NPRM (HM-215M) on August 25, 2014, as part of the ongoing HM-215 series of international harmonization rulemakings. In a separate international effort, PHMSA published a final rule (HM-250) on July 11, 2014, harmonizing regulations regarding radioactive materials with those of the International Atomic Energy Agency (IAEA). Finally, PHMSA maintains an active leadership role representing the interests of the United States in various international hazardous materials transportation standard setting organizations.
- **Addressed National Transportation Safety Board (NTSB) Recommendations**—In a complicated regulatory landscape, PHMSA's NTSB Coordination Team has been extremely successful in utilizing a mix of non-regulatory and regulatory approaches to maximize the effectiveness in addressing open NTSB recommendations. In CY 2013-2014, OHMS closed a total of 16 NTSB recommendations using a variety of approaches with over 80 percent of these recommendations being classed as acceptable closures.

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<sup>4</sup> See final rules docket numbers (PHMSA-2010-0201, PHMSA 2011-0138, PHMSA-2011-0142, PHMSA-2011-0158)



OHMS had 31 open NTSB recommendations at the start of CY 2013, and OHMS reduced that number to 23 open NTSB recommendations by the end of CY 2014.

## 2.2 Enhance Risk Management Framework

PHMSA continues to develop capabilities to analyze and manage existing and emerging hazardous materials transportation safety risks. The goal of risk management is the development of data-driven, risk-based decision making that aligns OHMS resources, policies, and regulatory development to existing and emerging hazmat transportation safety risks. In CY 2013-2014, PHMSA developed supporting regulatory impact analysis, environmental assessments, and regulatory flexibility analysis (“small entity” impact analysis) for rulemaking publications based on risk data.

PHMSA continues to improve collection and verification of data related exposure, vulnerabilities, and consequences of hazardous materials transportation. These data inputs will help further develop risk-based approaches for OHMS operations in the future. In addition, section 33006(a) of MAP-21 required DOT to conduct an assessment to improve the collection, analysis, reporting, and use of data related to accidents and incidents involving the transportation of hazardous materials. Section 33006(b) required that the results of the assessment be used to develop an action plan and timeline for improving the collection, analysis, reporting, and use of data related to accidents and incidents involving the transportation of hazardous materials. On September 4, 2013, OHMS submitted the “Hazardous Materials Transportation Incidents Data Assessment and Improvement Plan to Congress.” This report includes an action plan and timeline for improving the collection, analysis, reporting, and use of data related to accidents and incidents involving the transportation of hazardous materials. [Section 3](#) of this document details improvements in the data operations system used by OHMS.

## 2.3 Increase Compliance, Training, and Outreach

### Compliance

During CY 2013-2014, PHMSA made progress in focusing its enforcement and compliance program on high safety risks, as well as streamlining the agency’s regulatory and compliance programs. For example, as part of our ongoing efforts to ensure the safe transportation of energy products, PHMSA began a comprehensive initiative to verify that crude oil is being properly classified and shipped in accordance with federal regulations. This included activities such as unannounced spot inspections, data collection, and sample testing from strategic rail terminals and transloading locations that service crude oil.

Using Multi-Agency Strike Force Operations (MASFO), PHMSA participated in over 45 initiatives at intermodal terminals that handle hazardous materials across the nation. In all, over 65 different federal, state, and local law enforcement and regulatory agencies collaborated to inspect over 8,300 intermodal shipping containers, which led to the discovery of 480 hazardous materials violations. Additional enforcement and compliance-related activities can be found in [Section 5](#): Summary for the Basis for Hazardous Materials Special Permits and Approvals.



### Outreach and Training

During CY 2013-2014, PHMSA provided continued outreach and on-site assistance to the regulated community along with state, local and tribal governments. OHMS Field Operations is not only an enforcement entity but an outreach and training

resource, promoting compliance to prevent incidents through its Hazardous Materials Safety Assistance Team (HMSAT). The HMSAT team is responsible for targeted outreach across the nation. OHMS Field Operations conducts a comprehensive, robust program where we take action utilizing the full array of tools at our disposal, including civil penalties. During the reporting period, HMSAT conducted 67 hazmat one-day workshops and 5 multi-modal two-day seminars.

PHMSA works to increase awareness and emergency preparedness through public outreach to state and local emergency responder communities, sustained engagement with experts from emergency response and industry stakeholder groups, and participation in interagency working groups. The agency continues to engage in emergency response initiatives to address public safety and community preparedness. During the reporting period, PHMSA continued to promote and train emergency responders on the Emergency Response Guide (ERG), which acts as the go-to manual to help quickly identify emergency response procedures to manage hazmat transportation accidents during the critical first 30 minutes.<sup>5</sup> In 2013, PHMSA developed and released its first ERG public mobile applications for Android and iPhone. As of 2014, over 220,000 users downloaded the mobile applications.

Furthermore, PHMSA developed web-accessible Transportation Rail Incident Preparedness (TRIPR) training modules. These modules provide emergency responders with critical information on best practices related to rail incidents involving hazard Class 3 flammable liquids such as crude oil and ethanol (released in 2015). The curriculum consists of nine training modules that focus on key response functions and incorporates three animated, interactive training scenarios and introductory videos to help instructors lead tabletop discussions. These training resources offer a flexible approach to training first responders and emergency services personnel in pre-incident planning and response.<sup>6</sup>

#### PHMSA Outreach and Training Publications

- DOT Chart 15 in English and Spanish version;
- Fireworks safety posters in English and Mandarin Chinese;
- Guidance on liquefied compressed gases in response to a NTSB recommendation;
- Awareness and compliance posters pertaining to propane cylinder safety; and
- Guidance on the safe transport of lithium batteries.

<sup>5</sup> [http://phmsa.dot.gov/pv\\_obj\\_cache/pv\\_obj\\_id\\_7410989F4294AE44A2EBF6A80ADB640BCA8E4200/filename/ERG2012.pdf](http://phmsa.dot.gov/pv_obj_cache/pv_obj_id_7410989F4294AE44A2EBF6A80ADB640BCA8E4200/filename/ERG2012.pdf)

<sup>6</sup> <http://phmsa.dot.gov/hazmat/osd/emergencyresponse/TRIPR>



## 2.4 Improve Preparedness and Response

PHMSA is taking a focused approach to increase community awareness and preparedness for responses to all hazardous materials in transportation. As mentioned previously, every four years PHMSA publishes the ERG to assist first responders in the first critical minutes of a transportation incident involving hazardous materials. To date, more than 13 million copies have been distributed free to public emergency responders through a network of volunteer state coordinators – including more than 2 million copies of the 2012 edition. The 2016 version is under development with Canada and Mexico, and the collaboration of CIQUIME of Argentina.

Further, PHMSA's grant program provides several types of grants to prepare the emergency response community for hazardous materials transportation incidents. PHMSA also provided its annual grant funding through its Hazardous Materials Emergency Preparedness (HMEP) grant program to states, territories, and tribes to carryout planning and training activities to ensure emergency responders are properly prepared and train to respond to hazmat transportation incidents. The annual Grants Program Report to Congress provides more information on the Hazardous Materials Grant Program.<sup>7</sup>

In CY 2013-2014, OHMS has particularly focused on increasing community awareness and preparedness for response to bulk transportation incidents involving energy products such as crude oil, ethanol, and liquefied natural gas (LNG). PHMSA took a focused approach to increase community awareness and preparedness for response to rail incidents involving flammable liquids such as crude oil and ethanol.

On February 10, 2014, PHMSA hosted a meeting with emergency response and railroad industry stakeholders, FRA, FMCSA, and Transport Canada to discuss preparedness to respond to incidents involving crude oil. The topics of discussion included:

- Current state crude oil risk awareness;
- Current state of operational readiness/capability;
- Familiarity with bulk shippers emergency response plans/procedures;
- Available training resources (sources, accessibility, gaps in training); and
- Needs of emergency responders/public safety agencies.

In May 2014, in conjunction with the Virginia Department of Fire Programs, PHMSA hosted a "Lessons Learned" roundtable forum that consisted of a panel of fire chiefs and emergency management officials from some of the jurisdictions that experienced a crude oil or ethanol rail transportation incident. The purpose of this forum was to share firsthand knowledge about their experiences responding to and managing these significant rail incidents.<sup>8</sup>

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<sup>7</sup> <http://www.phmsa.dot.gov/hazmat/outreach-training>

<sup>8</sup>

[http://phmsa.dot.gov/pv\\_obj\\_cache/pv\\_obj\\_id\\_0903D018579BF84E6914C0BB932607F5B3F50300/filename/Lessons\\_Learned\\_Roundtable\\_Report\\_FINAL\\_070114.pdf](http://phmsa.dot.gov/pv_obj_cache/pv_obj_id_0903D018579BF84E6914C0BB932607F5B3F50300/filename/Lessons_Learned_Roundtable_Report_FINAL_070114.pdf)



In October of 2014, OHMS released a Commodity Preparedness and Incident Management Reference Sheet. This document was developed in conjunction with experts from the hazmat emergency response community, railroads, and industry, and provides emergency response organizations with a standard incident management framework based on pre-incident planning and preparedness principles and best practices.<sup>9</sup> The reference sheet covers transportation safety and precautions, hazard assessment and risk, rail safety procedures, logistics, and the tools, equipment and resources necessary to prepare for and respond to crude oil rail transportation incidents.

To further promote the “Commodity Preparedness and Incident Management Reference Sheet,” PHMSA contracted with the Department of Energy, Mission Support Alliance-Hazardous Materials Management and Emergency Preparedness (MSA-HAMMER) to develop the web-accessible TRIPR provides emergency responders with critical information on best practices related to rail incidents involving hazard Class 3 flammable liquids such as crude oil and ethanol (this was released in 2015). The curriculum consists of nine training modules that focus on key response functions and incorporates three animated, interactive training scenarios and introductory videos to help instructors lead tabletop discussions. These training resources offer a flexible approach to training first responders and emergency services personnel in pre-incident planning and response.<sup>10</sup>

PHMSA works to increase awareness and emergency preparedness through public outreach to state and local emergency responder communities, sustained engagement with experts from emergency response and industry stakeholder groups, and participation in interagency working groups. In this reporting period PHMSA has partnered with industry, emergency responder groups, and other government agencies to develop training and outreach materials to improve emergency response for all hazardous with a particular focus on the bulk shipment of flammable liquids.

In addition to these efforts to improve community awareness and preparedness, in May 2014, the FRA issued an Emergency Order that requires all railroad carriers that transport in a single train in commerce within the United States 1,000,000 million gallons or more of UN 1267, Petroleum crude oil, Class 3, sourced from the Bakken shale formation in the Williston Basin to proactively notify the State Emergency Response Commission (SERC) in each state in which the railroad carrier operates trains transporting 1,000,000 gallons or more of Bakken crude oil. On May 28, 2015, DOT announced the FRA Emergency Order Requiring notification to SERCs will remain in effect indefinitely, while DOT considers options for codifying the disclosure requirement on a permanent basis.<sup>11</sup>

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[http://phmsa.dot.gov/pv\\_obj\\_cache/pv\\_obj\\_id\\_157A75A27FDC85D2FDCF0A8A6A02D50487BE0200/filename/Petroleum\\_Crude\\_Oil\\_Reference\\_Sheet.pdf](http://phmsa.dot.gov/pv_obj_cache/pv_obj_id_157A75A27FDC85D2FDCF0A8A6A02D50487BE0200/filename/Petroleum_Crude_Oil_Reference_Sheet.pdf)

<sup>10</sup> <http://phmsa.dot.gov/hazmat/osd/emergencyresponse/TRIPR>

<sup>11</sup> <http://www.phmsa.dot.gov/hazmat/phmsa-notice-regarding-emergency-response-notifications-for-shipments-of-petroleum-crude-oil-by-rail>





Finally, on August 1, 2014, PHMSA in coordination with FRA, published an Advanced Notice of Proposed Rulemaking (ANPRM) entitled “Oil Spill Response Plans for High-Hazard Flammable Trains.” This rulemaking sought comment on potential revisions to its regulations that would expand the applicability of comprehensive oil spill response plans (OSRPs) and thus improve emergency response. PHMSA is actively working on a follow-up NPRM on this issue.

## 2.5 Foster Robust Research, Development, and Innovation

### Information Technology Improvements

The agency improved its IT functionality and web-based accessibility through an ongoing effort modernization initiative. Those actions included:

- Released new special permit processing capabilities to the public;
- Implemented Field Operation Case Management capability;
- Released a cylinder requalification locator mobile application to the public;
- Completed the first phase of oCFR development.

As part of our modernization efforts PHMSA has begun to release Special Permit Processing capability to the public. In CY 2013-2014, PHMSA implemented improvements to the online application process for special permit renewal applications and party status applications. In addition, PHMSA released enhancement to the online application process for manufacturer numbers for package manufacturers and visual inspection numbers for cylinder requalifiers. In the next reporting period PHMSA will continue to the tiered release of enhancements resulting in an overhaul of the approvals and permits online process.

In an effort to promote performance management, PHMSA developed new metrics and dashboards in its Hazmat Intelligence Portal (HIP) and began holding Quarterly Management Reviews (QMR). The QMRs are a forum for PHMSA to formally review its past performance, highlight current and future issues, and identify strategies to address outstanding issues and problems. The key metrics reported through our HIP system are used to gauge organizational progress at the QMR and to identify areas in need of improvement.

In the 2013-2014 reporting period, OHMS implemented the OHMS Case Management System. The system is a workflow management system that was created to manage the execution of Field Operations daily operations, as well as manage the internal and external data related to their processes. It is comprised of a workflow driven approach that interacts with other modules within the PHMSA IT Modernization model. The Case Management System serves as the repository for all case-related activities about a particular company or product which will require linking services from other subsystems (e.g. SPM, IP) and modules (e.g. permits and approvals) that reside with the PHMSA system design.

In addition to the Case Management System, PHMSA released an Itinerary Planner program to assist our Field Operations office make better risk-informed decisions on resource allocation. This tool includes a database that compiles known and potential entities involved in hazmat transportation. The data is obtained from sources such as prior inspections, registrations, approvals and permits, incidents, FMCSA, the Environmental Protection Agency (EPA), and entities with business codes similar to those of known hazmat entities. The system uses a risk



matrix assigning various weights to specific items (complaints, high incidents, Packing Group (PG) I or Toxic by Inhalation (TIH) shipper, high packaging certifications, etc.) to determine a risk ranking for each entity. This allows us to prioritize field activities and inspections.

Cylinders that are overdue for retesting can cause property damage, severe injuries, or death if they fail. Fire marshals and code enforcement personnel play an important role in ensuring the safe use and condition of pressure vessels, including propane cylinders. In the 2013-2014, reporting period PHMSA also released a web-based and mobile application of the RIN (Retester Identification Number) Locator. This tool allows the public and non-traditional code enforcement personnel to search for an approved cylinder requalifier by entering a city/state or zip code. If a cylinder is out of date, one can simply enter the city/state or zip code, and the RIN Locator tool will generate a map of nearby approved requalifiers. The map of requalifiers also includes complete address, contact information, authorized test methods, and the cylinder specifications. PHMSA's RIN Locator is available on the PHMSA website<sup>12</sup> or by free download through Apple's iTunes or Android's Play Store. PHMSA believes this tool will raise public awareness of the dangers of using poor condition or out-of-test propane cylinders.

As previously mentioned, PHMSA's initiated a project in the Fall of 2014 to develop an online tool (oCFR) to manage PHMSA-specific CFR information. This tool will modernize and streamline our internal systems. Furthermore, this tool would meet the needs of PHMSA business procedures and incorporate disparate business systems into one platform. As a real-time management tool, the oCFR is comprised of multiple components in support of PHMSA's vision of data and supporting technologies used across multiple lines of business within OHMS and will establish the foundation for future capabilities in support of the Office of Pipeline Safety (OPS). The tool will integrate the latest volume of the CFR with other existing PHMSA tools and data. This integration includes letters of interpretation with additional capabilities related to special permits, approvals, enforcement data, rulemaking information, and petitions for.

### **Research and Development**

The Research and Development program leads and coordinates innovative research projects that are focused on near-term solutions to hazardous materials transportation problems. The program is designed to promote innovative approaches to support the safe transportation of hazardous materials for commerce in a multi-modal system. PHMSA is actively pursuing research opportunities and partnerships to addressing emerging transport risks associated with small-scale production of LNG and the potential bulk rail transport of LNG, the need to safely transport alternative fuels and energy storage devices, and the role of human factors in hazardous materials incidents.

Transparency, collaboration, and communication of our research efforts are essential and the OHMS has held two research forums with stakeholders over the past two years. On January 17, 2014, the OHMS hosted a Research and Development Forum where Federal and industry

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<sup>12</sup> <https://portal.phmsa.dot.gov/rinlocator>



stakeholders gave 14 presentations on emerging research topics, such as fireworks classification to lithium batteries. Because of the positive response, OHMS held a second annual forum in April of 2015. The PHMSA will continue to reach out to stakeholders in the future through these forums and through an improved website.

### **Paperless Hazard Communications Pilot Program**

The Paperless Hazard Communications Pilot Program, also known as HM-ACCESS (Hazardous Materials Automated Cargo Communications for Efficient and Safe Shipments), is a pilot program under Section 33005 of the Hazardous Materials Transportation Safety Improvement Act of 2012 (MAP-21). The goal of this project is to evaluate the feasibility and effectiveness of paperless hazardous materials (e-HM) communication systems (e-systems) to provide a level of safety equivalent to or better than the current hazmat shipping paper requirement, thereby facilitating commercial efficiency while maintaining and possibly enhancing safety. Additional potential benefits from HM-ACCESS adoption include reduced paperwork and environmental burdens associated with paper recordkeeping.

In CY 2013-2014, HM-ACCESS made great strides. In order to properly conduct the program, OHMS published Federal Register Notices seeking input and comments on the planned data collection activities (60-Day Notice published July 19, 2013 and 30-Day Notice published November 25, 2013). Subsequently, OHMS submitted a letter to Congress on the status of the MAP-21 Paperless Hazard Communications Pilot Program on September 30, 2014.

Once OHMS received OMB approval on the Information Collection Requests on September 8, 2014, PHMSA was able to proceed with conducting inspections and emergency response simulation pilot tests in multiple U.S. regions (including one rural area as required by MAP-21). Pilot tests were conducted with selected participants within five U.S. Regions (Western, Central, Southwestern, Southern, and Eastern). The pilot tests collected data regarding the feasibility, effectiveness, and safety associated with electronic transfer of hazmat shipping paper data between hazmat stakeholders (shippers, carriers, law enforcement inspectors, and emergency response personnel) during inspection and emergency response simulations utilizing participants' existing equipment and resources.

While not in the CY 2013-2014 reporting period, OHMS wanted to inform Congress that the pilot tests began on February 17, 2015, and concluded on May 15, 2015. Concurrent with conducting the pilot tests, PHMSA collected impact analysis data from the hazmat community to analyze the impacts of using e-systems for communicating hazmat shipping paper information. The pilot test and impact analysis data is currently being analyzed for incorporation into the MAP-21 required feasibility and assessment report, which PHMSA will submit to Congress soon.



## 2.6 Modal Efforts

Although our modal partners may have slightly different strategic goals than OHMS, we all share a safety mission. Specifically, we share the mission to improve public health and safety by reducing transportation-related deaths and injuries. Below are some highlights from our modal partners related to this mission:



*Department of Transportation Modes*

### **Federal Aviation Administration (FAA)**

The FAA’s Hazardous Materials Safety Program (HMSP) establishes regulatory oversight and conducts outreach activities to reduce the incidence of improperly shipped hazmat by air and to identify the areas of highest risk in connection with both air carrier and shipper activities.

During this biennial reporting period, the FAA’s HMSP initiated oversight activities using a Safety Management System (SMS) based approach to safety oversight pertaining to some of the larger domestic air carriers. As SMS-based oversight is based on risk-based decision making. The HMSP is using its limited resources to make the best decisions available. In addition to using traditional hazardous material inspection and enforcement data, the HMSP began using data developed by the FAA’s aviation safety offices to better inform decisions over inspection targets.

In CY 2013-2014, the FAA’s 117 hazmat inspectors conducted more than 13,606 traditional inspections of air carriers, shippers, and repair stations and 834 surveillance activities on some of the large domestic air carriers using the SMS approach.

In addition, more than 2,200 outreach activities were conducted by the FAA during this time. This outreach work serves to increase awareness among the public, the aviation industry, and other groups, of the dangers of hazmat transported on domestic and international passenger and cargo aircraft.



Using an alternative to enforcement, FAA's HMSP informs and educates airline passengers who were discovered to have hazmat in their checked baggage about the dangers of transporting hazmat-by-air. During CY 2013-2014, more than 26,900 letters were mailed to passengers identified by airlines informing them of their apparent non-compliance with the HMR. Reports involving the discovery of certain hazardous materials, i.e., those that are determined to be noncritical (least dangerous), are forwarded to FAA HMSP. Through a letter, FAA HMSP informs and educates each identified passenger about the hazardous materials discovered in their respective checked baggage.

### **Federal Motor Carrier Safety Administration (FMCSA)**

The FMCSA's Hazardous Materials Safety Program (HMSP) provides stronger regulatory oversight of the hazardous materials transportation regulated community. During the biennial reporting period, FMCSA planned for the implementation of monitoring procedures that will incorporate the Safety Measurement System (SMS). This system will help FMCSA to regularly monitor special permit holders and carriers who provide insufficient safety data. The procedural enhancements for monitoring motor carriers holding a hazardous materials safety permit to ensure that these carriers maintain adequate safety standards.

Also during the reporting period, FMCSA conducted several high-profile investigations and initiatives in 2013 and 2014. One initiative revealed violations in the manufacturing of specification cargo tanks resulting in a national recall of over 600 specification cargo tanks. In other initiatives, FMCSA participated with other partner agencies in an effort to ensure the safe highway movement of chemical weapons being transported for disposal. During the 2014 Ebola outbreak, PHMSA and FMCSA coordinated efforts to ensure the safe and secure transportation of Ebola-contaminated wastes. In addition, FMCSA reported on research findings to improve the safety of nurse tanks. Finally, FMCSA as well as other partner agencies have played a major role in the review of motor carriers applying for and using hazmat special permits. During 2013-2014, FMCSA reviewed more than 320 PHMSA special permit applications from motor carriers and provided PHMSA with recommendations to either approve or disapprove the application, based on the motor carriers' performance.

Cargo tank rollovers are the largest contributing factor to hazmat deaths and major injuries. To address this problem and to respond to NTSB recommendations to curtail rollovers, FMCSA continues to work with its modal partners to promote the Cargo Tank Rollover Prevention video to the hazmat industry, which was a joint project with PHMSA. In August 2013, FMCSA posted the video on YouTube. Since that time, the video has been visited more than 18,000 times. Additionally, the video has been adopted and modified for specific use by companies such as Exxon Mobil Worldwide and has been translated into several other languages.



### **Federal Railroad Administration (FRA)**

FRA issued Hazardous Materials Guidance 127 (HMG-127) in 2012, and published subsequent revisions in 2013 and 2014. This document outlines the procedures for requesting a one-time movement approval (OTMA) for a railcar that no longer complies with the HMR. FRA initiated a project in 2013 to modernize the OTMA application process (referred to as E-OTMA). The purpose of the E-OTMA project is to develop an online easy to use tool for OTMA applicants to submit OTMA requests, and to streamline FRA processing of applications to improve turnaround time and reduce administrative burden as the volume of applications continues to soar to record levels. In 2014, FRA began beta testing of the E-OTMA system.

During the review period, FRA collaborated with PHMSA on more than two dozen regulatory and non-regulatory actions to ensure the safe movement of large volumes of energy products by rail. (See [Section 7](#) for a detailed discussion of these actions). FRA is coordinating with PHMSA on several rulemaking actions intended to incorporate the latest Manual of Standards and Recommended Practices, Section C-III, Specifications for Tank Cars (AAR Tank Car Manual, M-1002), revise and update hazardous material regulations specific to rail, and to review and modify rail oil spill response planning regulations, as appropriate.

During 2013 and 2014, FRA continued to work with stakeholders to improve the survivability of tank cars. FRA was instrumental in developing the new design specification and safety features for the DOT-117 tank car, which were codified in the HM-251 final rule (See HM-251 discussion in [Section 7](#)). FRA also worked collaboratively with PHMSA to identify, analyze, and quantify the costs and benefits of the safety features and operational controls included in the HM-251 final rule.

The Association of American Railroads (AAR) Tank Car Committee (TCC) issues approvals for tank car service equipment, such as liquid valves and pressure relief devices, as part of its longstanding delegated authority under the HMR. In 2014, FRA conducted an audit of the TCC tank car service equipment approval process and implementation. FRA identified several inconsistencies during the audit, which were communicated to AAR in writing along with recommendations from FRA intended to improve the service equipment approval program. FRA has plans to conduct a similar audit of TCC's tank car design approval program as well as their tank car facility approval process in 2015.

FRA's Hazardous Materials Division conducts hazmat training and outreach, including seminars, interactive webinars, and guidance intended to increase regulatory awareness and compliance and reduce the frequency and severity of rail hazmat incidents. In 2013, FRA sponsored, two, free week-long Hazmat Rail Safety Training seminars for representatives from the hazmat shipper, carrier, emergency response, and tank car industries.

FRA has continued to work with stakeholders to improve the survivability of tank cars. The FRA Hazardous Materials Division and the PHMSA Research and Development Program have partnered with industry in a collaborative effort to identify design enhancements for the next generation of tank cars to transport hazardous materials.



The areas under investigation include:

- New or emerging crash energy management technology;
- New tank car steels or existing steels with modified chemistry to improve toughness;
- Survivability of tank cars in pool fire conditions;
- Modeling and simulation methods;
- Performance testing and model validation; and
- Methods to quantify the reduction in risk resulting from the proposed design enhancements.

Most recently, FRA evaluated proposed design enhancements for general purpose tank cars (DOT-111 specification). FRA's developed a first-of-its-kind model to evaluate the tank car design enhancements and operational controls such as speed restrictions and alternative brake signal propagation systems. This model was used to calculate the effectiveness of these elements for the final rule "Enhanced Tank Car standards and Operational Controls for High-Hazard Flammable Trains (HM-251)."

### **FRA Special Projects**

As part of their National Safety Program Plan (NSPP), FRA's Hazardous Materials Division completed five special projects in 2013 and 2014: audit of training compliance at the loading/unloading racks; audit of classification of hazmat (especially shale fracturing products); audits of inland intermodal facilities; audit of compliance with attendance and securement requirements specified in Emergency Order 28 and Special Authorization 2013-06, and; focused compliance inspections of crude oil unit trains en-route. These projects are discussed in further detail below.

#### *Training Compliance*

Normally, a company with a comprehensive training program has fewer incidents in transportation; however, in some cases, a company may have a compliant training program at the corporate level while one or more of its plants have a poor compliance history. This project continues previous FRA efforts to perform training reviews for compliance with 49 CFR § 172.704 of companies with incidents of non-accidental releases, recommendations for civil penalty, and/or situations of failure to adhere to special permits/one-time movement approvals. The audits include evaluation of the training program, consistency of the program between corporate and plant site level, and identification of areas of potential miscommunication that hinder the effectiveness of the training.

#### *Fracking Product Classification/Outage*

Shale formation fracturing "fracking" products, which include natural gases and petroleum liquids, present unique challenges to compliance with the HMR. These challenges arise from the variability in composition of the products and the fact that there are a number of operations that transload from cargo tanks into tank cars. This is especially true in regions where rail does not extend to the point of origin. The variability in composition causes difficulty in determining the specific gravity and flash point of the materials. To exacerbate the problem, transloading multiple cargo tanks containing various concentrations of "fracking" products from different



sources into a single tank car increases the variability of the content and can significantly alter the physical and chemical properties of the resultant mixture. The focus of the audits was to determine how a facility determines the specific gravity of the mixture, which is necessary to determine the proper loading outage, as well as how a facility determines the flash point of the material that is needed to properly classify and, in turn, select the proper packaging.

#### *Intermodal Inspections*

FRA conducted focused inspections at inland rail intermodal facilities. Facilities to be audited were selected by regional personnel annually. Other agencies are invited to participate in these inspections. The multimodal project provides FRA with a multifaceted approach to addressing hazmat issues in intermodal transportation. This effort supports Government oversight of containerized shipments in each hazard class, includes focused inspections of blocking and bracing, and provides an opportunity to discover and identify undeclared shipments. Finally, this project supports the Department's strategic goal of developing closer working relationships and cross-modal program consistency for hazmat regulatory compliance.

#### *Attendance and Securement Audit*

FRA conducted audits of compliance with emergency orders and safety advisories (EO 28 and SA 2013-06) issued by FRA to address attendance and securement of railroad equipment to avoid accidents similar to the one that occurred in Lac-Megantic, Quebec in July of 2013, when a train carrying tank cars loaded with crude oil experienced an uncontrolled movement and derailment that resulted in 47 deaths and destruction of buildings and property.

#### *Crude Oil Unit Train Compliance Audits*

The growing number of crude oil loading facilities, along with the limited experience of employees at some of these facilities, the expansion of the tank car manufacturing capacity, and the growing demand for domestic crude oil presents FRA with numerous safety concerns. To address these concerns FRA conducted Crude Oil Unit Train En-Route Focused Inspection in 2013 to evaluate the effectiveness of the tank cars, effectiveness of tank car service equipment, and effectiveness tank car closure and securement functions performed by loading operators.

### **United States Coast Guard**

The Coast Guard is charged with conducting the inspection of shipping containers, within the marine industry, containing hazmat. In CY 2014, the Coast Guard published a new National Container Inspection Program (NCIP) helping to better target inspections for containers to identify both declared and undeclared hazmat. The Coast Guard developed a goal calculator for determining the number of containers to inspect that gives a greater than 95 percent confidence that the containers inspected are representative of all the containers being shipped through U.S. ports.

Currently, the Coast Guard is the only U.S. agency that verifies maritime containerized shipments of hazmat, including explosives that comply with domestic and international shipping regulations. Of reported incidents, 30 percent (30%) are due to poor packaging and 24 percent (24%) are related to misdeclared cargo. Over 50 percent (50%) of reported incidents are due to





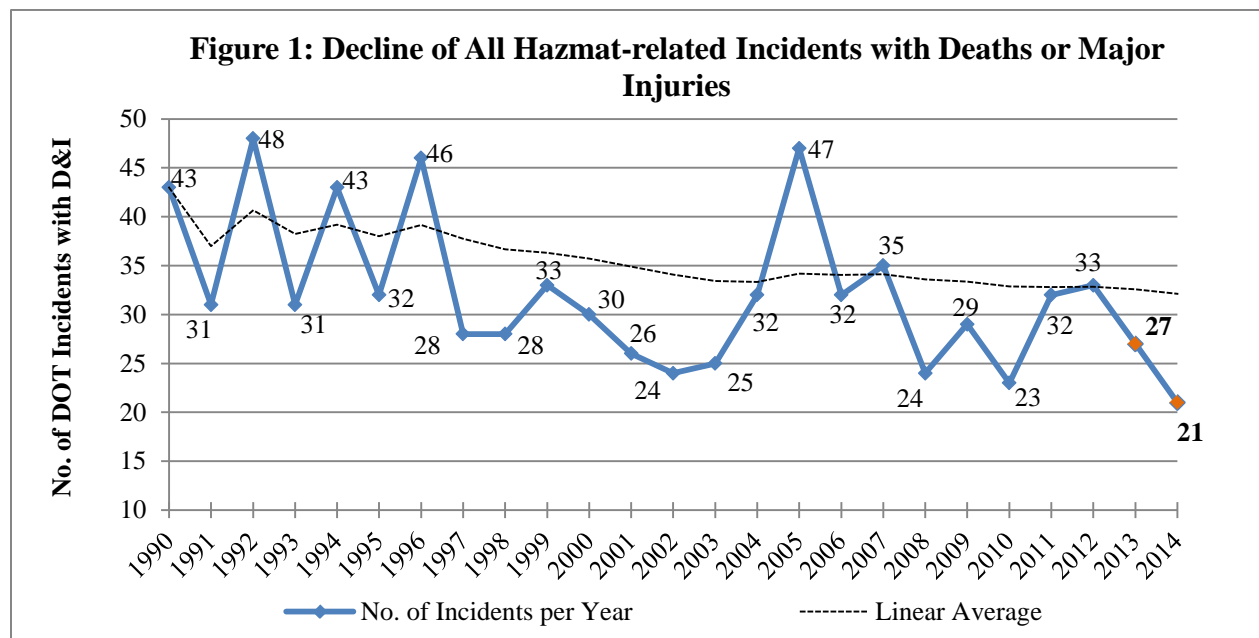
causes that are screened for by the Coast Guard NCIP. Based on industry data and projections, the maritime container shipping industry will increase approximately 10 percent (10%) annually.

The Coast Guard Container Inspection Training and Assistance Team (CITAT) located in Oklahoma City, OK, provided training to 239 industry representatives from 2012 to 2014, and supports PHMSA's training efforts as a presenter at all Hazardous Materials Multi-Modal Training Conferences. Additionally, CITAT regularly participates with DOT's Transportation Safety Institute and trained 240 industry members during this same period. CITAT has conducted training for 407 military, port authority, and customs personnel. In June 2013, CITAT conducted the first international training course in Albania where they taught 19 customs and port officials.



# 3. Statistical Analysis of Accidents and Casualties

PHMSA’s focus is on protecting people, property, and the environment from the risk posed by the transportation of hazmat in commerce, with the goal of reducing the number of deaths and injuries (D&I) to zero. As the agency continues to improve its operations, the number of D&I incidents have been declining about 10 percent every 7 years. Figure 1 is a statistical compilation of accidents and casualties related to the transportation of hazmat. PHMSA requires unintentional releases of hazmat in transportation be reported.<sup>13</sup> The agency receives approximately 16,000 incident reports per year from shippers and carriers. This is PHMSA’s main performance indicator and how the agency measures the effectiveness of its programs.



PHMSA achieved its goal in CY 2013-2014 to minimize D&I incidents to no more than 20-33 and 20-32, respectively.

- **In 2013, the maximum target was 20-33 D&I incidents, and there were 27 D&I incidents with 11 deaths and 32 major injuries.**
- **In 2014, the maximum target was 20-32 D&I incidents and there were 21 D&I incidents with 9 deaths and 14 major injuries.**

<sup>13</sup> 49 CFR §171.16



Figure 2 illustrates a modal breakdown of the total number of incidents that occurred in CY 2013-2014, as well as the total number of incidents with D&Is. Figure 3 illustrates a modal breakdown of the total number of *individuals* that died and/or suffered a major injury due to the incident. Note that more than one person can be affected by an incident, thus the numbers in Figures 2 and 3 may not match. The data are also shown as bulk vs. non-bulk packaging, as defined in the HMR (49 CFR §171.8).

**Figure 2: Total Hazmat Incidents by Mode and Bulk v. Non-bulk (2013-2014)**

Mode of Transportation	2013		2014		2013		2014	
	Bulk	Non-bulk	Bulk	Non-bulk	Bulk	Non-bulk	Bulk	Non-bulk
	Number of DOT Incidents				Number of Incidents with D&I			
FAA—Air	4	1,437	2	1,325	0	0	0	0
FMCSA—Highway	1,178	1,2704	1,264	14,020	17	5	15	5
FRA—Railway	610	57	651	63	5	0	1	0
U.S.CG—Water	5	58	3	44	0	0	0	0
<b>Grand Total</b>	<b>1,797</b>	<b>14,256</b>	<b>1,920</b>	<b>15,452</b>	<b>22</b>	<b>5</b>	<b>16</b>	<b>5</b>

Source: Hazmat Intelligence Portal, U.S. Department of Transportation. Data as of July 24, 2015.

**Figure 3: Deaths and Injuries by Mode and Bulk v. Non-bulk (2013-2014)**

Mode of Transportation	2013		2014		2013		2014	
	Bulk	Non-bulk	Bulk	Non-bulk	Bulk	Non-bulk	Bulk	Non-bulk
	Total Number of Fatalities				Total Number Hospitalized			
FAA—Air	0	0	0	0	0	0	0	0
FMCSA—Highway	11	0	7	2	12	12	8	5
FRA—Railway	0	0	0	0	8	0	1	0
U.S.CG—Water	0	0	0	0	0	0	0	0
<b>Grand Total</b>	<b>11</b>	<b>0</b>	<b>7</b>	<b>2</b>	<b>20</b>	<b>12</b>	<b>9</b>	<b>5</b>

Source: Hazmat Intelligence Portal, U.S. Department of Transportation. Data as of July 24, 2015.

The majority of D&Is occurred in highway mode, which is proportional to the majority of all incidents that consistently occur in highway mode (Figure 2). There are more than five times as many non-bulk incidents as there are bulk incidents; however, the majority of D&Is are attributed to bulk incidents (Figure 2). There were no D&Is resulting from air, rail, or water mode that were attributed to non-bulk incidents. (Figure 2). During CY 2013-2014, the large majority of deaths (18 out of 20) and major injuries (29 out of 46) were attributed to bulk incidents. PHMSA uses incident data to help better identify areas of concern, to target hazmat risks for further attention, and to develop data-driven regulatory and compliance strategies.

Figure 4 and Figure 5, on the following pages, illustrate the top 10 commodities and failure modes ranked by high-impact casualties from CY 2013-2014. The commodities in Figure 5 are



ranked first by number of aggregate deaths, then by number of major injuries, and third by number of overall incidents.

**Figure 4: Top 10 Commodities Ranked by High-impact Casualties (2013-2014)<sup>14</sup>**

Proper Shipping Name	High-impact Casualties <sup>15</sup>	Total Number of Fatalities	Total Number Hospitalized	No. of DOT Incidents
<ul style="list-style-type: none"> <li>Petroleum gases, liquefied, or</li> <li>Liquefied petroleum gases</li> </ul>	18	2	16	179
Gasoline includes gasoline mixed with ethyl alcohol, with not more than 10% alcohol	13	9	4	487
Ammonia, Anhydrous	5	2	3	68
<ul style="list-style-type: none"> <li>Diesel fuel or fuel oil (No. 1, 2, 4, 5, or 6), or</li> <li>Combustible liquid, n.o.s.</li> </ul>	4	2	2	738
Sulfuric acid with more than 51% acid	3	0	3	367
Cresylic acid	3	0	3	3
Coating Solution, Includes: Surface treatments or coatings used for industrial trial or other purposes such as vehicle undercoating, drum, or barrel lining.	2	2	0	124
Perfumery products with flammable solvents	2	2	0	118
Organic peroxide, Type D, liquid	2	2	0	95
Organic peroxide, Type F, solid	2	2	0	7
Elevated temperature liquid, n.o.s., at or above 100°C and below its flashpoint (including molten metals, molten salts, etc.)	2	1	1	62
Hydrochloric acid	2	0	2	656
<ul style="list-style-type: none"> <li>Hydrogen peroxide, aqueous solutions with more than 40%, but not more than 60% hydrogen peroxide; or</li> <li>Hydrogen peroxide, aqueous solutions with not less than 20%, but not more than 40% hydrogen peroxide</li> </ul>	2	0	2	372
Ammonia Solutions – relative density between 0.880 and 0.957 at 15°C in water, with no more than 10%, but not less than 35% ammonia	2	0	2	38
<b>Grand Total</b>	<b>62</b>	<b>24</b>	<b>38</b>	<b>33,425</b>

<sup>14</sup> Source: Hazmat Intelligence Portal, U.S. Department of Transportation. Data as of July 25, 2015.

<sup>15</sup> High Impact Casualties means the total of fatalities plus major injuries or hospitalizations.



Similarly, Figure 5 demonstrates that the majority of the top failure modes ranked by high-impact casualties were the same as those from 2005-2009. These rankings are arranged, similar to in Figure 4, first by number of aggregate deaths and then by number of major injuries.

**Figure 5: Rank of Top Failure Modes Across All Transportation Phases<sup>16</sup>**

Rank	Transportation Failure Mode and Phase	High-impact Casualties (Weighted)	High-impact Casualties (Unweighted)	Fatalities	Hospitalized	Incidents with Death or Major Injury	Weighted by Phase
1	Vehicular Crash Or Accident Damage	10.94	15	10	5	12	
	In-transit						10.75
	Unloading						0.19
2	Fire, Temp, or Heat	5.69	13	4	9	5	
	In-transit						4.00
	In-transit Storage						1.50
	Loading						0.19
3	Rollover Accident	2.19	3	2	1	3	
	In-transit						2.19
4	Component Or Device <sup>17</sup>	1.50	8	0	8	5	
	In-transit						0.75
	Loading						0.19
	Unloading						0.56
5	Human Error	1.50	8	0	8	8	
	In-transit Storage						0.19
	Loading						0.38
	Unloading						0.94
6	Over-Pressurized	1.38	3	1	2	2	
	Loading						1.38
7	Forklift Accident	0.56	3	0	3	2	

<sup>16</sup> Source: Hazmat Intelligence Portal, U.S. Department of Transportation. Data as of July 24, 2015.

<sup>17</sup> **Component or Device**-This failure mode is an aggregate of five failure modes: 1) Broken Component or Device; 2) Loose Closure; Component or Device; 3) Defective Component or Device; 4) Missing Component or Device; 5) Misaligned Material, Component or Device. The values provided have been adjusted to assure that there is no double counting because of this aggregation.



**Figure 5: Rank of Top Failure Modes Across All Transportation Phases<sup>16</sup>**

	Loading						0.19
	Unloading						0.38
8	Abrasion	0.38	2	0	2	2	
	Unloading						0.38
9	Corrosion - Interior	0.38	2	0	2	2	
	In-transit	0.19					
	Unloading	0.19					
10	Threads Worn Or Cross Threaded	0.38	2	0	2	1	
	Unloading	0.38					
11	Inadequate Procedures	0.19	1	0	1	1	
	Loading	0.19					

Data quality involves ensuring the accuracy, timeliness, completeness, and consistency of data used by PHMSA and our stakeholders. PHMSA conducted several activities during CY 2013-2014 to improve its data quality. Specifically, the OHMS completed the following improvements:

- Developed and implemented a tracking mechanism for incidents involving a public evacuation;
- Implemented new processes to ensure validation and quality of the information on the incident reporting form (DOT Form F 5800.1);
- Improved modal coordination by creating Intelligent Bursting and Output Tool (iBot). A tool used for scheduling reports and to sending targeted alerts regarding incident data from recent incidents to our modal partners and regional offices;
- Improved data quality by revising and implementing new business rules for PHMSA's internal systems tracking incident data;
- Enhanced the online incident reporting experience by upgrading the server that housed incident data. As part of the upgrade, PHMSA streamlined the process for companies to submit large amounts of data;
- Significantly improved the efficiency of the handling of of paper DOT Form F 5800.1 by installing software upgrades;
- Improved outreach by presenting at PHMSA multi-modal seminars, and various Emergency Preparedness and Hazmat Response Conferences across the country, promoting the importance of incident reporting;
- Provided quick reference cards for over 3,000 stakeholders for incident reporting data and statistics; and
- Submitted the Hazardous Materials Transportation Incidents Data Assessment and Improvement Plan to Congress. This report includes an action plan and timeline for



improving the collection, analysis, reporting, and using data related to accidents and incidents involving the transportation of hazardous materials.

PHMSA's modal partners also use various IT systems to carry out their hazmat safety missions. For example, to carry out its hazmat-related activities, FMCSA uses HIP in conjunction with Motor Carrier Management Information System (MCMIS). MCMIS is a motor carrier measurement tool used to identify carriers for specific interventions and to properly use FMCSA resources where they are needed most. FMCSA's Compliance, Safety, Accountability (CSA) initiative is an enforcement and compliance model that allows FMCSA and its state partners to contact a carriers to address safety problems before crashes occur. When utilized together, these two systems aid FMCSA in collecting data that is used to develop interventions and programs designed to improve the safety and security of the transportation of hazmat by highway. FRA uses the Railroad Accident/Incident Reporting System (RAIRS), a series of databases that capture all of the reportable casualties, train accidents, highway-rail crossing collisions, and operational statistics reported to the FRA from the nation's railroads. The statistics from RAIRS provide the FRA with its safety scorecard. The information also is used for risk analysis and determines anomalies for focused inspections.



## 4. Hazardous Materials Regulations, Criteria, Orders, and Special Permits Summary

PHMSA's hazmat regulatory program focused its efforts on addressing congressional mandates from MAP-21 and NTSB Recommendations; streamlining and harmonizing regulations, and addressing emerging safety risks such as the increased transportation of energy products. Specifically, we initiated three rulemakings to address MAP-21 mandates, finalized two rulemakings addressing MAP-21 mandates, closed sixteen NTSB recommendations, and published two rulemaking to address energy products since CY 2013 began.

PHMSA also continues to focus on the modernization and streamlining of its regulatory system and reduction of regulatory burdens. The program evaluates existing regulations to examine their continued applicability given changes in circumstances and technologies and then determined whether they should be amended or eliminated. To identify inconsistencies, outdated provisions, and barriers to regulatory compliance, during the past two years, PHMSA reviewed the following:

- The HMR;
- Suggestions from modal partners;
- Letters of interpretation;
- Petitions for rulemaking;
- Special permits and approvals;
- Enforcement actions; and
- International standards.

As part of the Retrospective Regulatory Review in accordance with Executive Order 13563, PHMSA initiated or published eight rulemaking actions to streamline the hazmat regulations. Furthermore, OHMS published 22 rulemaking actions during CY 2013-2014. A full listing of the rulemakings and notices published during the report period has been provided in [Appendix B](#). Rulemakings that are a part of the Department's Retrospective Regulatory Review are indicated with the denotation (RRR) in the rulemaking title.

### 4.1 Program Overview

PHMSA works closely with the Office of the Secretary of Transportation to ensure that PHMSA's regulatory program complies with the Administrative Procedure Act and Departmental Rulemaking Requirements. PHMSA monitors the safety performance of the transportation system, in technology, and non-transportation incidents including incident and accident reports, recommendations from NTSB and other independent safety agencies, international regulatory developments, advances involving hazmat in part to help determine if possible regulatory actions are needed. PHMSA also evaluates requests for new or amended





regulations received from stakeholders through petition for rulemakings in accordance with the 49 CFR §§ 106.95 and 106.100, the regulated industry, other government agencies (U.S.CG, EPA, OSHA, Bureau of Alcohol, Tobacco, and Firearms (ATF), etc.), and DOT's operating administrations (FAA, FMCSA, FRA).

The Hazardous Materials Information Center (HMIC) serves as another mechanism used by PHMSA to identify possible regulatory weaknesses. The HMIC is a nation-wide, toll-free telephone service operated by the program to provide timely, accurate, and complete answers to questions concerning the safe transportation of hazmat. In a typical year, HMIC responds to more than 21,000 telephone calls and e-mails requesting assistance. Based on the volume and type of calls received, PHMSA is able to identify areas in the HMR that could be improved upon through revisions or clarification.

PHMSA employs an integrated set of analytical and regulatory tools, including setting safety standards, analyzing trends in accidents and incidents, monitoring the performance of the hazmat transportation system, and identifying vulnerabilities. These activities are heavily dependent on data to identify high-risk shippers, high-vulnerability routes and transfer points, and unsafe carriers.

When evaluating a particular issue, a policy analysis is completed to determine the best course of action as not every issue is best handled through rulemaking. For example, the outcome of the policy analysis may recommend other non-regulatory alternatives such as enhanced enforcement, training, and outreach. When a policy analysis determines that a rulemaking is necessary, PHMSA considers a number of options in order to determine the most efficient, least burdensome, and most cost effective solution that achieves our safety goals.

PHMSA works toward the prevention of deaths and injuries associated with the transportation of hazmat by all transportation modes. The agency concentrates on the prevention of high-risk incidents identified through the evaluation of transportation incident data and findings compiled through the collection and review of incident reporting forms (DOT Form F 5800.1). In addition, PHMSA also focused our efforts on incidents identified through the NTSB investigation process. PHMSA uses all available agency tools to assess data; evaluate alternative safety strategies, including regulatory strategies as necessary and appropriate; target enforcement efforts, and; enhanced outreach, public education, and training to promote safety outcomes.

The HMR primarily addresses safety issues, but also includes security requirements for hazmat shipments of certain types and quantities. Finally, the HMR has training requirements for persons who prepare hazmat for shipment or who transport hazmat in commerce (See § 172.800-172.822).

DOT strives to enhance global connectivity by making it a priority to pursue international transportation safety standards, where appropriate, that are consistent with the high level of safety standards required by U.S. regulations. Virtually all hazmat imported to, or exported from, the U.S. is transported in accordance with international regulations and the HMR. The objective of DOT's hazmat safety program is to maintain a global system of hazmat



transportation regulations that will enhance the safe and efficient movement of hazmat across borders and jurisdictions.

Harmonization with international standards can enhance safety, promote compliance, and facilitate free trade while potentially minimizing the regulatory burden on the public. Participation in international standard setting bodies helps ensure U.S. interests are considered in the development of global standards, and affords an opportunity to promote requirements that are consistent with DOT's transportation safety and efficiency goals.

PHMSA coordinates closely with our modal partners and international regulatory bodies to strengthen global requirements and conduct research to address the risk of hazardous materials transported by air. While PHMSA's mission is safety, we are also cognizant of innovative technologies and we work to ensure regulatory safeguards are continually modernized without unduly impeding innovation. PHMSA staff plays an active role and serves in leadership positions on various international regulatory bodies [United Nations (UN), the International Civil Aviation Organization (ICAO), and the International Atomic Energy Agency (IAEA)] that are often leading transportation trends.

Consistency between U.S. and international regulations enhances the safety and environmental protection of hazardous materials transportation through better understanding of the regulations, an increased level of industry compliance, the smooth flow of hazardous materials from their points of origin to their points of destination, and consistent emergency response in the event of a hazardous materials incident. Additionally, alignment of the HMR and international regulations promotes international trade through standardization and reduces regulatory burden by using a single set of guiding principles worldwide.

PHMSA also worked to harmonize the HMR with the International Civil Aviation Organization Technical Instructions (ICAO TI), the United National Model Regulations, the International Maritime Dangerous Goods Code, and International Atomic Energy Agency. In CY 2013-2014, PHMSA finalized three international harmonization rulemakings (under dockets HM-250<sup>18</sup>, HM-224F<sup>19</sup> and HM-215M<sup>20</sup>) that aligned the U.S. HMR with the most recent editions of international standards for the transportation of hazmat.

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<sup>18</sup> <https://federalregister.gov/a/2014-15514>

<sup>19</sup> <http://www.gpo.gov/fdsys/pkg/FR-2014-08-06/pdf/2014-18146.pdf>

<sup>20</sup> <https://federalregister.gov/a/2014-30462>



				
<b>United Nations (UN)</b> Committee of Experts on the Transport of Dangerous Goods and Globally Harmonized System of Classification and Labeling Chemicals	<b>International Civil Aviation Organization (ICAO)</b> Dangerous Goods Panel	<b>International Maritime Organization (IMO)</b> Dangerous Goods and Solid Cargo Sub-Committee	<b>International Atomic Energy Agency (IAEA)</b> Technical Committee on the Revision of International Regulations for the Safe Transport of Radioactive Materials	<b>International Standards Organization (ISO)</b> Responsible for developing and publishing International Standards.

*DOT supports a uniform, global approach to the safe transportation of hazmat through participation in these international organizations.*

## 4.2 Regulatory Achievements 2013-2014

PHMSA’s hazmat program was developed under authority of 49 U.S.C. § 5103(b), which authorizes the Secretary of Transportation to prescribe regulations for the safe transportation, including security, of hazmat in intrastate, interstate, and foreign commerce. Based on this authority, PHMSA initiates rulemaking actions centered on a number of drivers. Most importantly, the program initiates rulemakings to address safety or security concerns identified by DOT, NTSB and other independent safety agencies, the regulated community, or members of the public. In addition, the program may initiate a rulemaking to respond to a specific Congressional, new, or revised statutory mandate. The hazmat program may initiate a rulemaking action to respond to petitions for rulemaking received from the regulated community or members of the public, or as the result of regulatory reviews that identify areas where the regulations may be improved to enhance understanding and compliance or reduce regulatory burdens. Finally, the hazmat program may initiate a rulemaking to harmonize its regulations with international standards and regulations governing the transportation of hazmat. As part of the rulemaking process, PHMSA assesses of the relative costs and benefits, both safety and efficiency gains, resulting from each rulemaking action. The results of this assessment may influence the language of the final regulations or may result in the program pursuing alternatives to rulemaking such as issuing advisory guidance, targeting outreach efforts, or enforcement activities.



During this reporting period, PHMSA's OHMS initiated and published rulemakings, notices, and guidance covering a variety of topics. [Appendix B](#) contains a full list of rulemaking and notice actions for the report period. Key focus areas are summarized below.

### Special Permit Rulemakings

Section 33012 of MAP-21 requires PHMSA to review and analyze special permits that have been in continuous effect for a 10-year period to determine those that are suitable for incorporation into the HMR. The legislation also required PHMSA to issue a final rule adopting those special permits into the HMR. In the past, PHMSA has systematically analyzed, evaluated, and adopted special permits into the HMR through a well-established process. However, to expedite this request, PHMSA initiated the Special Permits Conversion Project (SPCP).

PHMSA initiated a rulemaking action (HM-233F) to incorporate into the HMR any special permits PHMSA identified as appropriate for adoption. MAP-21 also requires the issuance of regulations to incorporate into the HMR those special permits identified in the initial review and analysis and deemed appropriate for incorporation based on PHMSA's review factors. As part of this rulemaking effort, PHMSA evaluated 1,168 special permits representing 3,691 unique permit holders. While the legislation only requires that PHMSA review only those permits over 10 years of age, PHMSA reviewed all active permits. This SPCP management team developed a methodology to consistently evaluate special permits, a system to track the analysis, created rulemaking sub-teams, topics and sub-topic areas to combine similar special permits to be reviewed by the appropriate subject matter experts and teams, and established timelines and milestones. In January 2015, PHMSA published a Notice of Proposed Rulemaking (NPRM) that proposed the incorporation of 98 permits representing 728 unique permit holders.<sup>[1]</sup> This represented an approximate reduction of 19 percent of permit holders. A final rule is currently undergoing modal concurrence and is expected to publish in the near future. PHMSA will continue to evaluate special permits as part of its ongoing effort to codify special permits into the HMR on a recurring [biennial basis].

On August 12, 2014, PHMSA also published an NPRM (HM-233E) to revise the HMR to include the standard operating procedures and criteria used to evaluate applications for special permits and approvals. These proposed amendments do not change previously established special permit and approval policies. This rulemaking also proposes to provide clarity regarding what conditions need to be satisfied to promote completeness of the applications submitted. A final rule was subsequently published on September 10, 2015.

PHMSA believes that combined, these two rulemakings will incorporate a large number of special permits into regulations, and expand the standard operating procedures in the regulations thus improving the public transparency of our program.

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<sup>[1]</sup> <http://www.gpo.gov/fdsys/pkg/FR-2015-01-30/pdf/2015-01263.pdf>



### **Rail Safety and Energy Products**

PHMSA has identified the bulk shipments of flammable liquids as a priority transportation risk. In a constantly changing world, PHMSA is constantly examining this and other emerging risks. PHMSA has been proactive, addressing the crude by rail issue with a mix of over two dozen regulatory and non-regulatory actions including, but not limited to guidance, alerts, emergency orders, trainings, issuing grants, outreach, and regulation. Stakeholder and public engagement have been a major component of our actions on this issue and we will continue to engage the regulated community and public on our continuing and future efforts to manage this emerging transportation risk. To fully address this issue, PHMSA has and will continue to take a comprehensive approach. No single action will completely address this risk, but collectively our actions have and can continue to have had a dramatic impact in protecting people, property, and the environment from the risks associated with the transportation of extremely large volumes of crude. A more detailed discussion of PHMSA's efforts in this area are discussed in [Section 7](#) of this document.

### **Infectious Substance Safety**

Over a span of approximately 40 years, PHMSA has adopted and revised requirements to address public health safety issues when transporting infectious substances. These changes included domestic initiated amendments to allow additional packaging options, provisions for regulated medical waste, and provisions for these materials to be shipped by passenger-carrying aircraft. PHMSA continuously monitors the adequacy of existing regulatory provisions, but recognizes that as new infectious substances are discovered or new health emergencies occur, such as the Ebola virus outbreak of 2014, we may need to re-examine and possibly revise the HMR to adequately address potential concerns for the continued safe transportation of these materials.

In response to the recent presence in the U.S. of patients contaminated with the Ebola virus, a Category A infectious material, PHMSA created a comprehensive historical document of DOT's infectious substance regulations. This document provides a definition of an infectious substance, the evolution of the HMRs that govern these materials, and future areas for consideration. The document also helps shape special permits to authorize for the safe transportation of these infectious materials. Further, this document will also be used as PHMSA examines the current requirements of the HMR to determine whether a revision or additional regulations are needed to further facilitate the safe transport of Category A infectious materials. In addition, PHMSA's Standards and Rulemaking Division was instrumental in providing assistance and expertise to the development of a special permit issued to allow the transportation of Ebola-contaminated materials generated in Houston, TX. The same special permit was used to move material from New York to Texas. Finally, on October 30, 2014, PHMSA issued a safety advisory providing HMR guidance to persons who prepare, offer, and transport materials contaminated or suspected of being contaminated with the Ebola virus.



### **Aviation Safety**

Lithium batteries continue to present unique risks in transportation due to their prevalence aboard passenger aircraft when being shipped as cargo or associated with the carriage of personal electronic devices and because of their potential to overheat and ignite under certain conditions—once ignited, lithium battery fires can be especially difficult to extinguish. In general, the risks posed by lithium batteries are a function of battery size (the amount of lithium content and corresponding energy density) and the likelihood of short-circuiting or rupture. PHMSA published an NPRM (HM-224F) on January 1, 2013, requesting additional comment on proposed changes to strengthen the current regulatory framework applicable to lithium batteries. On August 6, 2014, PHMSA published a final rule revising hazard communication, packaging provisions for lithium batteries, and harmonizing the HMR with applicable provisions of the UN Model Regulations, the ICAO Technical Instructions, and the IMDG Code.

PHMSA coordinates closely with our modal partners and international regulatory bodies to strengthen global requirements and conduct research to address the risk of hazardous materials transported by air including those specific to lithium batteries. Through the auspices of the ICAO Dangerous Goods Panel, as representatives of the U.S., PHMSA and the FAA played a key role in the development of safety recommendations for lithium batteries through multidisciplinary panel meetings made up of airframe manufacturers, air carriers, and other technical safety experts from across the world. The results of this effort mark a significant shift in thinking on how to best address the fire risk of lithium batteries holistically using a "layered approach." PHMSA and the FAA continue to evaluate the recommendations, including implementation strategies and future regulatory actions. While PHMSA's mission is safety, we are also cognizant of innovative technologies and we work to ensure regulatory safeguards are continually modernized without unduly impeding innovation.

### **Retrospective Regulatory Review**

Executive Order 13563 states that the government's regulatory system must protect public health, welfare, safety, and our environment while promoting economic growth, innovation, competitiveness, and job creation. Executive Order 13563 is supplemental to and reaffirms the principles, structures, and definitions governing regulatory review that were established in Executive Order 12866 Regulatory Planning and Review of September 30, 1993. Furthermore, Executive Order 13563 specifically requires agencies to:

- Involve the public in the regulatory process;
- Promote simplification and harmonization through interagency coordination;
- Identify and consider regulatory approaches that reduce burden and maintain flexibility;
- Ensure the objectivity of any scientific or technological information used to support regulatory action; and
- Consider how to best promote retrospective analysis to modify, streamline, expand, or repeal existing rules that are outmoded, ineffective, insufficient, or excessively burdensome.



During the report period, PHMSA initiated several actions to reduce the regulatory burden on hazmat shippers and carriers, consistent with our overall safety goals.

In response to this Executive Order, and those that preceded it, and internal DOT initiatives, PHMSA has conducted a retrospective regulatory review and evaluated our regulatory program for effectiveness. Additionally, we identified areas that could be modified to enhance the program, increase flexibility for the regulated community, and encourage participation from the regulated community while maintaining or enhancing the current level of safety provided by the HMR.

As part of the Retrospective Regulatory Review in accordance with Executive Order 13563, PHMSA initiated or published eight rulemaking actions to streamline the HMR. Furthermore, PHMSA published 22 rulemaking actions during CY 2013-2014. A full listing of the rulemakings and notices published during the report period has been provided in [Appendix B](#). Rulemakings that are a part of the Department's Retrospective Regulatory Review are indicated with the denotation (RRR) in the rulemaking title.

Furthermore, in partnership with FRA, PHMSA held a public meeting on August 27-28, 2013, "Hazardous Materials: Improving the Safety of Railroad Transportation of Hazardous Materials." FRA and PHMSA are undertaking a comprehensive review of operational factors that affect the safety of the transportation of hazardous materials by rail, and at this meeting PHMSA and FRA sought input from stakeholders and interested parties. These comments will ultimately inform the revision of the "Part 174 – Carriage by Rail" regulations contained in the HMR.

### **International Harmonization**

DOT recognizes the vital importance of global connectivity in transportation. Transportation systems within and among Nations are lifelines to the future, to freer trade and accelerated economic growth, to greater cultural exchange, and to the expansion of democracy around the world. Our increasingly globalized economy hinges on efficient supply chains and just-in-time manufacturing. Transportation is critical to both. A major goal for DOT is to facilitate an international transportation system that promotes economic growth and development. In support of DOT's global connectivity goal, PHMSA worked to harmonize the HMR with international standards to facilitate the safe and efficient transportation of hazmat through ports of entry and the supply chain. During CY 2013-2014, PHMSA completed regulatory actions by publishing final rules (HM-215K<sup>21</sup> and HM-215L<sup>22</sup>) on January 7, 2013, and an NPRM (HM-215M<sup>23</sup>) on August 25, 2014, as part of the ongoing HM-215 series of international harmonization rulemakings to harmonize domestic requirements with international requirements to the extent consistent with our safety and economic goals. In addition, PHMSA published a final rule (HM-250<sup>24</sup>) on July 11, 2014, harmonizing regulations regarding radioactive materials with those of the International Atomic Energy Agency (IAEA).

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<sup>21</sup> <http://www.gpo.gov/fdsys/pkg/FR-2013-01-07/pdf/2012-31242.pdf>

<sup>22</sup> <http://www.gpo.gov/fdsys/pkg/FR-2013-01-07/pdf/2012-31243.pdf>

<sup>23</sup> <http://www.gpo.gov/fdsys/pkg/FR-2015-01-08/pdf/2014-30462.pdf>

<sup>24</sup> <http://www.gpo.gov/fdsys/pkg/FR-2014-07-11/pdf/2014-15514.pdf>



Consistency between U.S. and international regulations enhances the safety and environmental protection of hazardous materials transportation through better understanding of the regulations, an increased level of industry compliance, the smooth flow of hazardous materials from their points of origin to their points of destination, and consistent emergency response in the event of a hazardous materials incident. Additionally alignment of the U.S. HMR and international regulations promotes international trade through standardization and reduces regulatory burden by using a single set of guiding principles worldwide.

### **Fireworks Policy**

Because fireworks have a quintessential place in public celebrations nationwide, PHMSA saw a need to facilitate the safe transportation domestically. On September 24, 2014, PHMSA published notices (No. 14-4 and 14-5) to clarify our fireworks policy and aim for compliance. Notice 14-4 clarified policy regarding applications for classification approval of Display Mines provided they conform to the acceptable criteria described in the notice, and otherwise comply with the American Pyrotechnics Association (APA) Standard 87-1 requirements. Notice 14-5 clarified policy regarding applications for classification approval of Display Aerial Shells with Attachments, provided they conform to the acceptable criteria described in the notice, and otherwise comply with APA Standard 87-1 requirements.

Another example of PHMSA's efforts to streamline our regulatory system was the publication of a final rule that provides regulatory flexibility in seeking authorization for the transportation of Division 1.4G consumer fireworks (UN0336 Fireworks). This final rule created a new type of DOT-approved certification agency, the Firework Certification Agency (FCA) that provides an optional alternate approvals agency for manufacturers or designated U.S. agents to submit applications. To date, six FCAs have been approved and they have processed over 400 fireworks certifications. Finally, during CY 2013-2014, PHMSA worked closely with the APA to update the "APA 87-1 standard for Construction and Approval for Transportation of Fireworks, Novelties and Technical Pyrotechnics."





## 5. Summary of the Basis for Hazardous Materials Special Permits and Approvals

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This section of the report provides a summary of the basis for special permits and approvals. [Appendix C](#) contains a summary list of newly granted hazmat special permits for the report period.

### 5.1 Program Overview

The HMR generally are performance-oriented regulations, and provide the regulated community with standards to meet safety requirements. Even so, not every transportation situation can be anticipated and incorporated into the regulations. Special permits (previously called exemptions) set forth alternative requirements, or variances, to the requirements in the HMR. Federal hazmat transportation law (49 U.S.C. § 5117) authorizes PHMSA to issue such variances to an applicant that has shown that the requested alternative demonstrates a safety level that is at least equal to the safety level required under Federal hazmat law or is consistent with the public interest if a required safety level does not exist. Special permits are a necessary part of PHMSA's regulatory framework. New products, technologies, or packagings become available every day and, sometimes, the regulations do not adequately address these items.

Certain hazmat regulations also require a person to seek written authorization or “approval” from PHMSA to perform a certain transportation-related function. For example, PHMSA issues approvals covering the classification and transportation of explosives, certain lithium batteries, fuel cells, chemical oxygen generators, and radioactive materials. In addition, PHMSA issues approvals authorizing companies to manufacture certain types of packagings, such as cylinders, and to perform the tests and inspections required to ensure that the packaging may continue to be used for transporting hazmat. PHMSA also issues “competent authority” approvals for the transportation of hazmat in accordance with international transportation standards and regulations.

To learn more about the program and to search for special permits or approvals, visit <http://www.phmsa.dot.gov/hazmat/regs/sp-a>.



Recent major safety accomplishments of the OHMS Approvals and Permits Division include:

- A follow-up audit from the DOT Inspector General in 2013/2014 confirmed the program is vastly improved from the 2009/2010 audit and recognized the successful continuous improvement program that has gone beyond the previous recommendations;
- Incorporated 22 existing DOT-approved special permits representing more than 2,599 permit holders into the regulations;<sup>25</sup>
- Considerable progress on regulatory actions has enhanced and will continue to enhance the Approvals and Permits program. Specifically, PHMSA is close to completing rulemakings that will incorporate a large number of special permits into regulations, and expanding the standard operating procedures in the regulations improving the public transparency of our program.;
- Increased the oversight and issuance of new approvals, requirements to all currently authorized Independent Inspection Agencies for DOT compressed gas cylinders and Third Party Packaging Labs;
- Implemented FCAs to act as third-party laboratories to certify new consumer fireworks, improving PHMSA's efficiency in processing firework applications. As a result, there are six FCAs, which have certified over 400 applications for our stakeholders.;
- Launched the Special Permit Portal, which is an online system to streamline the application submission for new or modified special permit applications, renewals for existing permit holders, or "party status applications.;
- Conducted Safety Equivalency Re-evaluations on all currently approved DOT special permits; and
- Released a web-based and mobile application of the RIN Locator. This tool allows the public to search for an approved cylinder requalifier by entering a city/state or zip code.

During CY 2013 and 2014, less than two percent of all approval and special permit applications required more than 180 days to evaluate. Those that exceeded 180 days required extensive technical or policy review to ensure the safety of the American public.

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<sup>25</sup> See final rule Docket numbers: PHMSA-2010-0201, PHMSA 2011-0138, PHMSA-2011-0142, PHMSA-2011-0158



Figure 6 : Average Approval Processing Time CY 13-14

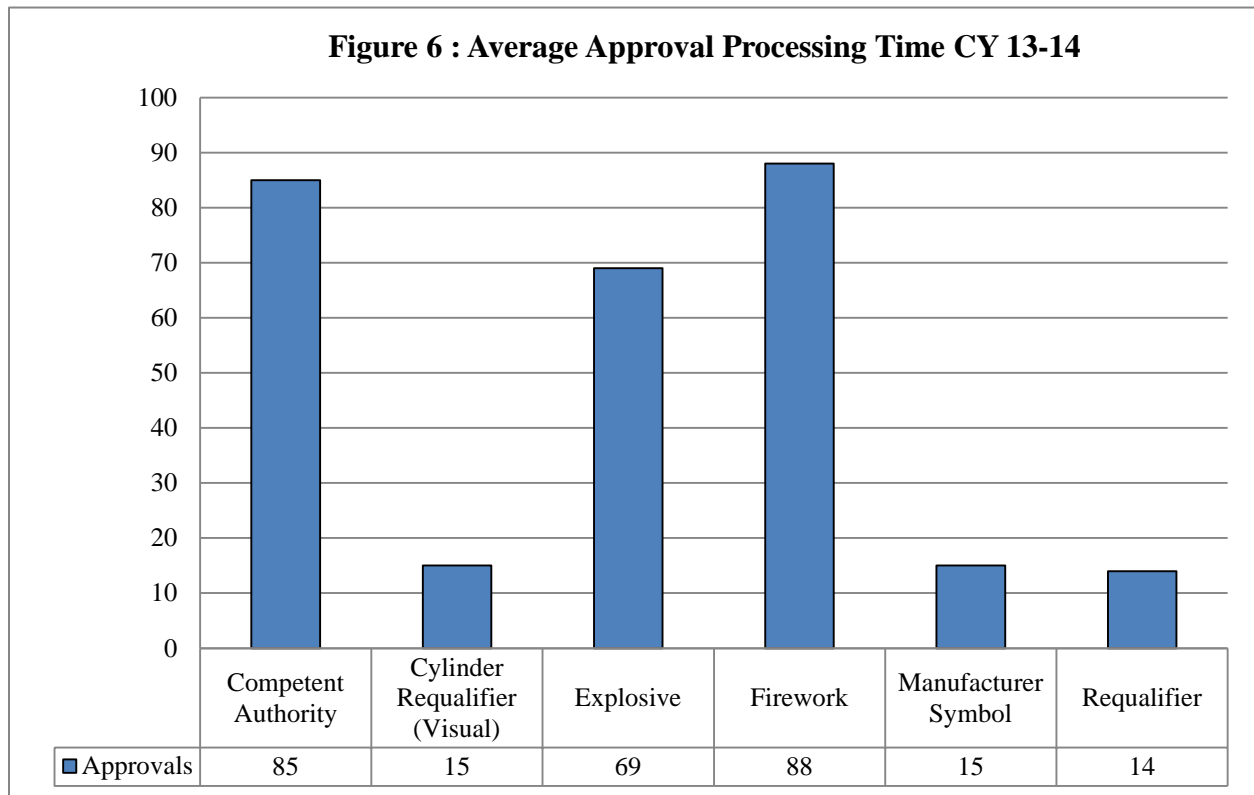
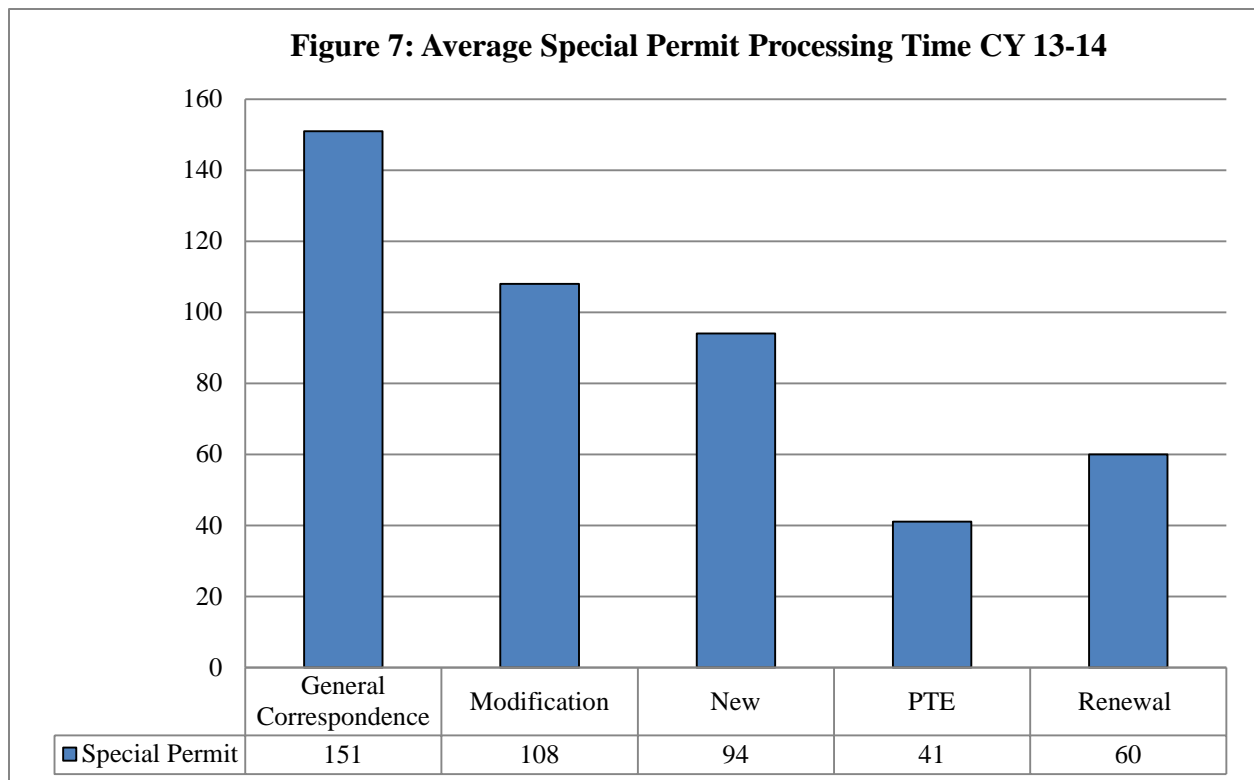


Figure 7: Average Special Permit Processing Time CY 13-14

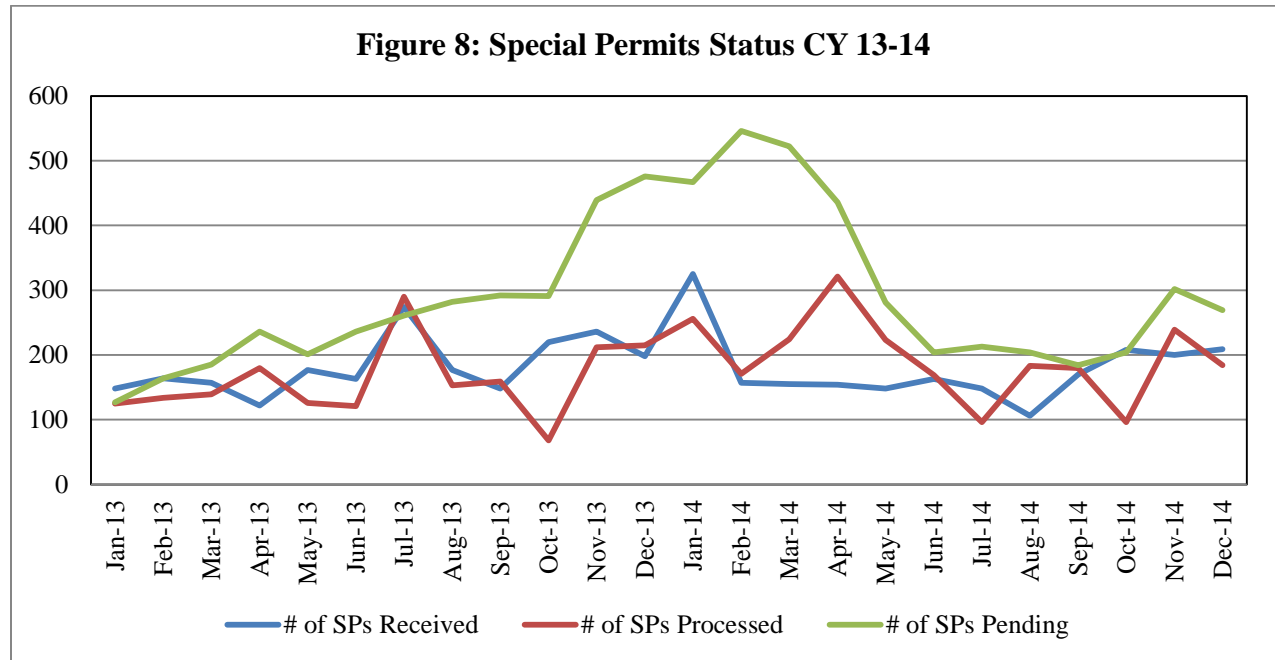




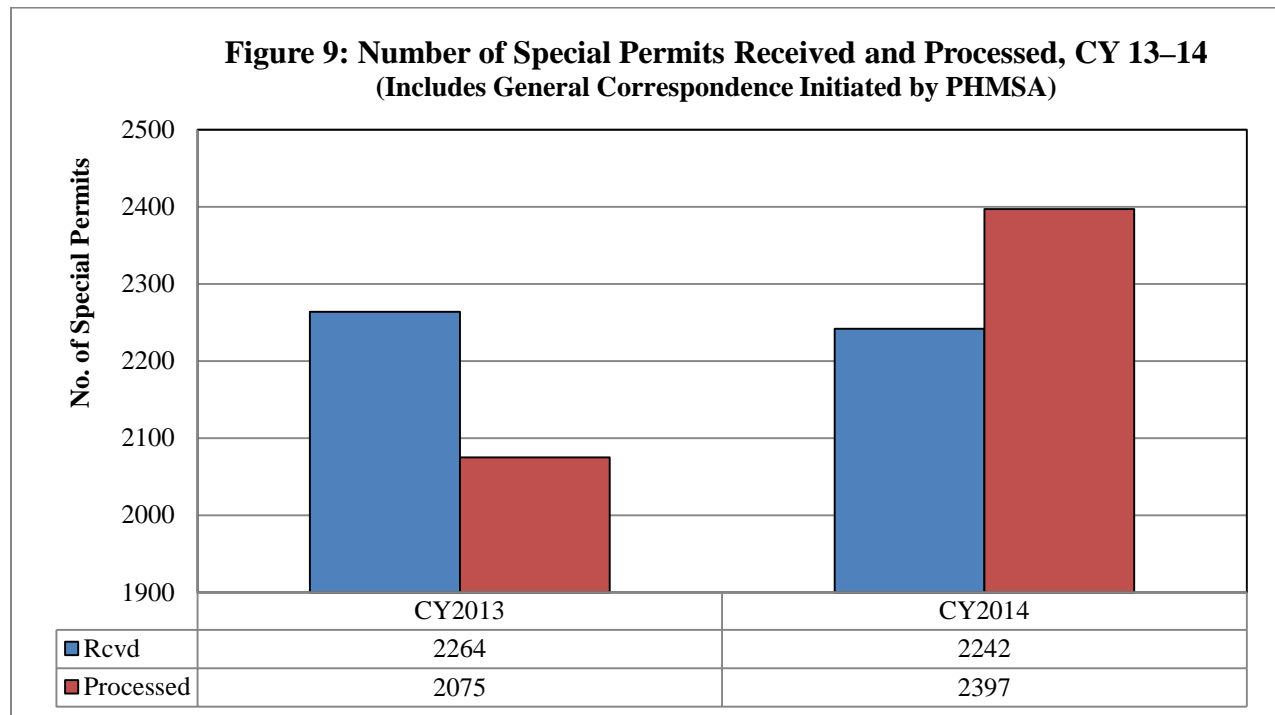
### 5.2 Special Permits

Throughout CY 2013 and 2014, the number of special permits received and processed remained constant, with the exception of the Federal Government shutdown during the September-October 2013 timeframe. Over the course of the next few months, we worked to bring the number of pending applications back to normal levels, minimizing the impact of the shutdown on industry.

**Figure 8: Special Permits Status CY 13-14**



**Figure 9: Number of Special Permits Received and Processed, CY 13-14 (Includes General Correspondence Initiated by PHMSA)**





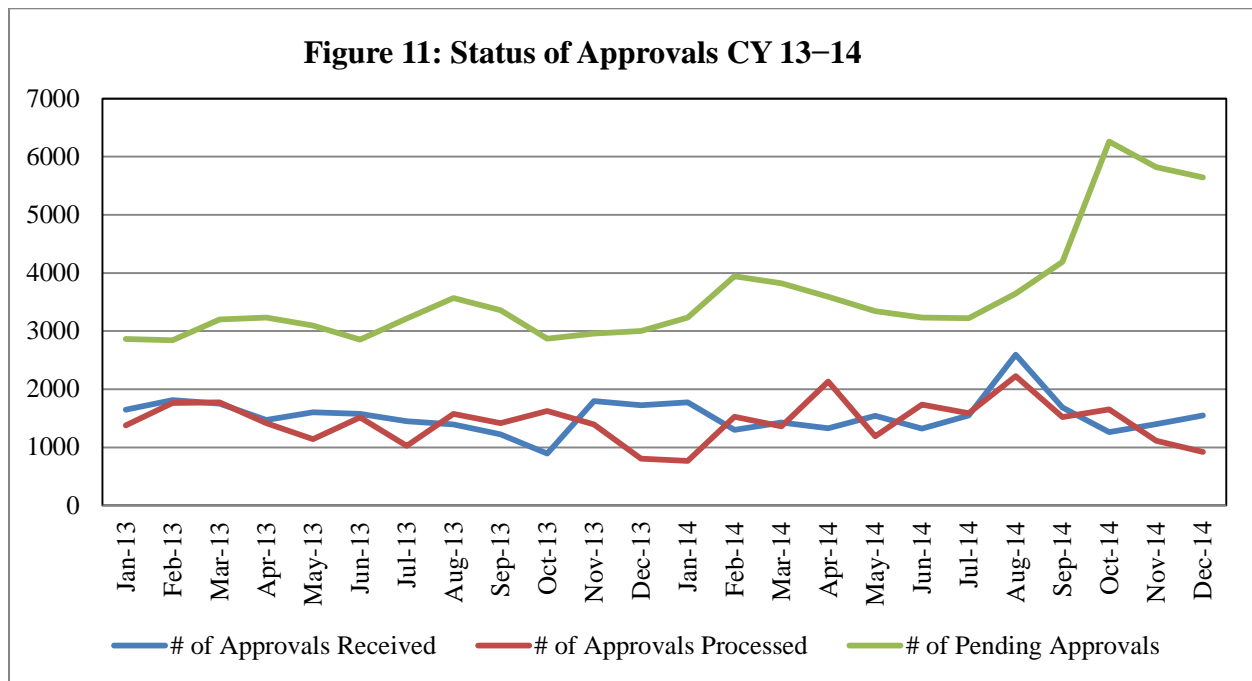
<b>Figure 10: Number of Special Permits Processed by Type</b>		
<b>Year</b>	<b>2013</b>	<b>2014</b>
General Correspondence	136	143
Modification	103	93
New	253	307
Party To	290	424
Reconsideration	5	18
Renewal	1,133	1,359
<b>Grand Total</b>	<b>1,923</b>	<b>2,344</b>

1Source: Hazmat Intelligence Portal, U.S. Department of Transportation. Data as of July 24, 2015.

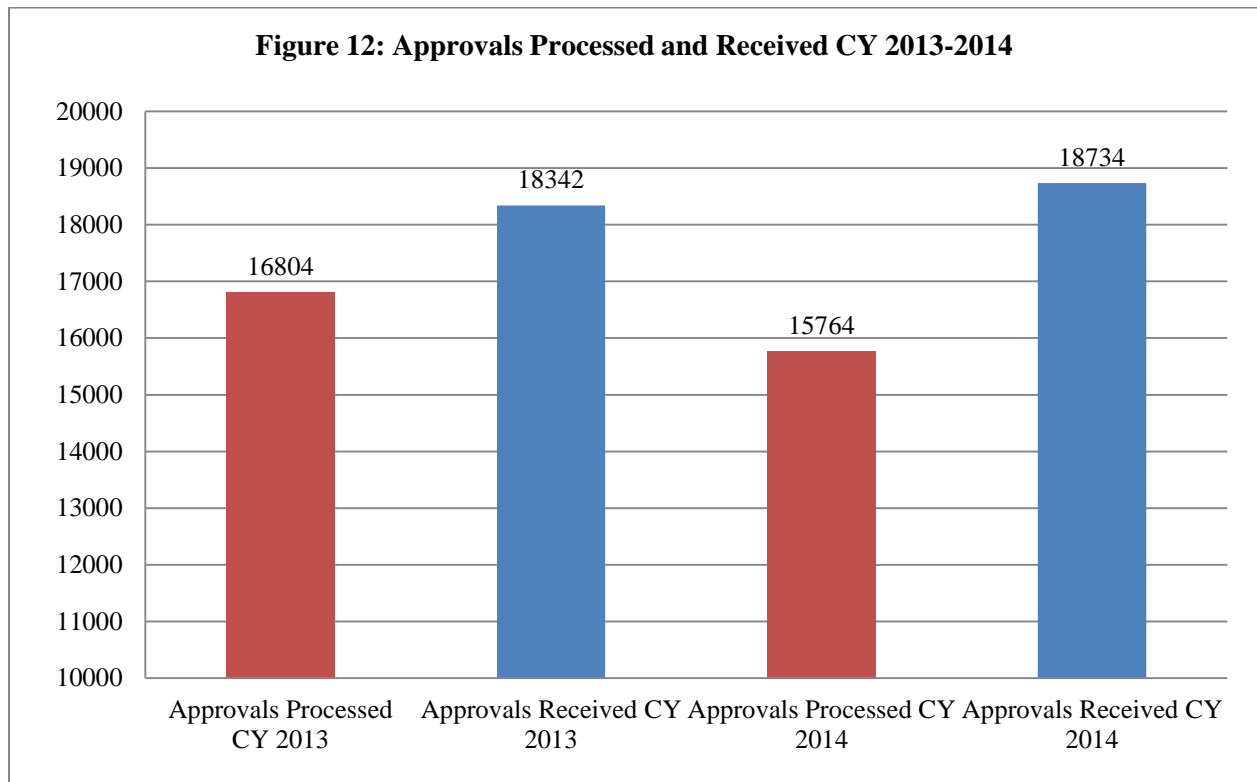
Because PHMSA’s process improvement efforts, the agency increased the number of applications processed, resulting in better oversight in the field.

### 5.3 Approvals

Figure 11 and Figure 12 outline the types of approvals PHMSA processed in 2013 and 2014 on a monthly basis. The overwhelming majority of these approvals during this time were firework approvals. PHMSA monitors the aging of fireworks applications weekly to prevent applications from exceeding 180 days.



Source: Hazmat Intelligence Portal, U.S. Department of Transportation. Data as of July 24, 2015.



**Figure 13: Number of Approvals Processed by Type CY 2013-2014**

Year	2013	2014
Comp Authority	454	496
Explosives	2059	2225
FCA	3	20
Fireworks	11654	9575
M Numbers	109	85
<b>Requalifier</b>	<b>769</b>	<b>784</b>
<b>Visual</b>	<b>1756</b>	<b>2579</b>
<b>Grand Total</b>	<b>16804</b>	<b>15764</b>



## 6. Highlights and Evaluation of Hazardous Materials Regulations Enforcement and Voluntary Compliance Activities

### 6.1 Program Overview

PHMSA OHMS Field Operations is not only an enforcement entity but an outreach and training resource, promoting compliance to prevent incidents. Field Operations conducts a comprehensive, robust program where we take action utilizing the full array of tools at our disposal, including civil penalties. The Field Operations supports other agency functions as well as our modal partners through the collection of data, training of stakeholders, regulatory support, and investigative services. We also work closely with the other modes, such as FRA, FMSCA, FAA, and U.S.CG to extend our enforcement capabilities and reach, as well as to engage in outreach with the various stakeholders and regulated entities.

This section of the report highlights enforcement and compliance activities relating to a function regulated by the Secretary under the Federal hazmat law section 5103(b)(1) and the degree of compliance with the regulations. As illustrated in Figure 16, as well as discussed below, each DOT operating administration has performed a variety of enforcement and compliance activities.

From 2013 to 2014, each operating administration conducted approximately the same number of inspections and issued the same number of violations and penalties. The greatest number of inspections and violations found were in highway mode, which is not surprising given that the highway mode includes hazmat inspections conducted by thousands of enforcement officers under the Motor Carrier Safety Assistance Program. The greatest number of violations found given the number of inspections was in rail mode—FRA issued nearly twice as many violations as inspections conducted. PHMSA issued the highest percentage of penalties given both the number of violations and inspections it conducted—about 26 percent in 2013 and 50 percent in 2014.

**Figure 14: Number of Enforcement Activities by Agency, CY 2013–2014**

Agency	Activity	Transaction Year	
		2013	2014
FAA <sup>26</sup>	Inspections	7,763	5,843
	SMS Surveillance Activities	212	622
	Violations	1,694	1,546
	Penalties	441	242
PHMSA <sup>27</sup>	Inspections	2,389	1,994
	Violations	2,279	2,015
	Penalties	624	800
FMCSA <sup>28</sup>	Inspections	203,310	196,187
	Violations	49,614	46,866
	Penalties	348	343
FRA <sup>29</sup>	Inspections	12,230	11,937
	Defects	17,941	18,318
	Violations	725	763
U.S.CG <sup>30</sup>	Inspections	25,425	22,797
	Violations	2,0463	1,762
	Penalties	87	178

26 Number of FAA violations reflects number of actual reports that contain one or more violations. For example, a report may have 10 violations, but increases the FAA violations count only by one. Likewise, the number of FAA penalties reflects the number of actual reports that contain one or more civil penalty. Source: FAA's Enforcement Investigation System. SMS surveillance activities are planned inspectional activities that were based on data analyses and conducted by FAA hazmat inspectors in coordination with the principal operations inspector and staff from FAA certificate management offices.

27 Number of PHMSA inspections represents number of Field Operations Performance-Related Activities. Performance-Related Activities include Facility Inspections, Observation Inspections, and Investigations.

Number of PHMSA penalties includes the sum of tickets and cases. Source: Hazardous Materials Information Portal (HIP), as of May 15, 2013

28 FMCSA violations result from roadside inspections, reviews, and complaints. Penalties are HM violations cited in Closed Civil Penalty Enforcement Cases. Source: Inspections, Reviews, and Violations: Motor Carrier Management Information System (MCMIS) as of October 23, 2015. Source: Penalties in Closed Enforcement Cases: Enforcement Management System (EMIS) as of October 23, 2015.

29 Defects are identified nonconforming issues. Violations are those defects that an inspector believes are a risk to safety or a chronic issue. Source: FRA's Railroad Inspection System – Personal Computer (RISPC) database as of February 25, 2013

30 Source: Marine Information for Safety and Law Enforcement (MISLE) System through the use of the Coast Guard Business Intelligence (CGBI) Cubes, as of June 22, 2015





Figure 15: Number of Inspections by Agency

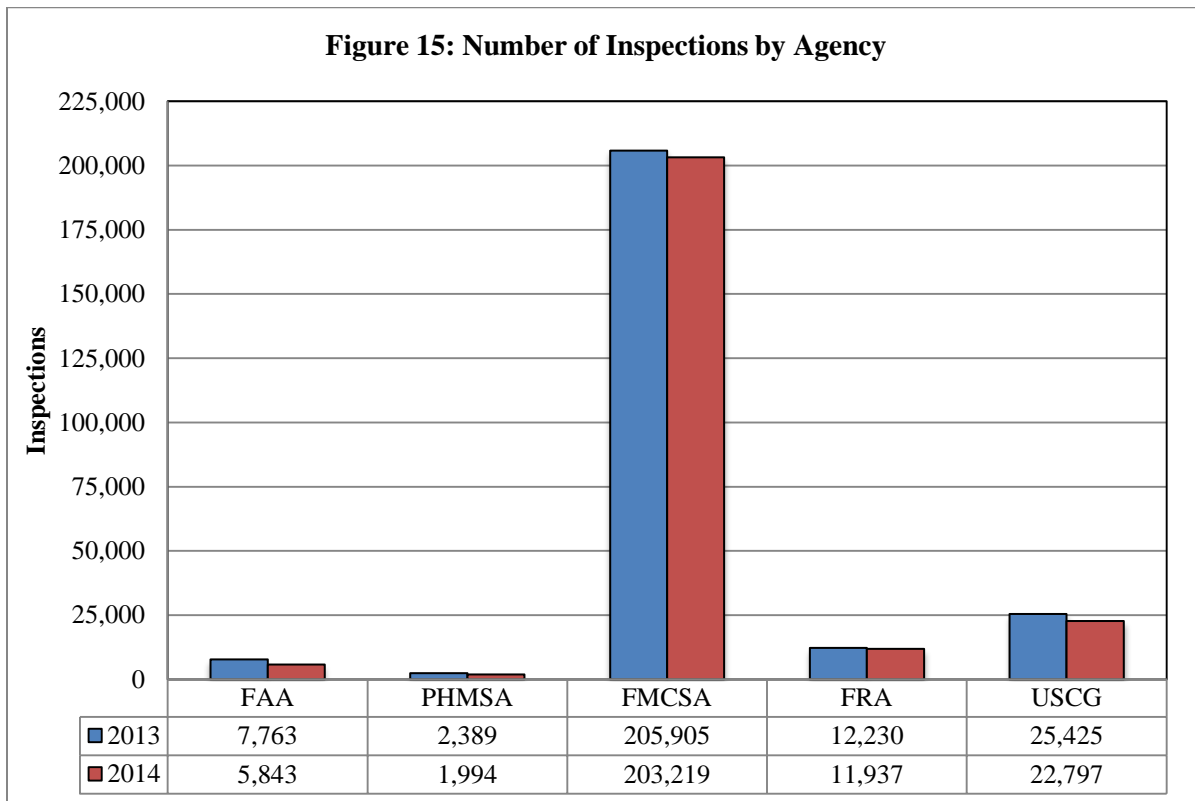
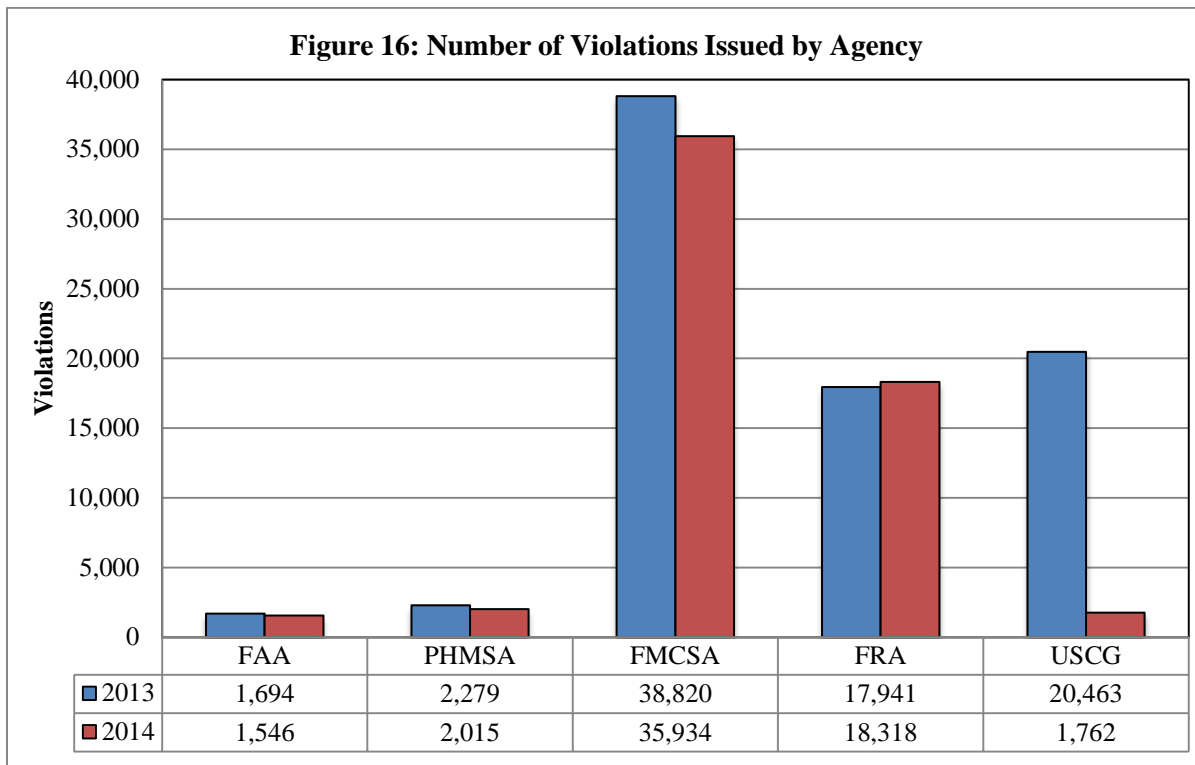
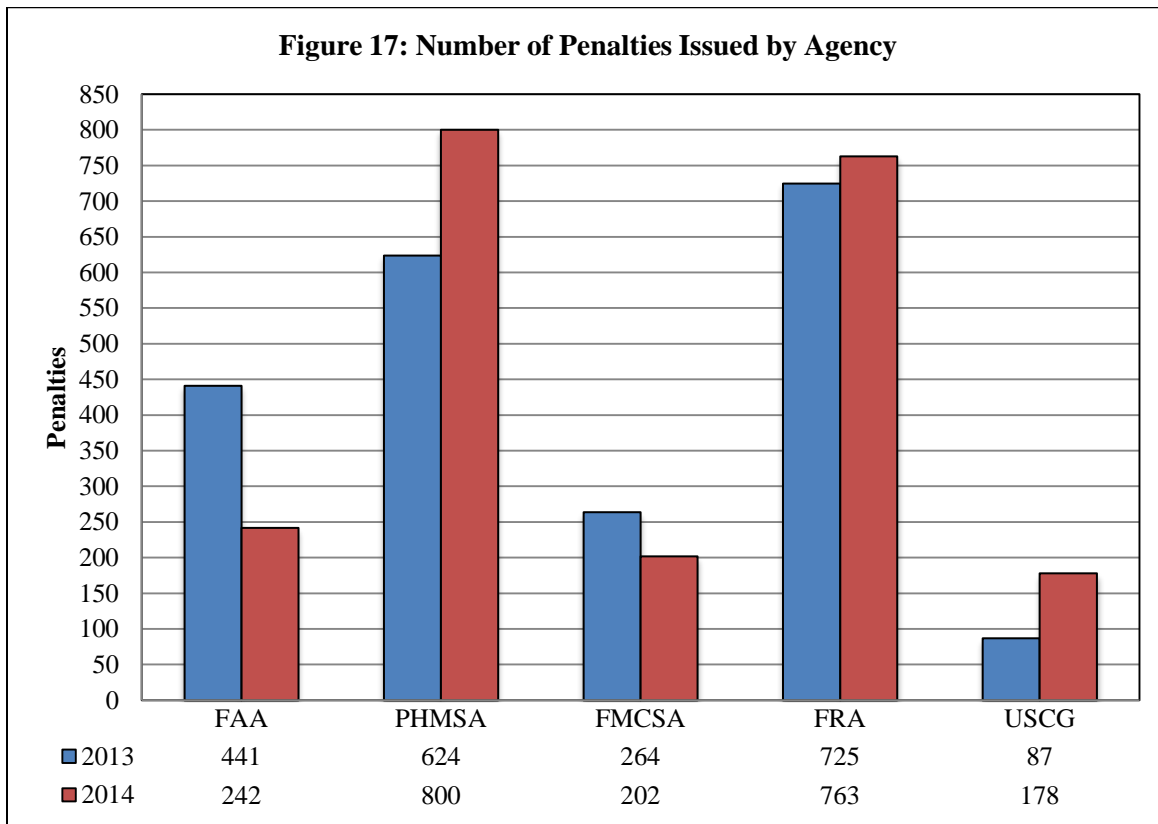


Figure 16: Number of Violations Issued by Agency





## 6.2 FAA

The 2013-2014 biennial cycle saw a marked increase in the development and use of risk-based approaches to support the oversight of both air carriers and shippers of hazmat. These approaches include the development and implementation of a systematic approach for air carrier oversight, in which FAA fused hazmat compliance requirements into the overall oversight of participating air carriers in order to identify systemic problems and effect fixes. As for air mode shippers, FAA continues to use a risk-ranking functionality in the multi-modal HIP database that is providing the agency with leads on higher-risk shippers. In connection with hazmat enforcement activity, the FAA collected approximately \$11.7 million during CY 2013-2014.

## 6.3 USCG

With the implementation of the new NCIP, a better random targeting matrix, and an increase in MASFOs, the Coast Guard is putting in place significant risk-based approaches to support the shipments of hazmat and address the significant risk associated with those shipments. With the ever-increasing size of containerized ships and increase in the shipment of containerized cargo, there is the potential increase in incidents related to this mode of shipping. The Coast Guard is working to address these threats through identification of areas of potential incidents and capitalizing on partnerships with other agencies, industry, and private organizations to promote prevention and through targeted inspections determine and mitigate areas of greatest risk.

The U.S.CG conducts inspection activities on containerized hazardous cargo for compliance with regulations found in the 49 CFR and general cargo containers for compliance with the



International Safe Container Act. U.S.CG units routinely conduct random targeting of containers for inspection, and execute MASFOs. The U.S.CG is typically the lead agency during a MASFO, and participants include state and local law enforcement, CBP, PHMSA, FRA, FMSCA, and TSA. The combined number of inspected containers during a large-scale MASFO can total upwards of 600 Twenty-foot Equivalent Units (TEU's). During CY 2013-2014 CITAT supported five major MASFOs in three of the country's largest container ports, including Los Angeles/Long Beach, Hampton Roads, and Houston-Galveston, resulting in 1,157 containers inspected during these operations.

## 6.4 FMCSA

FMCSA utilizes both Federal and state partners to carry out the agency's hazmat program. Through roadside inspections of commercial motor vehicles and a variety of motor carrier reviews, FMCSA's field staff, and the approximately 10,000 motor carrier inspectors in the Motor Carrier Safety Assistance Program effectively oversee highway transportation of hazmat. FMCSA has also taken on the responsibility for motor carrier hazmat security through its Security Sensitivity Visits and Security Compliance Reviews. In addition, FMCSA and state personnel have been active in the Hazardous Materials Package Inspection Program (HM PIP) through the conduct of MASFOs and its oversight of cargo tank manufacturing and inspection facilities. Finally, FMCSA collaborates with a wide array of Federal agencies, state agencies, industry associations, safety organizations, and other stakeholders to promote safety efforts in the Bakken oil fields. In 2013 and 2014, the FMCSA Montana and North Dakota Divisions along with their partners engaged in special enforcement activities in the Bakken region to investigate gathering and classification processes, and to detect, correct, and deter illegal or improper shipments of crude oil. Investigators conduct inspections and examinations of crude oil shipments, including sampling of crude oil for analysis.

## 6.5 FRA

In 2013 and 2014, FRA audited selected Class I, Class II and Class III railroads for compliance with the security plan and routing regulations. The audits consisted of reviewing the railroads' security plans, security or risk assessments, personnel security, unauthorized access of facilities and systems, en-route security, intermodal security, training, and routing. The deficiencies identified were related to training, document control, revision/review requirements and updating security plans to reflect organizational hierarchy. Relative to compliance with the routing regulations, inconsistencies in routing analyses were the primary identified deficiencies. In 2015, FRA will continue its audit efforts, as well as work with the Class II and Class III railroads in their development of software to quantify risk based on the 27 factors outlined in 49 CFR part 172 Appendix D.

In 2010, FRA created a tank car facility Quality Assurance Team. The team is comprised of four Quality Assurance Specialists and assisted by two packaging engineers from the Hazardous Materials Division. The Specialists have a broad range of expertise, including non-destructive evaluation, welding, engineering, as well as experience in the construction, repair, and inspection of tank cars. The original goal of the team was to audit each of the approximate 325 facilities once every three years. In 2014, the team developed and implemented a risk based inspection prioritization tool to allow for better resource allocation and require more frequent compliance



audits for entities that, based on historic data, fall into a higher relative risk rating than others. During this period, the team audited 342 facilities. In addition, in 2013 the team began auditing tank car owners to determine compliance with the requirements for developing and managing a qualification and maintenance program that ensures the design level of reliability and safety of tank cars transporting hazmat. The Quality Assurance Team often partners with regional personnel to leverage resources, perform a more comprehensive audit, and improve the competencies of the field inspectors

### 6.6 PHMSA

During CY 2013-2014, PHMSA made progress in focusing its enforcement and compliance program on high safety risks, as well as streamlining the agency’s regulatory and compliance programs. In addition to conducting inspections and issuing violations, PHMSA has a number of voluntary compliance program, including the System Integrity Safety Plan (SISP) and Alternate Validation Testing (AVT). This program focuses on activities posing the greatest risk in transportation, and focuses on industry quality assurance and integrity management principles to enhance compliance and continually improve safety.

The table below is a summary of PHMSA enforcement related activities. The table describes the number of inspections, number of re-inspections, re-inspection percentage, and compliance rates of the re-inspections. About half of performance-related activities find instances of non-compliances.

**Figure 18: Recidivism Rates and Compliance of Performance-related Activities**

Activity Calendar Year	No. of Performance-related Activities	Percentage of Compliance of Performance-related Activites	No. of Re-Inspections <sup>31</sup>	Percentage of Re-Inspections	No. of Re-Inspections - Compliance	Percentage of Re-Inspections-Compliance
2013	1763	49%	250	14.18%	131	52%
2014	1232	49%	148	12.01%	77	52%

Source: Hazmat Intelligence Portal, U.S. Department of Transportation. Data as of July 24, 2015.

Out of the 2,894 total performance-related activities in 2013 and 2014, 398 (14 percent) were re-inspections. Of the 398 re-inspections, 52 percent of companies were found to comply with regulations during the time of the re-inspection, as a direct result of PHMSA’s education efforts during the inspection and the enforcement actions taken afterward. PHMSA aims to continue to increase the compliance of companies that have re-inspections.

<sup>31</sup> Re-Inspections are PHMSA performance-related activities associated to a re-inspection case number.



### Voluntary Compliance Programs

In addition to conducting inspections and issuing violations, PHMSA has a number of voluntary compliance programs. PHMSA’s voluntary compliance program focuses on activities posing the greatest risk in transportation, and focuses on industry quality assurance and integrity management principles to

enhance compliance and continually improve safety. The SISP identifies industry best practices in transportation safety that may not currently be required but when implemented, increase compliance with the HMR. SISP addresses compliance issues for eligible shippers, manufacturers, and carriers that, based on their incident or compliance history, may pose a risk to transportation safety or involve very broad nationwide matters. A company successfully completing the SISP program as specified in the SISP Agreement will not be subject to PHMSA enforcement actions for probable violations discovered during the term of the Agreement. PHMSA will exercise this enforcement discretion only if the participant comes into full compliance. The participant may also develop and implement a suitable quality control plan to avoid the recurrence of similar problems. In return, entities that adopt this approach accelerate compliance and implement corrective actions to help reduce the likelihood of hazmat releases in transportation.

During CY 2013-14, PHMSA entered into or completed 23 SISP agreements, affecting tens of thousands of hazmat shippers and transporters. Outlined are success stories of PHMSA’s agreements with the following entities:

**The Puerto Rico Liquefied Petroleum Gas (LPG) industry** as a whole was evaluated to determine root causes of systemic breakdowns in the handling of LPG, including the industry’s regulatory oversight agencies. PHMSA developed a comprehensive outreach strategy including a series of oral presentations, supported by specialized visual media and printed materials that incorporated the fundamentals of hazardous materials transportation, and examples of non-compliances and established best practices for the safe transportation of LPG. Each facility related to the safe transport of LPG and system compliance was reviewed and provided PHMSA one-on-one guidance to staff at the facilities. Educating the coalition of regulatory enforcement agencies culminated in an enhanced program of continued oversight whereby overall compliance with the regulations has increased. This directed focus has led to a significantly raised awareness of the hazardous materials regulations and how they apply to the safe and compliant transport of LPG.

Other entities PHMSA entered into SISP agreements with across 2013 and 2014 include:

**The SISP Process**

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- A risk assessment model to identify potential unsafe operations, causes of failure, and critical control points,
- Developing and maintaining an integrity management plan, performance measures, and safety standards that focus on eliminating or reducing high-consequence events; and
- Collecting and analyzing data as well as monitoring and evaluating performance.



Entity and Industry	Volume of Hazmat Shipments Affected	Number of locations	Impact
A dominant auto parts retailer	8,600 hazardous materials shipments per day	Over 4,300 locations nationwide	Affects the company in the SISP agreement with PHMSA, but affects the upstream suppliers as well
A major distributor and manufacturer of industrial and specialty chemicals	Ships in excess of 2,000 hazardous materials products via air, rail, and ground in various types of packagings	Over 29 distribution locations nationwide	Affects the company in the SISP agreement with PHMSA, but affects all carriers and additional manufactures of the company's products as well

PHMSA's **Alternative Validation Testing (AVT)** is a second voluntary compliance program. This initiative utilizes existing authority through 49 C.F.R 178.601(i) to provide packaging manufacturers the opportunity to demonstrate UN performance testing on package designs selected by PHMSA. Testing is conducted by the packaging manufacturers with a PHMSA investigator present. PHMSA uses AVT to promote greater package design integrity and compliance by the packaging manufacturers and, in doing so, increases hazmat transportation safety.

#### **Highlights from Puerto Rico's Liquefied Petroleum Gas Industry SISP Agreement**

- Affected any LPG cylinder remanufacturing, retesting, filling, or transportation facility;
- Affected thousands of shippers and carriers;
- Brought together multiple federal, state and local agencies to increase compliance; and
- Resulted in an increased regulatory oversight program, enhancing the safe transport of LPG

#### **Propane Cylinder Outreach**

On July 1, 2014, a large propane cylinder used in mobile food truck service ruptured in Philadelphia, PA, resulting in two deaths and 11 injuries. In response to this incident, PHMSA took action to address the hazards associated with the use of propane cylinders in the mobile food truck industry to ensure the safety of food truck employees and the general public. Understanding the food truck industry was not well versed in the application of the HMR, PHMSA took aim to raise awareness on the safety implications of using poor condition and out-of-test propane cylinders. The goal of this initiative was to raise awareness of the important safety concern within the mobile food truck industry, specifically the hazards of using poor condition or out-of-test propane cylinders, as well as to educate various entities and state and local code enforcement who oversee this industry.



To accomplish this goal, PHMSA conducted a nationwide enforcement push which included gathering information on food truck operations and performing hundreds of targeted food truck inspections to ensure proper testing of propane cylinders. Case in point, in the Eastern Region, investigators were able to identify 66 DOT-specification cylinders potentially having been filled while out of test and seven potential violators of the HMR with respect to filling and offering out-of-test cylinders. In addition to the enforcement effort, PHMSA also executed an outreach campaign to educate the food truck industry along with state and local code inspectors on how to identify poor or out-of-test propane cylinders. This effort included developing and disseminating cylinder safety flyers, utilizing PHMSA's social media avenues, and hosting multiple cylinder safety webinars tailored to the food truck industry and state and local code enforcement personnel.



## 7. Impact of Increased Transport of Energy Products

Expansion in U.S. energy production has led to significant challenges for the country's transportation system. For example, the increase in domestic oil production has resulted in a large volume of crude oil being transported to refineries and other transport-related facilities, such as transloading facilities, throughout the country. With a growing domestic supply, rail transportation has emerged as a flexible alternative to transportation by pipelines or vessels, which have historically delivered the vast majority of crude oil to U.S. refineries. The volume of crude oil carried by rail increased 423 percent between 2011 and 2012.<sup>32,33</sup> In 2013, the number of rail carloads of crude oil surpassed 400,000.<sup>34,35</sup> In addition, the transport of ethanol by rail in high volumes and large quantities is also common. Because rail transportation commonly includes energy products shipped in high volumes and large quantities, there is an increased risk of derailments that could cause substantial harm to people and the environment. PHMSA has identified the bulk shipments of flammable liquids as a priority transportation risk and we are constantly examining this and other emerging risks (such as the shipment of other energy products like liquefied natural gas).

PHMSA has been proactive, addressing this issue with a mix of over two dozen regulatory and non-regulatory actions including, but not limited to: guidance, alerts, emergency orders, trainings, issuing grants, outreach, and regulation.<sup>36</sup> PHMSA has, and will, continue to take a comprehensive approach. Stakeholder and public engagement have been a major component of our actions on this issue and we will continue to engage the regulated community and public on future efforts. No single action will completely address this risk, but collectively our actions can and have had a dramatic impact. Below are highlights of the major initiatives completed in CY 2013-2014.

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<sup>32</sup> See U.S. Rail Transportation of Crude Oil: Background and Issues for Congress; <http://fas.org/sgp/crs/misc/R43390.pdf>

<sup>33</sup> See also "Refinery receipts of crude oil by rail, truck, and barge continue to increase"

<http://www.eia.gov/todayinenergy/detail.cfm?id=12131>

<sup>34</sup> [http://www.stb.dot.gov/stb/industry/econ\\_waybill.html](http://www.stb.dot.gov/stb/industry/econ_waybill.html)

<sup>35</sup> <http://www.eia.gov/todayinenergy/detail.cfm?id=17751>

<sup>36</sup> See chronology of action actions: <http://phmsa.dot.gov/hazmat/osd/chronology>





## 7.1 Enhanced Tank Car Standards and Operation Controls Rulemaking

PHMSA published an ANPRM (HM-251), on September 26, 2013, considering revisions to the HMR to improve safety of hazmat transportation by rail. The proposed revisions were based on eight petitions received from the regulated community and four NTSB Recommendations. In the ANPRM, we solicited comments and data from the public. The questions posed in the ANPRM and responses by commenters were used in conjunction with a retrospective review of existing requirements aimed to modify, streamline, expand, or repeal existing rules that were ineffective, insufficient, or excessively burdensome.

PHMSA in coordination with the FRA, also published an NPRM (HM-251) on August 1, 2014, which proposed to adopt requirements designed to reduce the consequences and, in some instances, reduce the probability of accidents involving trains transporting large quantities of flammable liquids. This NPRM defined certain trains transporting large volumes of flammable liquids as “high-hazard flammable trains” (HHFT) and proposed to regulate their operation in terms of speed restrictions, braking systems, routing, and notification. This notice also proposed safety improvements in tank car design standards by phasing out DOT-111 and CPC-1232 tank cars with retrofitted standards and adopting new DOT-Specification 117 standards. A sampling and classification program for certain flammable material was also incorporated in this notice. These operational and safety improvements were necessary to address the unique risks associated with the growing reliance on trains to transport large quantities of flammable liquids. The improvements incorporated recommendations from the NTSB and from public comments, and are supported by a robust economic impact analysis.

While not in this period of review, it is important to note that on May 1, 2015, Secretary Anthony Foxx and Canadian Transport Minister, Lisa Raitt jointly announced publication of a final rule that improved upon previous tank car designs, implemented operational controls, and required the use of enhanced braking technologies. This rulemaking is a significant part of our comprehensive approach to prevent the occurrence of rail accidents of large quantities of flammable liquids and mitigate the consequences should one occur. While this is a significant step, it is far from the last action on this issue. Throughout the rulemaking process PHMSA, FRA, and DOT were transparent and actively engaged stakeholders on all sides of the issues.

The rulemaking was supported by a robust regulatory impact analysis that utilized predictive modeling and analyzed the economic impacts to a complex transportation system. The rulemaking adopts new tank car standards as well as operational controls for the transport of large volumes of flammable liquids transport via rail. PHMSA is confident this rulemaking could address nine NTSB safety recommendations.



## 7.2 Oil Spill Response Plan Rulemaking

PHMSA also published an ANPRM (HM-251B) on August 1, 2014, seeking comments on potential revisions to the HMR that would expand the applicability of comprehensive oil spill response plans (OSRPs). PHMSA and FRA specifically sought comment on (1) thresholds for OSRPs, (2) clarity of the current OSRP requirements, and (3) costs of developing and implementing OSRPs and submitting them for approval. The interest in public input is related to an NTSB safety recommendation on revising the threshold for comprehensive OSRPs. PHMSA and FRA are currently working on finalizing a NPRM to follow on to this action.

## 7.3 Retrospective Review of Rail Regulations Rulemaking

PHMSA, in coordination with FRA, has initiated rulemaking action to considering amendments that would enhance safety, revise, and clarify the HMR as applicable to the rail transportation of hazardous materials. This review process was part of an ongoing retrospective review in an attempt to identify outdated, ambiguous, economically burdensome, or otherwise unnecessary HMR regulations. Additionally, the review was critiqued regulations that conflict with other North American standards and regulations, or do not account for technological advancements in rail transport. Further, PHMSA and FRA have identified several trends in industry practices and operating procedures that present new and different risks to safety that should be addressed in part 174 of the HMR. This rulemaking would more fully align the HMR with the results of the PHMSA and FRA review and would update, clarify, correct and provide relief of certain regulatory requirements applicable to the transportation of hazardous materials by rail.

Additionally, FRA and PHMSA held a public meeting on August 27-28, 2013 that solicited input from stakeholders and interested parties pertaining to a comprehensive review of operational factors that affect the safety of the transportation of hazardous materials by rail. These comments will ultimately inform any proposed revisions to “Part 174-Carriage by Rail” regulations contained in the HMR.

## 7.4 Emergency Response, Information Sharing, and Preparedness

To ensure that hazardous materials information is shared with the appropriate state, local and tribal emergency response communities, PHMSA continues to work to increase awareness and emergency preparedness through public outreach to state and local emergency responder communities, sustained engagement with experts from emergency response and industry stakeholder groups, and participation in interagency working groups. PHMSA has taken action through both regulation and emergency order to ensure hazardous materials information is shared with emergency responders and we continued to develop ways to ensure the relevant information is freely available to emergency response personnel.



PHMSA understands the value of information in emergency response operations and respects a community's right to know the hazardous materials that may be transported through their region. On May 7, 2014, DOT issued an Emergency Order requiring railroads to notify SERCs of large volumes of crude oil (1 million gallons or greater of Bakken crude oil) transported through communities.<sup>37</sup> On May 8, 2015, PHMSA adopted regulations that requires railroads designate a single point of contact on routing issues, and to provide this information to (1) state and regional fusion centers located in the portion of the country encompassed by their rail systems; and (2) state, local, and tribal officials, including SERCs, in jurisdictions that may be affected by a rail carrier's routing decisions who directly contact the railroad to discuss these decisions.<sup>38</sup> On May 28, 2015, DOT announced it would extend indefinitely the May 2014 Emergency Order, which required railroads to notify SERCs of large volumes of crude oil transported through communities, while it considers options for codifying the disclosure requirement on a permanent basis. PHMSA is currently working to codify the disclosure requirement and hopes to do so in the near future.

PHMSA has collaborated with industry, emergency responder groups, and other government agencies to develop training and outreach materials to improve emergency response for all hazardous with a particular focus on the bulk shipment of flammable liquids. PHMSA's grant program provides several types of grants to prepare the emergency response community for hazardous materials transportation incidents, and PHMSA issues the Emergency Response Guidebook that is an essential resource for emergency responders. PHMSA has improved stakeholder outreach, training, and oversight of the grants program resulting in a reduction of de-obligated funds, more allocation of funds going to PHMSA priorities, and an improvement of the program as a whole. PHMSA has implemented risk-based oversight of the grantees and actively and frequently engages with all stakeholders. Those stakeholders include: states, territories, tribes, and non-profit associations that represent emergency responders, hazmat employees, and hazmat shippers and carriers. Because of PHMSA's outreach to Native American tribes, a record number of tribes applied for grant funds in FY16. Our comprehensive approach to rail safety was also demonstrated through PHMSA's implementation of the Assistance for Local Emergency Responder Training (ALERT) grants, which targeted rural and volunteer emergency responders, as well as the release of the TRIPR training materials.

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[http://phmsa.dot.gov/pv\\_obj\\_cache/pv\\_obj\\_id\\_D9E224C13963CAF0AE4F15A8B3C4465BAEAF0100/filename/Final\\_EO\\_on\\_Transport\\_of\\_Bakken\\_Crude\\_Oil\\_05\\_07\\_2014.pdf](http://phmsa.dot.gov/pv_obj_cache/pv_obj_id_D9E224C13963CAF0AE4F15A8B3C4465BAEAF0100/filename/Final_EO_on_Transport_of_Bakken_Crude_Oil_05_07_2014.pdf)

<sup>38</sup> <http://phmsa.dot.gov/DOT-Announces-Final-Rule-to-Strengthen-Safe-Transportation-of-Flammable-Liquids-by-Rail>



## 7.5 Research and Development

One of the areas of emerging research and development interest is to better understand and mitigate the risks associated with the frequent transport of large quantities of crude oil by rail. PHMSA, in coordination with the Department of Energy, began preparing statements of work for a literature review of property data and literature related to crude oil potential for ignition, combustion, and explosion. This includes available information on crude oil's chemical and physical characteristics. The Department of Energy commissioned this review in late 2014. While this literature review was completed outside the review period of this document it has laid the foundation for future research.

PHMSA continues to work with the Department of Energy, the National Research Council of Canada and Transport Canada on research projects including a literature review of existing studies on crude oil volatility; and a Sampling, Analysis and Experiment (SAE) Plan to address gaps in current knowledge of crude oil properties and to correlate measured properties with combustion potential.

PHMSA is actively pursuing research opportunities and partnerships to address emerging transport risks associated with small-scale production of LNG and the potential bulk rail transport of LNG, the need to safely transport alternative fuels and energy storage devices, and the role of human factors in hazardous materials incidents. Transparency, cooperation, and communication of our research efforts is essential and PHMSA has held two research forums with stakeholders over the past two years and will continue to reach out to stakeholders in the future through forums and through an improved website.



## 8. Summary of Challenges

PHMSA strives to be the premier safety organization in transportation. To this end, PHMSA tirelessly promotes our safety mission to protect people, property, and the environment from the risks of hazmat in transportation. In addition, PHMSA works to instill trust amongst our stakeholders and the public by being collaborative and transparent in all our efforts. Furthermore, we seek to be innovative by focusing on emerging risks, improving efficiencies, and using data- and risk-driven solutions.

There were five major issues that PHMSA focused on throughout 2013 and 2014. The agency recognizes the need to continue to address these in the future.

### 5 Major Challenges

1. Identification of Emerging and Unidentified Hidden Risks
2. Continuing to Meet MAP-21 Requirements
3. Streamlining the Agency's Regulatory System
4. Information Technology Modernization
5. National Transportation Safety Board Recommendations

### 8.1 Identification of Emerging and Unidentified Risks

PHMSA recognizes the need to continuously identify existing and potential future risks. The risks inherent in hazmat transportation are constantly changing and measures must be taken to address those risks that may not be immediate or may have yet to manifest in the hazmat transportation industry.

PHMSA continues to identify safety strategies and make informative decisions by providing:

- Improved information on emerging technology,
- Improved insight on the hazmat industry,
- Information on close calls and failure mechanisms,
- Identification of high-risk commodities,
- Identification of new transportation methods,
- Identification of high-risk packaging solutions,
- Trends on industry, partner, and grantee performance,
- Analysis of special permits, petitions, stakeholder inquiries, and interpretations,
- Issuance of safety alerts, and
- Analysis of unstructured data—articles, media, reports, studies, etc.



## 8.2 Continuing to Meet MAP-21 Requirements

PHMSA's OHMS has completed work on over 90 percent of MAP-21 mandates, and plans to complete the remainder of actions in the near future in order to complete all MAP-21 requirements. Recent achievements include:

### Special Permits Reform

In 2013-2014, PHMSA initiated a rulemaking action (HM-233F) to incorporate into the HMR any special permits PHMSA identified as appropriate for adoption. This rulemaking addresses MAP-21, which requires an initial review and analysis of special permits that have been in continuous effect for a 10-year period to determine which ones may be converted into the hazmat regulations. MAP-21 also requires the issuance of regulations to incorporate into the hazmat regulations any special permits identified in the initial review and analysis that PHMSA determines are appropriate for incorporation based on the review factors, which this rule proposes. As part of this rulemaking effort, PHMSA evaluated 1,168 special permits representing 3,691 unique permit holders. While the legislation requires PHMSA to review only those permits over 10 years of age, PHMSA reviewed all active permits. While not in this review period, it is important to note that in January 2015, PHMSA published an NPRM that proposed the incorporation of 98 permits representing 728 unique permit holders.<sup>39</sup> This would represent a reduction of 19 percent of permit holders. PHMSA is on track to meet the October 1, 2015, deadline for publication of a final rule and will continue to evaluate special permits in the future.

PHMSA also published an NPRM (HM-233E) on August 12, 2014, to revise the HMR to include the standard operating procedures and criteria used to evaluate applications for special permits and approvals. These proposed amendments do not change previously established special permit and approval policies. This rulemaking also proposes to provide clarity regarding what conditions need to be satisfied to promote completeness of the applications submitted.

PHMSA is close to finalizing these rulemakings and combined, they will incorporate a large number of special permits into regulations and expand the standard operating procedures in the regulations, thus, improving the public transparency of our program.

### HM-ACCESS - Hazardous Materials - Automated Cargo Communication for Efficient and Safe Shipments

OHMS proceeded with a research initiative, that includes pilots, to evaluate the feasibility and effectiveness of a paperless hazmat communication system to provide an equivalent level, or better level, of safety to the current paper requirements. In CY 2013-2014, PHMSA accomplished the following:

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<sup>39</sup> <http://www.gpo.gov/fdsys/pkg/FR-2015-01-30/pdf/2015-01263.pdf>



- Published Federal Register Notices seeking input and comments on the planned data collection activities.
- Submitted information collection request (ICR) to the Office of Management and Budget (OMB) for review and approval, in accordance with Paperwork Reduction Act (PRA).
- Submitted a letter to Congress on the status of the MAP-21 Paperless Hazard Communications Pilot Program.
- Received OMB approval of the ICR on September 8, 2014, enabling PHMSA to proceed with conducting inspections and emergency response simulations pilot tests in multiple U.S. regions.

A full history and pertinent information regarding the HM-ACCESS program is accessible at the PHMSA website.<sup>40</sup>

While not in the CY 2013-2014 reporting period OHMS wanted to inform Congress that the pilot tests began on February 17, 2015, and concluded on May 15, 2015. Concurrent with conducting the pilot tests, PHMSA collected impact analysis data from the hazmat community to analyze the impacts of using e-systems for communicating hazmat shipping paper information. The pilot test and impact analysis data is currently being analyzed for incorporation into the MAP-21 required feasibility and assessment report, which PHMSA will submit to Congress soon.

### **Incident Data Assessment and Improvement Plan**

Section 33006(a) of Map-21 required DOT to conduct an assessment to improve the collection, analysis, reporting, and use of data related to accidents and incidents involving the transportation of hazardous materials. Section 33006(b) required that the results of the assessment be used to develop an action plan and timeline for improving the collection, analysis, reporting, and use of data related to accidents and incidents involving the transportation of hazardous materials. On September 4, 2013, OHMS submitted the Hazardous Materials Transportation Incidents Data Assessment and Improvement Plan to Congress. This report includes an action plan and timeline for improving the collection, analysis, reporting, and use of data related to accidents and incidents involving the transportation of hazardous materials. PHMSA is actively working to improve data collection, analysis, reporting, and use of data related to accidents and incidents and many of those enhancements were highlighted previously in this document. As mentioned in [Section 3](#) of this document, OHMS has also implemented improvements to our data operations process.

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<http://www.phmsa.dot.gov/portal/site/PHMSA/menuitem.ebdc7a8a7e39f2e55cf2031050248a0c/?vgnextoid=cd331478890d3310VgnVCM1000001ecb7898RCRD&vgnnextchannel=753de8d9f73b4110VgnVCM1000009ed07898RCRD&vgnnextfmt=print>



### Civil Penalties Reform

MAP-21 required PHMSA to conduct a rulemaking to remove the minimum penalty amount for civil penalties. The exception to this requirement is to retain the minimum penalty amount of \$450 for training violations and raise the maximum penalty amount for knowing violations, and violations resulting in death, serious illness, or severe injury to any person or substantial destruction of property to \$75,000 and \$175,000, respectively. On April 17, 2013, PHMSA issued a final rulemaking (78 FR 22798) completing these actions.

In addition, MAP-21 required PHMSA to prohibit a person from conducting regulated hazardous material operations if the person fails to pay a civil penalty. On April 17, 2013 PHMSA issued a final rulemaking (78 FR 58501) completing this action.

### Grant Reform

PHMSA has implemented a variety of grant reforms to meet the requirements of MAP-21. The reforms have improved the oversight of the program and enhanced efficiencies. These improvements are further detailed in a separate report to Congress.<sup>41</sup>

## 8.3 Streamlining the Agency's Regulatory System

In an effort to align with the principles of Executive Order 13563 and DOT's retrospective regulatory review, PHMSA is dedicated to improving and streamlining its regulatory system. Specifically, PHMSA is focused on clarifying the regulations and enhancing public participation in the regulatory process. To streamline its regulatory system in the long term, OHMS's regulatory mission must be focused. Yet, regulators are responsible for a wide range of regulatory and non-regulatory deliverables that support the overall mission of OHMS. On the regulatory front, OHMS recognizes that regulatory changes have the potential to pose significant burdens to the public, including the regulated industry, the agency, and the Federal Government as a whole.

As part of its effort to align with the principles of Executive Order 13563, and thus streamline its regulatory system, PHMSA has worked to identify those areas where the regulations should be changed to eliminate redundancies, ambiguity, and unnecessary burdens. The agency continues to explore areas that potentially can be harmonized, both domestically and internationally, to limit the regulatory burden while maintaining or enhancing the level of safety.

OHMS staff have also worked and will continue to work closely across all hazmat divisions, the regulated industry, other government agencies (U.S.CG, EPA, OSHA, ATF, etc.) and DOT's operating administrations (FAA, FMCSA, FRA) to identify and prioritize the safety and security risks based on research and development and incident data analysis. OHMS has implemented changes to ensure that regulatory changes are thoroughly evaluated from both a technical and

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[http://www.phmsa.dot.gov/pv\\_obj\\_cache/pv\\_obj\\_id\\_61F3DC249307ECEB0DC7D39188E9557B8051B500/filename/2011\\_2012\\_Report\\_to\\_Congress\\_FINAL.pdf](http://www.phmsa.dot.gov/pv_obj_cache/pv_obj_id_61F3DC249307ECEB0DC7D39188E9557B8051B500/filename/2011_2012_Report_to_Congress_FINAL.pdf)





economic perspective and comply with the Administrative Procedures Act and Departmental Rulemaking Requirements. This risk-based evaluation and decision making ensures that only those issues that warrant regulatory action are placed on the regulatory agenda. A sound policy analysis sets the groundwork for a sustainable and streamlined regulatory life cycle that might result in a variety of actions, some of which include outreach, training, inspections, investigations, and rulemaking.

## 8.4 Information Technology Modernization

Continued funding for PHMSA's IT Modernization initiative is vital to improve the quality, quantity, and interoperability of hazmat data and to strengthen decision support and risk management activities; these needs are reflected in our most recent budget request. In order for PHMSA to truly become a risk-based, data-driven organization, improvement and expansion of its IT architecture is imperative.

The agency took significant steps in improving its IT functionality and web-based accessibility through an ongoing IT Modernization initiative. Such as:

- Releasing new special permit processing capability to the public;
- Implementing our Field Operation Case Management capability;
- Publically releasing a cylinder requalification locator mobile application; and
- Completing the first stage of the development of the oCFR.

While these steps have helped tremendously, it should be noted that much effort is still required. As part of our modernization efforts, PHMSA has begun to release special permit processing capability to the public. In CY 2013-2014, PHMSA implemented improvements to the online application process for special permit renewal applications and party status applications. In addition, PHMSA released enhancement to the online application process for manufacturer numbers for package manufacturers and visual inspection numbers for cylinder requalifiers. In the next reporting period, PHMSA will continue our tiered release of enhancements resulting in an overall revamping of the approvals and permits online process.

In an effort to promote performance management, PHMSA developed new metrics and dashboards in its HIP as well as through holding QMR. The QMRs are a forum for PHMSA to formally review its past performance, highlight current issues, and identify strategies to address outstanding issues and problems. The key metrics reported through our HIP system are used to gauge organizational progress at the QMR and to identify areas in need of improvement.

In the 2013-2014 reporting period, OHMS implemented the OHMS Case Management System. The system is a workflow management system that was created to manage the execution of Field Operations daily operations, as well as manage the internal and external data related to their processes. It is comprised of a workflow driven approach that interacts with other modules within the PHMSA IT Modernization model. The Case Management System serves as the repository for all case related activities about a particular company or product which will require linking services from other subsystems (e.g. SPM, IP) and modules (e.g. permits and approvals) that reside with the PHMSA system design.



In addition to the Case Management tool, PHMSA released an Itinerary Planner program to assist our field operations make better risk-informed decisions on resource allocation. This tool includes a database that compiles known and potential entities involved in hazmat transportation. The data is obtained from sources such as prior inspections, registrations, approvals and permits, incidents, FMCSA, EPA, and entities with business codes similar to those of known hazmat entities. The system uses a risk matrix assigning various weights to specific items (complaints, high incidents, PG I or TIH shipper, high packaging certifications, etc.) to determine a risk ranking for each entity. This allows us to prioritize field activities and inspections.

Cylinders that are overdue for retesting can cause property damage, severe injuries, or death if they fail. Fire marshals and code enforcement personnel play an important role in ensuring the safe use and condition of pressure vessels, including propane cylinders. In the 2013-2014 reporting period, PHMSA also released a web-based and mobile application of the RIN Locator. This tool allows the public and non-traditional code enforcement personnel to search for an approved cylinder requalifier by entering a city/state or zip code. If a cylinder is out of date, one can simply enter the city/state or zip code, and the RIN Locator tool will generate a map of nearby approved requalifiers. The map of requalifiers also includes complete address, contact information, authorized test methods, and the cylinder specifications. PHMSA's RIN Locator is available on the PHMSA website<sup>42</sup> or by free download through Apple's iTunes or Android's Play Store. PHMSA believes this tool will raise public awareness of the dangers of using poor condition or out-of-test propane cylinders.

While the aforementioned efforts highlight achievements in information technology innovation, PHMSA continues to strive to improve our current systems and develop new ones where needed. Continued funding for PHMSA's IT Modernization initiative is vital to improve the quality, quantity, and interoperability of hazmat data to strengthen decision support and risk management activities; these needs are reflected in our most recent budget request. In order for PHMSA to truly become a risk-based, data-driven organization, improvement and expansion of its IT architecture and capability is imperative.

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<sup>42</sup> <https://portal.phmsa.dot.gov/rinlocator>



## 8.5 Addressing National Transportation Safety Board Recommendations

In a complicated regulatory landscape, PHMSA’s NTSB Coordination Team was able to utilize a mix of non-regulatory and regulatory approaches to maximize their effectiveness in addressing open NTSB recommendations. During CY 2013-2014 timeframe, OHMS revised and refined the NTSB coordination Standard Operating Procedures, establishing roles and responsibilities and internal timelines for milestones. Furthermore, OHMS conducted more frequent meetings with our modal partners and NTSB. These actions resulted in considerable improved efficiencies in responding to recommendations. In CY 2013-2014, OHMS closed 17 NTSB recommendations using a variety of approaches with over 80 percent of these recommendations being classed as acceptable closures (16 closed in CY 2013-2014 and one since the beginning of 2015). In total at the start of CY 2013, OHMS had 31 open NTSB recommendations and at the end of CY 2014, OHMS has 23 open NTSB recommendations. A listing of all NTSB recommendations closed in this reporting period can be found in [Appendix D](#).

As of July 13, 2015, PHMSA had 25 remaining open NTSB recommendations. The remaining recommendations are being addressed through a mix of:

- Regulatory Action
- Outreach;
- Research; and
- Internal policy review.

The figure below provides the status of these open NTSB recommendations as of October 2015:

### Regulatory Action

These rulemaking actions for improving the safe transportation of hazmat address 15 recommendations dealing with: (1) rail tank car safety enhancements and implementation; (2) oil spill response plans; (3) electronic information sharing for rail transport; (4) a train buffer car standard; and (5) mobile acetylene trailers. The summary below provides the status as of July 2015 for the 15 rulemakings that will address NTSB recommendations:

Figure 19: PHMSA’s NTSB Rulemaking Actions				
Rulemaking/ Docket	Stage	Summary	Status*	Recommendations Addressed
Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains (HM-251) (PHMSA-2012-0082)	Final	Requires new tank car standards and operational controls trains carrying flammable materials, and proper classification of mined gases and liquids.	Published May 8, 2015.	R-12-5 & -6, R-14-4, R-14-6, R-14-14, and R-15-14 thru R-15-17.
Oil Spill Response Plans HM-251B) (PHMSA-2014-0105)	NPRM	PHMSA, with FRA, seeks comment on potential revisions to its regulations that would expand the applicability of comprehensive oil spill response plans.	Developing NPRM	R-14-5
Review and Update of	NPRM	PHMSA, with FRA, is	Developing	R-07-4 and R-08-13.



<b>Figure 19: PHMSA's NTSB Rulemaking Actions</b>				
Rail Carrier Regulations in Part 174 (HM-251A) (PHMSA-2014-0031)		considering revisions to enhance safety and revise and clarify the regulations applicable to transportation of hazardous materials by rail	NPRM	
Miscellaneous Amendments (RRR)	Final	PHMSA is amending the regulations to incorporate industry standards for transportation of mobile acetylene trailers.	Developing Final Rule	H-09-1 & -2
Safety Requirements for External Product Piping on Cargo Tanks Transporting Flammable Liquids (Wetlines) (MAP-21) (HM-213D) (PHMSA-2009-0303)	Final	Amend the regulations to prohibit flammable liquids from being transported in unprotected product piping on existing and newly manufactured DOT-specification cargo tank motor vehicles.	Determining path forward	H-98-27.
*Status is updated as of October 30, 2015				

### Outreach

PHMSA and its modal partners' outreach efforts for improving the safe transportation of hazmat address three recommendations dealing with: (1) the safe carriage of lithium ion batteries by the air traveling; (2) cargo tank motor vehicle rollover prevention; and (3) cargo tank motor vehicles loading and unloading operations. The summary below provides the status as of July 2015 for these outreach initiatives:

<b>Figure 20: PHMSA's NTSB Outreach Initiatives</b>		
<b>Initiative</b>	<b>Action*</b>	<b>Recommendations Addressed</b>
Safetravel.gov and other outreach publication (e.g. an FAA SAFO)	Continuous development and updating of lithium ion battery transport information for the public.	A-08-1
Comprehensive Rollover Prevention Guidance	FMCSA and PHMSA development of guidance (such as a rollover video for training purpose) to help prevent cargo tank motor vehicle rollovers.	H-11-4
Development of guidance for cargo tank motor vehicle loading and unloading operations.	Published best practices guides on May 4, 2015	H-12-3
*Status is updated as of October 30, 2015		

**Research**

PHMSA and its modal partners' research initiatives for improving the safe transportation of hazmat address three recommendations dealing with:

- Nondestructive testing of nurse tanks; (2) electronic access to shipping paper information; and (3) cargo tank motor vehicle rollover prevention. The summary below provides the status as of July 2015 for these research projects:

<b>Figure 21: PHMSA's NTSB Research Initiatives</b>		
<b>Initiative</b>	<b>Action*</b>	<b>Recommendations Addressed</b>
Cargo Tank Working Group	Revamp of cargo tank and cargo tank motor vehicle requirements in the HMR to include review of research on nondestructive testing of nurse tanks.	H-04-23
HM-ACCESS	Development of a Paperless Hazard Communications Pilot Program to evaluate the feasibility and effectiveness of a paperless hazardous materials communication system. Report to be submitted to Congress in fall 2015	R-07-4
Human Factors	Research into the human impact on cargo tank motor vehicle rollovers.	H-11-5

\*Status is updated as of October 30, 2015

**Internal Policy Review**

PHMSA has evaluated its additional options internally in an effort to improve the safe transportation of hazmat and address three recommendations dealing with:

- Sill attachment designs for tank cars;
- A risk assessment tool for short line and regional railroads; and
- Emergency response information.

The figure below provides the status of these collaborations as of March 2013:

<b>Figure 22: PHMSA's NTSB Internal Review Initiatives</b>		
<b>Initiative</b>	<b>Action*</b>	<b>Recommendations Addressed</b>
Review of American Association of Railroads (AAR) actions to address R-12-9.	Considering the inclusion of the revision of the AAR rail tank car standard in a future rulemaking	R-12-7
FRA update of the Rail Corridor Risk Management System (RCRMS) software tool.	FRA is developing a software tool for use by short line and regional railroads.	R-14-20
ERG incorporation.	Evaluating methods to ensure emergency response information is consistent with the Emergency Response Guidebook.	R-14-18

\*Status is updated as of October 30, 2015



## 9. Recommendations for Appropriate Hazardous Materials Program Legislation

The safe transportation of hazardous materials is the number one priority of PHMSA. PHMSA works diligently to protect the American people and the environment from the risks of hazardous materials transportation by developing regulations, taking rigorous enforcement actions, collaborating with stakeholders, and educating emergency responders and the public. The Generating Renewal, Opportunity, and Work with Accelerated Mobility, Efficiency, and Rebuilding of Infrastructure and Communities throughout America Act (GROW AMERICA Act) will improve PHMSA's ability to oversee the safe and efficient transportation of hazardous materials. Below are some of recommendations for appropriate hazardous materials legislation.

### 9.1 GROW AMERICA Act

#### **Increase Authority to Stop Unsafe Conditions**

Increase DOT's authority to stop unsafe conditions or practices that may cause an emergency involving a threat to life, personal injury, or harm to property or the environment. Specifically, provide clear authority for PHMSA to issue Emergency Orders to industry in response to emergencies without prior notice or the need for a special permit as currently required, similar to the authority of the FRA and the FMCSA.

#### **Establish New Fees for Special Permit and Approvals Program**

Establish a designated fund and authorizes the Secretary to collect a reasonable fee for the administration of the special permits and approvals program. Consistent with the recent budget request, this fee will offset some of PHMSA's costs associated with the special permit and approvals process.

#### **Improve National Emergency and Disaster Response**

A common problem that impedes the flow of hazardous materials during national emergencies is differing opinions between federal, state, and local officials regarding the types of hazardous materials authorized in affected areas. As a result, many essential shipments of hazardous materials are delayed or even rejected. Clarifying DOT's authority to facilitate the movement of essential hazardous material during a national emergency or disaster will remedy this problem.

#### **Establish Hazard Abatement Authority**

The GROW AMERICA Act will combat a growing problem of unscrupulous shippers abandoning hazardous materials in transit by providing DOT with the authority to hold a non-compliant shipper accountable for the remediation or disposal costs for the non-compliant shipment.

**Expand Inspection of Non-Domestic Entities**

There remain instances when a person outside the U.S. seeks to manufacture, requalify, or inspect a DOT-specification packaging or special permit cylinders or certify compliance with the regulations. The GROW AMERICA Act grants broader inspection and investigation authority over non-domestic entities, extending authority to those seeking approval from PHMSA to perform these functions outside the U.S. Once approved, the applicant must allow hazmat investigators to inspect the applicant's process and procedures, while bearing the cost of the initial and subsequent inspections. This shift in procedure will place the cost of the inspection on the user and not U.S. taxpayers. (Section 6009)

**Enhance Registration Requirements**

The GROW AMERICA Act expands the hazmat registration requirements to any entity that performs a regulated activity requiring training. This expanded registration requirement will provide more effective oversight. (Section 6003)

**Improve the Effectiveness of the Hazardous Materials Emergency Grant Program**

The GROW AMERICA Act will reform the grant program by making several changes to ensure greater accountability on behalf of grantees and maximize the impact of grant funds. (Section 6010)

**Increase Penalties for Violations**

The GROW AMERICA Act strengthens our ability to ensure compliance by increasing the maximum amount that we can assess for a civil penalty, as well as provide us with the ability to address situations where a higher penalty is warranted. The Act will increase the maximum civil penalty amount from \$75,000 to \$250,000; or for a violation that results in death, serious illness, or severe injury to any person or substantial destruction of property, from \$175,000 to \$500,000. (Section 6011)



# Appendix A: Report on Regulation of Methamphetamine By-products in Transportation

This section satisfies requirements under 49 U.S.C. § 5103, to provide the Committee on Transportation and Infrastructure of the House of Representatives, and the Senate Committee on Commerce, Science, and Transportation, information concerning the designation of all by-products of the methamphetamine-production process as hazmat for purposes of 49 U.S.C. Chapter 51.

On March 9, 2006, the President signed into law the U.S.A PATRIOT Improvement and Reauthorization Act of 2005, Public Law No. 109-177, 120 Stat. 192 (2006) (U.S.A PATRIOT Act). Public Law No. 109-177 extends and modifies provisions in the U.S.A PATRIOT ACT and is divided into seven titles.

Title VII, the “Combat Methamphetamine Epidemic Act of 2005,” sets forth provisions relating to: (1) the domestic and international regulation of precursor chemicals; (2) enhanced criminal penalties for methamphetamine production and trafficking; (3) enhanced environmental regulation of methamphetamine by-products; and (4) various additional programs and activities.

DOT designates materials that pose an unreasonable risk to health and safety or property when transported in commerce as hazmat for purposes of the Federal hazmat law and the HMR. These include materials that are specifically listed by name in the Hazardous Materials Table (49 CFR 172.101), materials that meet hazard classification criteria set forth in the HMR, such as for flammability, toxicity and corrosivity, and materials that are hazardous wastes under regulations promulgated by the EPA. Based on the information available to us, DOT believes all hazardous by-products of methamphetamine production are regulated as hazmat under the HMR.

<b>TABLE A-1: Cyanides</b>				
<b>Substance</b>	<b>Form</b>	<b>ID Number</b>	<b>Hazard Class</b>	<b>Exposure</b>
Sodium Cyanide	Solid	UN1689	6.1	Skin, Eyes, Ingestion
Potassium Cyanide	Solid	UN1680	6.1	Skin, Eyes, Ingestion
Benzyl Cyanide	Liquid	UN2810	6.1	Skin, Eyes, Inhalation, Ingestion
Hydrogen Cyanide	Gas, Liquid	UN1051	6.1	Inhalation

\*Refer to 40 CFR 261.33 for listings, as well as 40 CFR 261.23 (characteristic of reactivity) for cyanide-bearing waste.



**Health Effects of Irritants and Corrosives**

If solid cyanide salts come in contact with acid, hydrogen cyanide gas will be released. Inhalation of hydrogen cyanide may result in rapid progression of symptoms to respiratory failure, coma, and death. Ingestion of the salts may also lead to these symptoms, but hydrogen cyanide gas poses the greater exposure risk.

<b>Substance</b>	<b>Form</b>	<b>ID Number</b>	<b>Hazard Class</b>	<b>Exposure</b>
Acetic Acid <sup>a</sup>	Liquid	UN2789	8	Skin, Eyes, Inhalation
Acetyl Chloride	Liquid	UN1717	3	Skin, Eyes, Inhalation
Ammonia (anhydrous)	Gas	UN1005	2.2	Skin, Eyes, Inhalation
Ammonium Hydroxide	Liquid	UN3318	2.2	Skin, Eyes, Inhalation
Benzyl Chloride <sup>a</sup>	Liquid	UN1738	6.1	Skin, Eyes, Inhalation
Dimethylsulfate	Liquid	UN1595	6.1	Skin, Eyes, Inhalation
Formaldehyde	Gas, Liquid	UN1198	3	Skin, Eyes, Inhalation
Formic Acid	Liquid	UN1779	8	Skin, Eyes, Inhalation
Hydrogen Chloride/Hydrochloric Acid	Gas, Liquid	UN1789	8	Skin, Eyes, Inhalation
Hydrobromic Acid	Liquid	UN1788	8	Skin, Eyes, Inhalation
Hydriodic Acid	Liquid	UN1787	8	Skin, Eyes, Inhalation
Hydroxylamine <sup>a,b</sup>	Liquid, Solid	UN2811	6.1	Skin, Eyes, Inhalation
Methylamine <sup>a</sup>	Gas, Liquid, Solid	UN1235	3	Skin, Eyes, Inhalation
Methylene Chloride <sup>a</sup> (dichloromethane, methylene dichloride)	Liquid	UN1593	6.1	Skin, Eyes, Inhalation
Methyl Methacrylate	Liquid	UN1247	3	Skin, Eyes, Inhalation
Nitroethane <sup>a,b</sup>	Liquid	UN2842	3	Skin, Eyes, Inhalation
Oxalylchloride <sup>b</sup>	Liquid	UN2922	8	Skin, Eyes, Inhalation
Perchloric Acid <sup>e</sup>	Liquid	UN1873	5.1	Skin, Eyes, Inhalation



<b>Substance</b>	<b>Form</b>	<b>ID Number</b>	<b>Hazard Class</b>	<b>Exposure</b>
Phenylmagnesium Bromide <sup>a,b</sup>	Liquid	UN3399	4.3	Skin, Eyes, Inhalation
Phosphine <sup>a</sup>	Gas	UN2199	2.3	Eyes, Inhalation
Phosphorous Oxychloride	Solid	UN1810	6.1	Skin, Eyes, Inhalation
Phosphorous Pentoxide	Solid	UN1807	8	Skin, Eyes
Sodium Amide (Sodamide) <sup>b</sup>	Solid	UN3131	4.3	Skin, Eyes, Inhalation
Sodium Metal <sup>a,b</sup>	Solid	UN1428	4.3	Skin, Eyes
Sodium Hydroxide	Liquid, Solid	UN1823	8	Skin, Eyes
Sulfur Trioxide	Liquid, Solid	UN1829	8	Skin, Eyes, Inhalation
Sulfuric Acid <sup>f</sup>	Liquid	UN1831	8	Skin, Eyes, Inhalation
Tetrahydrofuran <sup>a,b</sup>	Liquid	UN2056	3	Skin, Eyes, Inhalation
Thionyl Chloride	Liquid	UN1836	8	Skin, Eyes, Inhalation

\* Refer to 40 CFR 261.33 for a detailed listing.

a Flammable

c Flashpoint <141 degrees F

e >50% but < 72% strength

b Explosive

d Uninhibited

f Unspent

### Health Effects:

Vapors of volatile corrosives may cause eye irritation, lacrimation, conjunctivitis, and corneal injury. Inhalation may cause irritation of mucous membranes of the nose and throat, and lung irritation resulting in cough, chest pain, and shortness of breath. Pulmonary edema, coughing up of blood, and chronic lung disease may occur in severe cases. High concentrations of vapor may cause skin irritation. Additional symptoms of vapor inhalation may include headache, nausea, dizziness, and anxiety. Phosphine may detonate, and has the odor of decaying fish. Direct contact with corrosives may result in severe eye or skin burns. Methylmethacrylate skin exposure may result in contact dermatitis and sensitization. Formaldehyde is a suspected human carcinogen. Formic acid ingestion or inhalation may result in kidney or liver damage. Sodium metal reacts violently with water. Tetrahydrofuran and Perchloric Acid can form explosive crystals.



<b>TABLE A-3: Solvents</b>				
<b>Substance</b>	<b>Form</b>	<b>ID Number</b>	<b>Hazard Class</b>	<b>Exposure</b>
Acetone <sup>a</sup>	Liquid	UN1090	3	Skin, Eyes, Inhalation
Acetonitrile <sup>a</sup>	Liquid	UN1648	3	Skin, Eyes, Inhalation
Aniline	Liquid	UN1547	6.1	Skin, Eyes, Inhalation
Benzene <sup>a</sup>	Liquid	UN1114	3	Skin, Eyes, Inhalation
Benzylchloride <sup>a</sup>	Liquid	UN1738	6.1	Skin, Eyes, Inhalation
Carbon Tetrachloride	Liquid	UN1846	6.1	Skin, Eyes, Inhalation
Chloroform	Liquid	UN1888	6.1	Skin, Eyes, Inhalation
Cyclohexanone <sup>a,d</sup>	Liquid	UN1915	3	Skin, Eyes, Inhalation
Dioxane <sup>a</sup>	Liquid	UN1165	3	Skin, Eyes, Inhalation
Ethanol <sup>a</sup>	Liquid	UN1170	3	Skin, Eyes, Inhalation
Ethyl Acetate <sup>a</sup>	Liquid	UN1173	3	Skin, Eyes, Inhalation
Ethyl Ether <sup>b,c</sup>	Liquid	UN1155	3	Skin, Eyes, Inhalation
Freon 11 (trichloromonofluoromet hane)	Liquid	UN3082	9	Skin, Eyes, Inhalation
Hexane <sup>a</sup>	Liquid	UN1208	3	Skin, Eyes, Inhalation
Isopropanol <sup>a</sup>	Liquid	UN1219	3	Skin, Eyes, Inhalation
Methanol <sup>a</sup>	Liquid	UN1230	3	Skin, Eyes, Inhalation
Methylene Chloride (dichloromethane, methylene dichloride)	Liquid	UN1593	6.1	Skin, Eyes, Inhalation
Petroleum Ether <sup>a</sup>	Liquid	UN1993	3	Skin, Eyes, Inhalation
Pyridine <sup>a</sup>	Liquid	UN1282	3	Skin, Eyes, Inhalation
Toluene <sup>a</sup>	Liquid	UN1294	3	Skin, Eyes, Inhalation



o-Toluidine <sup>a,b</sup>	Liquid	UN1708	6.1	Skin, Eyes, Inhalation
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\* Refer to 40 CFR 261.31 and 40 CFR 261.33 for detailed listings.

a Flammable

c Ethers may form explosive peroxides

b Explosive

d  $\geq 50\%$  peroxide

### Health Effects:

Inhalation of vapors at low concentrations may result in mild eye, nose, and throat irritation. Symptoms of intoxication (drowsiness and loss of coordination) or loss of consciousness may occur at high concentrations. Liver and kidney impairment may also occur at high doses, or with prolonged exposure. Benzene is a known human carcinogen. Chloroform, carbon tetrachloride, dioxane, o-toluidine, and methylene chloride are probable human carcinogens. Spilling of Freon on the skin may result in freezing injury. Ingestion of small amounts of methanol may lead to permanent damage to vision. Aniline can be readily absorbed through the skin and may cause mental confusion and decreased blood hemoglobin by all exposure routes. O-Toluidine is highly toxic when absorbed through the skin, inhaled as a vapor, or ingested, causing possible kidney injury.

Substance	Form	ID Number	Hazard Class	Exposure
Aluminum Chloride	Solid	UN1726	8	Skin, Eyes
Magnesium <sup>a,d</sup>	Solid	UN1418	4.3	Skin, Eyes
Palladium	Solid	UN3089	4.1	Skin, Eyes
Red Phosphorus <sup>b</sup>	Solid	UN1338	4.1	Skin, Eyes
Iodine	Solid	UN1759	8	Skin, Eyes
Mercuric Chloride	Solid	UN1624	6.1	Skin, Eyes
Lead Acetate	Solid	UN1616	6.1	Skin, Eyes
Lithium Aluminum Hydride <sup>a,b</sup>	Solid	UN1410	4.3	Skin, Eyes
Lithium Hydroxide	Solid	UN2680	8	Skin, Eyes
Potassium Hydroxide	Solid	UN1813	8	Skin, Eyes
Raney Nickel <sup>a,b</sup>	Solid	UN3178	4.1	Skin, Eyes
Sodium Hydroxide	Solid	UN1427	4.3	Skin, Eyes
Sodium Metal <sup>a,b</sup>	Solid in kerosene	UN1428	4.3	Skin, Eyes
Potassium Metal <sup>a,b</sup>	Solid in kerosene	UN2257	4.3	Skin, Eyes
Thorium Salts <sup>c</sup>	Solid	UN2976	Entry removed effective 10/1/04	Skin, Eyes

\*Other than lead acetate, none of these possess EPA Waste Codes under 40 CFR 261.33; however, chemicals may exhibit one or more characteristics of hazardous waste. Refer to 40 CFR 261.21-24 for characteristics (i.e., ignitability, corrosivity, reactivity, and/or toxicity).

a Flammable

c Radioactive

b Explosive

d Magnesium metal (powder, pellets, turnings on ribbon)

### Health Effects:

Most metals and salts are stable solids with minimal potential for exposure unless ingested or the



metal is present in the air as dust or fumes, if heated. Sodium and potassium metal, and sodium and lithium hydroxides are extremely corrosive in the presence of moisture. Lithium aluminum hydride, and sodium, magnesium, and potassium metals are extremely reactive with air and water and can ignite or explode. (Hydrogen gas may be liberated, which is explosive.) Thorium is an alpha-emitting radioactive material. Flu-like symptoms and possible lung damage may result from breathing metal fumes. Acute overexposure to lead or mercury salts may lead to nausea and vomiting, and long-term exposure can affect the central nervous system. Hematologic and neurologic complications and kidney damage may occur with chronic exposure to mercury salts. Red phosphorous, if contaminated with white phosphorous, may explode on contact, or with friction or heat, but is relatively nontoxic by ingestion.

**TABLE A-5: Miscellaneous**

Substance	Form	ID Number	Hazard Class	Exposure	Health Effects
Cyclohexanone	Liquid	UN1915	3	Skin	Irritant
Fentanyl	Solid	UN2811	6.1	Inhalation, Skin, Eyes	Narcotic drug product causing respiratory failure at extremely low doses (i.e., equivalent to a few grains of dust)
Hydrogen	Gas	UN1954	2.1	Inhalation	Flammable, Explosive
Lysergic Acid Diethylamide	Powder	UN2811	6.1	Ingestion, Inhalation	Hallucination at extremely low doses
MPTP, MPPP <sup>a</sup>	Solids	UN2811	6.1	Inhalation, Skin	By-product or intermediates of alphaprodine laboratories. ( <i>Extremely low doses may cause irreversible Parkinson's disease.</i> )
Methylfentanyl	Solid	UN2811	6.1	Inhalation, Skin, Eyes	See "Fentanyl"
Phenylacetic Acid	Solid	Not DOT regulated	N/A	Skin, Eyes	Irritant
Phenyl-2-Propanone (phenylacetone)	Liquid	No Data	N/A	Skin, Inhalation	Irritant; few toxicity data available
Piperidine	Liquid	UN2401	8	Skin, Inhalation	Irritant; few toxicity data available

<sup>a</sup> MPTP (1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine); MPPP (1-methyl-4-phenyl-4-propionoxypiperidine)



## Appendix B: Regulations

49 U.S.C. § 5121 (h)(2) – a list and summary of applicable Government regulations, criteria, orders, and exemptions

<b>Figure B-1: Rulemaking and Notice Actions, 2013-2014</b>					
<b>Docket</b>	<b>RIN</b>	<b>Citation</b>	<b>Rulemaking and Notice Actions</b>	<b>Action</b>	<b>Date</b>
HM-215K	AE83	78 FR 1101	Hazardous Materials: Harmonization With the United Nations Recommendations on the Transport of Dangerous Goods: Model Regulations, International Maritime Dangerous Goods Code, and the International Civil Aviation Organization Technical Instructions for the Safe Transport of Dangerous Goods by Air (Response to Appeals)	Final Rule	01/07/2013
HM-224F	AE44	78 FR 1119	Hazardous Materials: Transportation of Lithium Batteries	NPRM Additional Comment	01/07/2013
HM-215L	AE87	78 FR 987	Hazardous Materials: Harmonization with International Standards (RRR)	Final Rule	01/07/2013
HM-219	AE79	78 FR 14702	Hazardous Materials: Miscellaneous Petitions for Rulemaking (RRR)	Final Rule	03/07/2013
HM-218G	AE78	78 FR 15303	Hazardous Materials; Miscellaneous Amendments (RRR)	Final Rule	03/11/2013
Notice 13-2	N/A	78 FR 16044	Hazardous Materials Packaging-Composite Cylinder Standards; Public Meeting	Notice	03/11/2013
HM-258	AE96	78 FR 22798	Hazardous Materials: Revision of Maximum and Minimum Civil Penalties	Final Rule	04/17/2013
HM-208I	AE95	78 FR 23503	Hazardous Materials; Temporary Reduction of Registration Fees	Final Rule	04/19/2013
Notice 13-5	N/A	78 FR 27169	Regulatory Flexibility Act Review	Notice	05/09/2013
Notice 13-4	N/A	78 FR 30393	Preparations for the 43rd Session of the United Nations Sub-Committee of Experts on the Transport of Dangerous Goods (UNSCOE TDG) and the 25th Session of the UN Sub-Committee of Experts on the Globally Harmonized System of Classification and Labelling of Chemicals (UNSCGHS)	Notice	05/22/2013
HM-258B	AE98	78 FR 30258	Hazardous Materials: Enhanced Enforcement Procedures: Resumption of Transportation	NPRM	05/22/2013

**Figure B-1: Rulemaking and Notice Actions, 2013-2014**

Docket	RIN	Citation	Rulemaking and Notice Actions	Action	Date
Notice 13-8	N/A	78 FR 33891	Safety Advisory: Compressed Gas Cylinders That Have Not Been Tested Properly	Notice	06/05/2013
Notice 13-9	N/A	78 FR 34156	Hazardous Materials: Emergency Recall Order	Notice	06/06/2013
Notice 13-6	N/A	78 FR 41853	Safety Advisory Guidance: Heating Rail Tank Cars To Prepare Hazardous Material for Unloading or Transloading	Notice	07/12/2013
HM-257	AE70	78 FR 42457	Hazardous Materials: Revision to Fireworks Regulations (RRR)	Final Rule	07/16/2013
Notice 13-11	N/A	78 FR 42817	Safety Advisory: Unauthorized Filling of Compressed Gas Cylinders	Notice	07/17/2013
Notice 13-10	N/A	78 FR 42818	Safety Alert: Risks Associated With Liquid Petroleum (LP) Gas Odor Fade	Notice	07/17/2013
Notice 13-13	N/A	78 FR 48224	Lac-Megantic Railroad Accident Discussion and DOT Safety Recommendations	Notice	08/07/2013
HM-254	AE62	78 FR 45880	Hazardous Materials: Approval and Communication Requirements for the Safe Transportation of Air Bag Inflators, Air Bag Modules, and Seat-Belt Pretensioners (RRR)	Final Rule	08/29/2013
HM-251	AE91	78 FR 54849	Hazardous Materials: Rail Petitions and Recommendations To Improve the Safety of Railroad Tank Car Transportation (RRR)	ANPRM	09/06/2013
HM-258A	AE97	78 FR 58501	Hazardous Materials: Failure To Pay Civil Penalties	NPRM	09/24/2013
Notice 13-12	N/A	78 FR 58604	Safety Advisory: Unauthorized Filling of Compressed Gas Cylinders	Notice	09/24/2013
Notice 13-16	N/A	78 FR 58604	Safety Advisory: Unauthorized Marking of Compressed Gas Cylinders	Notice	09/24/2013
HM-255	AE69	78 FR 58915	Highway-Rail Grade Crossing; Safe Clearance	Final Rule	09/25/2013
HM-258C	AF02	78 FR 60726	Hazardous Materials Regulations: Penalty Guidelines	Final Rule	10/02/2013
HM-244F	AF03	78 FR 60745	Hazardous Materials: Minor Editorial Corrections and Clarifications (RRR)	Final Rule	10/02/2013
HM-258B	AE98	78 FR 60755	Hazardous Materials: Enhanced Enforcement Procedures: Resumption of Transportation	Final Rule	10/02/2013
HM-215K, HM-215L, HM-218G and HM-219	AF01	78 FR 65454	Hazardous Materials: Corrections and Response to Administrative Appeals	Final Rule	10/31/2013

**Figure B-1: Rulemaking and Notice Actions, 2013-2014**

Docket	RIN	Citation	Rulemaking and Notice Actions	Action	Date
HM-251	AE91	78 FR 66326	Hazardous Materials: Rail Petitions and Recommendations To Improve the Safety of Railroad Tank Car Transportation (RRR)	ANPRM Extension	11/05/2013
Notice 13-19	N/A	78 FR 69745	Safety and Security Plans for Class 3 Hazardous Materials Transported by Rail	Notice	11/20/2013
Notice 13-18	N/A	78 FR 72972	Information Collection Activities	Notice	12/04/2013
HM-241	AE58	78 FR 79363	Hazardous Materials; Adoption of ASME Code Section XII and the National Board Inspection	NPRM	12/30/2013
HM-247	AE37	79 FR 10461	Hazardous Materials: Cargo Tank Motor Vehicle Loading and Unloading Operations	Withdrawal	02/25/2014
HM-241	AE58	79 FR 14465	Hazardous Materials; Adoption of ASME Code Section XII and the National Board Inspection Code	NPRM Extension	03/14/2014
HM-233C	AE82	79 FR 15033	Hazardous Materials: Adoption of Certain special permits and Competent Authorities Into Regulations	Final Rule	03/18/2014
Notice 14-7	N/A	79 FR 27370	Recommendations for Tank Cars Used for the Transportation of Petroleum Crude Oil by Rail	Notice	05/13/2014
Notice 14-9	N/A	79 FR 33802	Hazardous Materials: Notice of Availability of Draft Environmental Assessment and Request for Public Comment for a Special Permit Relating to the Transport of Precursor Chemicals From Syria in Port Arthur, Texas	Notice	06/12/2014
Notice 14-10	N/A	79 FR 38126	Safety Advisory: Unauthorized Certification of Compressed Gas Cylinders	Notice	07/03/2014
HM-250	AE38	79 FR 40589	Hazardous Materials; Compatibility With the Regulations of the International Atomic Energy Agency (RRR)	Final Rule	07/11/2014
HM-233D	AE86	79 FR 41185	Hazardous Materials: Requirements for the Safe Transportation of Bulk Explosives (RRR)	NPRM	07/15/2014
HM-251	AE91	79 FR 45015	Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains	NPRM	08/01/2014



**Figure B-1: Rulemaking and Notice Actions, 2013-2014**

Docket	RIN	Citation	Rulemaking and Notice Actions	Action	Date
HM-251B	AF08	79 FR 45079	Hazardous Materials: Oil Spill Response Plans for High-Hazard Flammable Trains	ANPRM	08/01/2014
HM-224F	AE44	79 FR 46011	Hazardous Materials: Transportation of Lithium Batteries	Final Rule	08/06/2014
HM-258A	AE97	79 FR 46194	Hazardous Materials: Failure To Pay Civil Penalties	Final Rule	08/07/2014
HM-253	AE81	79 FR 46748	Hazardous Materials: Reverse Logistics (RRR)	NPRM	08/11/2014
HM-233E	AE99	79 FR 47047	Hazardous Materials: Special Permit and Approvals Standard Operating Procedures and Evaluation Process	NPRM	08/12/2014
HM-215M	AF05	79 FR 50742	Hazardous Materials: Harmonization With International Standards (RRR)	NPRM	08/25/2014
Notice 14-11	N/A	79 FR 52106	Hazardous Materials: Revisions of the Emergency Response Guidebook	Notice	09/02/2014
HM-233E	AE99	79 FR 54676	Hazardous Materials: Special Permit and Approvals Standard Operating Procedures and Evaluation Process	NPRM Correction	09/12/2014
Notice 14-5	N/A	79 FR 56988	Clarification on Fireworks Policy Regarding Display Aerial Shells With Attachments	Notice	09/24/2014
Notice 14-4	N/A	79 FR 56989	Clarification on Fireworks Policy Regarding Display Mines	Notice	09/24/2014
HM-253	AE81	79 FR 57494	Hazardous Materials: Reverse Logistics (RRR)	NPRM Extension	09/25/2014
Notice 14-2	N/A	79 FR 58031	Information Collection Activities	Notice	09/26/2014
Notice 14-4	N/A	79 FR 64646	Safety Advisory: Packaging and Handling Ebola Virus Contaminated Infectious Waste for Transportation to Disposal Sites	Notice	10/30/2014
Notice 14-12	N/A	79 FR 65768	International Standards on the Transport of Dangerous Goods	Notice	11/05/2014
Notice 14-13	N/A	79 FR 69990	Information Collection Activities	Notice	11/24/2014



## Appendix C: Special Permits

### 49 U.S.C. § 5120 (h)(2) – a summary of the basis for each special permit

The following new special permits were issued during the preceding two-year period. As required by 49 CFR 107.105(d), all special permits are granted on one of the following bases:

- The special permit provides a level of safety at least equal to that required by regulation, or
- If a required safety level does not exist, issuing a special permit is consistent with the public interest.
- 

<b>Permit Number</b>	<b>Special Permit Summary</b>
15515	To authorize the transportation in commerce of a non-DOT-specification cylinder further packed in an ATA-300 Category 1 outer packaging.
15638	Authorizes the transportation of Fireworks, Division 1.3G, UN0335 by cargo aircraft only, which is otherwise forbidden for air transportation.
15650	To authorize the continued transportation in commerce of certain DOT-specification 20WC radioactive material packagings after October 1, 2008.
15660	To authorize a 10-year requalification for DOT-3AL carrying Division 2.1 and 2.2 materials.
15676	To authorize the transportation in commerce of anhydrous ammonia by cargo aircraft exceeding the quantities authorized in Column (9B).
15693	To authorize the transportation in commerce of certain hazardous materials by part 133 Rotorcraft External Load Operations, attached to or suspended from an aircraft, without meeting certain hazard communication and stowage requirements.
15706	To authorize the manufacture, mark and sale of specially designed combination type packaging for transporting certain hazardous materials in limited quantities without required labelling and placarding.
15707	To authorize the transportation in commerce of a gas purification apparatus containing bulk quantities of certain Division 4.2 (spontaneously combustible) solids in non-DOT-specification stainless steel pressure vessels.
15713	To authorize the manufacture, marking, sale and use of DOT 400 series cargo tanks using alternative materials of construction, specifically duplex stainless steels.
15716	To authorize the transportation in commerce of boron trifluoride in radiation detectors.
15720	To extend the service life of certain permitted cylinders by certifying them by an alternative retest.

<sup>43</sup> Approvals: <https://hazmatonline.phmsa.dot.gov/ApprovalsSearch/search.aspx>

Special Permits: <http://phmsa.dot.gov/hazmat/regs/sp-a/special-permits/search>

**Figure C-1: Hazardous Materials Special Permits, 2013-2014<sup>43</sup>**

Permit Number	Special Permit Summary
15723	To authorize the transportation in commerce of Division 4.1 and 4.2 material in non-specification packaging.
15725	To authorize the one-time one-way transportation of organic peroxides in packaging not authorized by the competent authority approval.
15726	To authorize the transportation in commerce of waste aerosol cans in intermediate bulk containers without covering or clipping the valve stems.
15727	To authorize the transportation in commerce of certain hazardous materials by Part 133 Rotorcraft External Load Operations, attached to or suspended from an aircraft, in remote areas of the U.S. without meeting certain hazard communication and stowage requirements.
15735	To authorize the transportation in commerce of a Class 4.3 material in an IBC.
15741	To authorize the transportation of oxidizing gases by cargo aircraft without a strong outer packaging capable of passing the Flame Penetration Resistance Test, the Thermal Resistance Test, and to waive marking the outer package.
15743	To authorize the repair of certain DOT 4L cylinders without requiring pressure testing.
15744	To authorize the transportation in commerce of certain cylinders that have been ultrasonically retested for use in transporting Division 2.1, 2.2, and 2.3 materials.
15747	Effective March 1, 2014, this special permit authorizes the transportation in commerce of certain hazardous materials using electronic records including transmission via email, fax, or telephone in lieu of physical shipping papers.
15755	To authorize the transportation in commerce of certain hazardous materials by part 133 Rotorcraft External Load Operations, attached to or suspended from an aircraft, in remote areas of the U.S. without meeting certain hazard communication and stowage requirements.
15758	To authorize the transportation in commerce of certain hazardous materials by part 133 Rotorcraft External Load Operations, attached to or suspended from an aircraft, in remote areas of the U.S. without meeting certain hazard communication and stowage requirements.
15765	To authorize the manufacture, mark, sale and use of a UN4B aluminum box used for the transportation in commerce of damaged or defective lithium ion batteries (originally approved under CA2011050032) that do not meet the requirements of § 173.185(a).
15768	To authorize the transportation in commerce of bulk packagings and unmarked IBCs and DOT-57 portable tanks containing residue of high flash point combustible liquid.
15769	To authorize the transportation of solid pentachlorophenol on flatbed trailers.
15773	To authorize the transportation in commerce of PG II corrosive materials described as Potassium Hydroxide Solution, UN 1814 and Sodium Hydroxide Solution, UN 1824 in a UN 50G Fiberboard Large Packaging.
15778	To authorize the transportation in commerce of certain hazardous materials by Part 133 Rotorcraft External Load Operations, attached to or suspended from an aircraft, in remote areas of the U.S. without meeting certain hazard communication and stowage requirements.

**Figure C-1: Hazardous Materials Special Permits, 2013-2014<sup>43</sup>**

Permit Number	Special Permit Summary
15779	To authorize the transportation in commerce of approximately 254 non-DOT-specification non-refillable metal receptacles containing a flammable gas that meet DOT 2Q but are not marked with the specification.
15788	To authorize the manufacture, marking, sale, and use of non-DOT-specification fully-wrapped carbon fiber reinforced welded steel lined cylinders that meets all requirements of ISO 11119-2.
15789	To authorize the transportation in commerce of a 485 gallon reactor containing approximately 300 gallons of predominately solid polymer that may contain pockets of liquid containing Toluene Diisocyanate.
15792	To authorize the transportation in commerce of certain aerosols containing a Division 2.2 compressed gas in non-refillable aerosol containers which are not subject to the hot water bath test.
15793	To authorize the one-time transportation of Division 1.3 Fireworks within the State of Alaska where no other means of transportation is available.
15797	To authorize the transportation of certain unapproved airbag modules by motor vehicle for disposal.
15799	To authorize the one way transportation in commerce of lighters without LA approvals.
15804	To authorize the transportation in commerce of dry titanium powder in glass packaging.
15806	To authorize the manufacture, mark, sell, and use of non-DOT-specification salvage cylinders.
15807	To authorize the transportation in commerce of forbidden explosives by air.
15809	To authorize the transportation in commerce of 0.17 caliber rim-fire cartridges loosely packed in strong outside packagings.
15811	To authorize the transportation in commerce of certain hazardous materials by 14 CFR part 133 Rotorcraft External Load Operations transporting hazardous materials attached to or suspended from an aircraft, in remote areas of the U.S. only, without being subject to hazard communication requirements, quantity limitations and certain loading and stowage requirements.
15816	To authorize the one-time transportation in commerce of certain explosives that are forbidden for transportation by cargo only aircraft.
15817	Authorizes the manufacture, marking, and sale of specially designed combination packaging, for shipment of small quantities Division 6.1 solids in Packing Group II and III shipped without labels.
15819	To authorize the one-time transportation in commerce of certain explosives that are forbidden for transportation by cargo only aircraft.
15820	To authorize the one-time transportation in commerce of certain explosives that are forbidden for transportation by cargo only aircraft.
15827	To authorize the manufacture, marking, sale and use of certain packagings for spent lithium ion batteries that have not been tested in accordance with the UN Manual of Test Criteria.
15830	To authorize the transportation in commerce of certain hazardous materials by 14 CFR Part 133 Rotorcraft External Load Operations transporting hazardous materials attached to or suspended from an aircraft, in remote areas of the U.S. only, without being subject to hazard communication requirements, quantity limitations and certain loading and stowage requirements.
15831	To authorize the transportation in commerce of certain hazardous material as part of the Dragon space capsule without requiring shipping papers, marking and labeling.

**Figure C-1: Hazardous Materials Special Permits, 2013-2014<sup>43</sup>**

Permit Number	Special Permit Summary
15832	To authorize the transportation in commerce of certain uninsulated portable tanks for transportation of acrolein by motor vehicle and cargo vessel.
15835	To authorize the one time transportation in commerce of a Division 2.2 material (1,1,1,2-Tetrafluoroethane) in a non-DOT-specification IMO Type 5 portable tank.
15836	To authorize the transportation in commerce of certain Class 3 and Class 8 materials in alternative packaging for transportation by motor vehicle.
15837	To authorize the transportation in commerce of a Submarine High Data Rate (HDR)/ Advanced Communications Mast (ACM) configured with a non-DOT-specification pressure vessel containing anhydrous ammonia.
15838	To authorize the transportation in commerce of certain used cylinders that contain CO <sub>2</sub> , but not necessarily in an amount qualifying as hazardous material.
15839	To authorize the discharge of a Division 2.1 material from an authorized DOT-specification cylinder without removing the cylinder from the vehicle on which it is transported.
15840	To authorize the transportation in commerce of a DOT-specification 3AA cylinder containing anhydrous ammonia that developed a leak and is equipped with a Chlorine Institute Kit "A" to prevent leakage during transportation.
15847	To authorize the transportation in commerce of Nitric acid up to 65% as an excepted quantity by cargo aircraft only.
15848	To authorize the transportation in commerce of Dangerous Goods in Equipment containing a lithium battery that exceeds the net quantity weight restriction when transported by motor vehicle and rail freight.
15849	To authorize the repair of certain DOT 4L cylinders without requiring pressure testing as currently described in 49 CFR § 180.211(c)(2)(i).
15851	To authorize the transportation in commerce of certain used DOT 3AL cylinders that contain CO <sub>2</sub> , but not necessarily in an amount qualifying as hazardous material.
15852	To authorize the transportation in commerce of small units of certain compressed gas, intended for medical use as limited quantities and/or ORM-D.
15853	To authorize the transportation in commerce of certain DOT-specification or UN-certified packaging containing Division 2.1, 2.2, 2.3, 4.3, 5.1, 6.1, and Class 3 and Class 8 materials in a single Container Transport Unit (CTU) consisting of multiple compartments in lieu of segregation when transported by cargo vessel.
15854	To authorize the transportation in commerce of methanol in alternative packaging by motor vehicle and cargo vessel.
15856	To authorize the transportation in commerce of certain DOT 3AL cylinders manufactured from aluminum alloy 6061-T6 that are requalified every ten years rather than every five years using 100% ultrasonic examination and are not required to be hammer tested prior to each refill.
15859	To authorize the transportation in commerce of certain hazardous materials by 14 CFR Part 133 Rotorcraft External Load Operations transporting hazardous materials attached to or suspended from an aircraft, in remote areas of the U.S. only, without being subject to hazard communication requirements, quantity limitations and certain loading and stowage requirements.
15860	To authorize the transportation in commerce of damaged or defective lithium ion batteries that do not meet the requirements of § 173.185(a)

**Figure C-1: Hazardous Materials Special Permits, 2013-2014<sup>43</sup>**

Permit Number	Special Permit Summary
15861	To authorize the manufacture, mark and sale of non-bulk refueling tanks as intermediate bulk containers which are authorized to be unloaded from the motor vehicle when transporting various Class 3 hazardous materials.
15863	To authorize the transportation in commerce of compressed nitrogen in a non-DOT-specification cylinder that is not equipped with a pressure relief device.
15864	To authorize the transportation of an Environmentally hazardous substance in non-DOT-specification packaging.
15865	To authorize the transportation in commerce of certain hazardous materials by 14 CFR part 133 Rotorcraft External Load Operations transporting hazardous materials attached to or suspended from an aircraft, in remote areas of the U.S. only, without being subject to hazard communication requirements, quantity limitations and certain loading and stowage requirements.
15866	To authorize the transportation in commerce of certain damaged or defective lithium batteries.
15867	To authorize the requalification of DOT-Specification 107A tank car tanks by the acoustic emission test method on a mobile basis.
15869	To authorize the transportation in commerce of lithium batteries exceeding the 35 Kg maximum weight authorized for transportation by cargo air.
15870	To authorize the transportation in commerce of certain hazardous materials by 14 CFR Part 133 Rotorcraft External Load Operations transporting hazardous materials attached to or suspended from an aircraft, in remote areas of the U.S. only, without being subject to hazard communication requirements, quantity limitations and certain loading and stowage requirements.
15872	To authorize the transportation in commerce of 69.5% Nitric acid in non-DOT-specification one-time use HDPE plastic drums.
15873	To authorize the manufacture, marking, sale and use of UN portable tanks conforming to portable tank code T50 that have been designed, constructed and stamped in accordance with Section VIII, Division 2 of the ASME Code for the transportation in commerce Division 2.1 and 2.2 materials.
15874	To authorize the transportation in commerce of certain hazardous materials by 14 CFR Part 133 Rotorcraft External Load Operations transporting hazardous materials attached to or suspended from an aircraft, in remote areas of the U.S. only, without being subject to hazard communication requirements, quantity limitations and certain loading and stowage requirements.
15875	To authorize the transportation in commerce of certain hazardous materials by 14 CFR Part 133 Rotorcraft External Load Operations transporting hazardous materials attached to or suspended from an aircraft, in remote areas of the U.S. only, without being subject to hazard communication requirements, quantity limitations and certain loading and stowage requirements.
15877	To authorize the transportation in commerce of certain flammable or corrosive liquids which exceed that quantity limitations when transported by cargo aircraft.
15878	To authorize the transportation in commerce of certain packages whose limited quantity marking is partially overprinted by a display instruction.
15881	To authorize the repair of certain DOT-specified, 4-liter cylinders without requiring pressure testing.
15882	To authorize the transportation in commerce of certain Class 3 fuels in non-DOT-specification bulk packaging by cargo aircraft.

**Figure C-1: Hazardous Materials Special Permits, 2013-2014<sup>43</sup>**

Permit Number	Special Permit Summary
15884	To authorize the one time one way transportation of a DOT 407 cargo tank containing residual amounts of Waste Trichlorosilane for cleaning and purging.
15885	To authorize the transportation in commerce of certain hazardous materials which exceed the authorized quantity limitations for passenger-carrying aircraft.
15889	To authorize the one-time transportation in commerce of a portable tank that was filled past its required periodic reinspection date.
15951	To authorize the one-time transportation in commerce of certain explosives that are forbidden for transportation by cargo only aircraft.
15954	To authorize the manufacture, mark, and sale of non-UN-standard containers that are manifolded together within a frame and securely mounted on a truck chassis for transportation by motor vehicle.
15955	To authorize the manufacture, marking, sale and use of non-DOT-specification cargo tanks manufactured to ASME Section XII stamped with a "T" Stamp instead of the "U" stamp.
15957	To authorize the filling and use of approximately 51,500 non-DOT-specification inner metal receptacles which are incorrectly marked "DOT-2Q" for the transportation in commerce of aerosol products.
15963	To authorize the transportation in commerce of certain hazardous materials by 14 CFR part 133 Rotorcraft External Load Operations transporting hazardous materials attached to or suspended from an aircraft, in remote areas of the U.S. only, without being subject to hazard communication requirements, quantity limitations and certain loading and stowage requirements.
15964	To authorize the one-time transportation in commerce of an ISO tank without the required hydrostatic pressure being performed after repair.
15965	To authorize the one-time transportation in commerce of certain explosives that are forbidden for transportation by cargo only aircraft.
15968	To authorize the transportation in commerce of liquefied natural gas in a non-specification package (tender car) attached to a locomotive but not feeding the fuel to the locomotive from one testing location to another.
15970	To authorize the transportation in commerce of up to 15,000 net explosive weight of certain Class 1 materials from the U.S. to Thailand in support of the foreign military sales program.
15971	To authorize the transportation in commerce of non-DOT-specification pressure receptacles containing nitrogen, compressed.
15972	To authorize the manufacture, marking, sale and use of non-DOT-specification cargo tanks meeting all requirements for DOT 400 series cargo tanks except for the use of UNS S32101 (LDX 2101) as a material of construction and the head and shell thicknesses are less than required.
15973	To authorize the transportation in commerce of small amounts of butane contained within a Medstream Pump as unregulated.
15976	To authorize the one-time transportation in commerce of certain explosives that are forbidden for transportation by cargo only aircraft.
15977	To authorize the transportation in commerce of certain solvents in previously used steel drums without leakproof testing.
15979	To authorize the transportation in commerce by cargo only aircraft of Class 1 explosives which are forbidden or exceed quantities presently authorized.
15980	To authorize the transportation in commerce of aviation turbine engine fuel by external load.

**Figure C-1: Hazardous Materials Special Permits, 2013-2014<sup>43</sup>**

Permit Number	Special Permit Summary
15985	To authorize the transportation in commerce of certain hazardous material as part of the Falcon space capsule without requiring shipping papers, marking and labeling.
15986	To authorize the transportation in commerce of certain hazardous materials by external load in remote areas of the U.S. without being subject to hazard communication requirements and quantity limitations where no other means of transportation is available.
15987	To authorize the manufacture, mark, sale and use of non-DOT-specification cylinders for use as components of automotive vehicle safety systems.
15994	To authorize the transportation in commerce of hazardous materials in external load.
15999	To authorize the transportation in commerce of certain hazardous material as part of the Orion space capsule without requiring shipping papers, marking and labeling.
16002	To authorize the transportation in commerce of certain hazardous materials by external load.
16011	To authorize the manufacture, marking and sale of two specially designed packagings intended for the transport of prototype and damaged lithium cells, batteries and equipment containing damaged lithium cells and batteries by road, rail, vessel and cargo aircraft.
16013	To authorize the transportation in commerce of certain Class 4 and 5 hazardous materials in UN50G large packagings.
16015	To authorize the manufacture, marking, sale and use of non-DOT-specification cargo tanks similar to DOT 407 and 412 cargo tanks.
16016	To authorize the manufacture, marking, sale and use of non-DOT-specification cylinders for use in automobile safety systems.
16017	To authorize the shipment of radiation detection survey meters containing a Division 2.2 compressed gas in the passenger compartment of commercial aircraft.
16022	To authorize the manufacture, marking, sale and use of non-DOT-specification portable tanks mounted within an ISO frame that have been designed, constructed and stamped in accordance with Section VIII, Division 2 of the ASME Code.
16024	To authorize the transportation in commerce of certain hazardous materials by external load.
16027	To authorize the one way transportation in commerce of hazardous materials as authorized in paragraph 6 below for disposal.
16030	To authorize the transportation in commerce of a specification cylinder containing medical grade oxygen with the valve opened and connected to a system designed to maintain vital conditions needed to keep tissue samples viable for research use.
16031	To authorize the transportation in commerce of certain hazardous materials by cargo aircraft including by external load in remote areas of the U.S. without being subject to hazard communication requirements and quantity limitations where no other means of transportation is available.
16033	To authorize the transportation in commerce of certain hazardous materials across a public road within a facility without shipping papers.
16034	To authorize the one-time transportation in commerce of certain explosives that are forbidden for transportation by cargo only aircraft.



**Figure C-1: Hazardous Materials Special Permits, 2013-2014<sup>43</sup>**

Permit Number	Special Permit Summary
16035	To authorize the transportation in commerce of compressed nitrogen in non-DOT-specification cylinders.
16037	To authorize the transportation in commerce of a Class 8 (corrosive) solid in UN50G large packagings.
16042	To authorize the one-time one-way transportation in commerce of lice, non-human primates (NHPs) infected with Division 6.2 (infectious substance) materials.
16046	To authorize the transportation in commerce of a damaged cylinder containing Division 4.3 and/or 4.2 materials in a salvage cylinder.
16049	To authorizes the one-way transportation in commerce of certain unapproved fireworks from two Walt Disney World Park & Resorts U.S., Inc. storage facilities to Clean Harbors destruction facilities by motor vehicle for destruction.
16055	To authorize the one-time, one-way transportation of unapproved fireworks from Dallas, TX to storage in Illiopolis, IL.
16057	To authorize the one-time, one-way transportation in commerce of certain unapproved fireworks from Carson, CA to Wilmington CA when classed as Division 1.4G.
16060	To authorize the manufacture, marking, sale and use of non-DOT-specification inside containers for transportation of Isobutane/Propane mixtures.
16064	To authorize the transportation in commerce of a DOT-specification 4AA cylinder containing anhydrous ammonia that developed a leak and is equipped with a Chlorine Institute Kit "A" to prevent leakage during transportation.
16065	To authorize the transportation in commerce of certain aerosols containing a Division 2.2 compressed gas in certain non-refillable aerosol containers which are not subject to the hot water bath test.
16067	To authorize the transportation in commerce of a Division 2.2 compressed gas in non-DOT-specification bulk packaging.
16074	To authorize the transportation in commerce of certain Class 3 liquids in non-DOT-specification cylinders.
16077	The purpose of this letter is to request a Special Permit and/or Competent Authority Approval only for transporting the forbidden Hazmat—the Anhydrous Ammonia (UN 1005) which is contained in the heat pipes of the satellite as per description detailed in the packing approval certificate n°13-020 enclosed. This document was granted by French competent authority the DGAC. This approval issued by the French Government authorize the carriage by air of the Anhydrous Ammonia in the heatpipes within the satellite, as well as the other dangerous goods in the approved packaging and quantities that are listed on the Shippers Declaration for Dangerous Goods. We confirm that all other items are not forbidden and are within quantity limits as per IATA dangerous goods regulations.
16079	To authorize the transportation in commerce of certain used cylinders containing Helium, compressed as fully regulated without first determining that a hazardous material is present.
16081	To authorize the transportation in commerce of certain Division 1.4 primers and powders in packaging that has not been tested for each specific configuration.
16083	To authorize the transportation in commerce of certain non-DOT-specification foreign cylinders containing Dichlorosilane by motor vehicle and cargo vessel.
16087	To authorize the offering for transportation in commerce of certain Class 1 explosive materials which are forbidden for transportation by cargo only aircraft.

**Figure C-1: Hazardous Materials Special Permits, 2013-2014<sup>43</sup>**

Permit Number	Special Permit Summary
16088	To authorize the transportation in commerce of certain flammable and combustible liquids in alternative packaging having a capacity of 119 gallons or more by air.
16089	To authorize the one-time transportation in commerce of certain explosives that are forbidden for transportation by cargo only aircraft.
16090	To authorize the transportation in commerce of a TIH hazmat in non-approved spec packages overpacked in 85 gallon steel drums.
16092	To authorize the transportation in commerce of certain flammable and combustible liquids in alternative packaging having a capacity of 119 gallons or more by air.
16102	To authorize the transportation in commerce of a DOT 106A500 multi-unit tank car tank containing chlorine or sulfur dioxide that has developed a leak in the valve or fusible plug that has been temporarily repaired using a Chlorine Institute "B" Kit, Edition 11.
16103	To authorize the transportation in commerce of resin-impregnated, coated polyester felt tubing used as a means of restoring structural integrity to aging or damaged wastewater, potable water and industrial pipelines through use of a trenchless, cured-in-place pipe ("CIPP") technology.
16105	To authorize the transportation in commerce of certain hazardous materials by 14 CFR Part 133 Rotorcraft External Load Operations transporting hazardous materials attached to or suspended from an aircraft, in remote areas of the U.S. only, without being subject to hazard communication requirements, quantity limitations and certain loading and stowage requirements.
16106	To authorize the one-time one-way transportation in commerce of lice, non-human primates (NHPs) infected with Division 6.2 (infectious substance) materials.
16107	To authorize the one time one way transportation in commerce of 14 heeled cylinders that are not ANSI N14.1 compliant.
16108	To authorize the manufacture, marking, sale and use of carbon and glass fiber reinforced, aluminum-lined composite cylinders for use in transporting certain Division 2.1 and 2.2 hazardous materials.
16109	To authorize the transportation in commerce of certain non-DOT-specification, non-refillable inside containers similar to a DOT-2P-containing certain Division 2.1 gases, which are not subject to the hot water bath test and are not fitted with a pressure relief device.
16111	To authorize the transportation in commerce of living human brain tissue continuously fed by oxidizing compressed gas.
16114	To authorize the transportation in commerce of fissile uranium hexafluoride in alternative packaging shipped pursuant to U.S. DOT CoC U.S.A/0411/AF for repairs.
16115	To authorize the transportation of anhydrous ammonia in alternative packaging (heat pipes).
16119	To transport in commerce of certain hazardous materials by cargo aircraft including 14CFR part 133 Rotorcraft External Load operations, in remote areas of the U.S. only, without being subject to hazard communication requirements, quantity limitations and certain loading and stowage requirements.
16120	To authorize the transportation in commerce of certain hazardous materials by 14 CFR part 133 Rotorcraft External Load Operations transporting hazardous materials attached to or suspended from an aircraft, in remote areas of the U.S. only, without being subject to hazard communication requirements, quantity limitations and certain loading and stowage requirements.
16121	To authorize the transportation in commerce of certain composite fiberglass wrapped stainless steel high pressure cylinders containing argon, compressed.

**Figure C-1: Hazardous Materials Special Permits, 2013-2014<sup>43</sup>**

Permit Number	Special Permit Summary
16122	To authorizes the transportation in commerce of not more than 25 grams of Division 1.4 materials and pyrotechnic materials in a special shipping container.
16127	To authorize the transportation in commerce of certain non-DOT-specification foreign cylinders containing Neon by motor vehicle and cargo vessel
16129	To authorize the transportation in commerce of certain Class 1 explosive materials which are forbidden for transportation by air, to be transported by cargo aircraft within the State of Alaska when other means of transportation are impracticable or not available.
16130	To authorize the transportation in commerce of lighters without LA approvals for law enforcement purposes.
16133	To authorize the manufacture, marking, sale and use of UN portable tanks conforming to portable tank code T75 that have been designed, constructed and stamped in accordance with the latest edition of Section VIII, Division 1 of the ASME Code with a design margin of 3.5:1
16135	To authorize the transportation in commerce of ammonium nitrate by cargo air in amounts exceeding what is currently authorized.
16140	To authorize the transportation in commerce of certain hazardous materials which exceed the authorized quantity limitations for passenger-carrying aircraft.
16142	To authorize the manufacture, marking, sale and use of UN T75 Code portable tanks that are designed, constructed, certified and stamped in accordance with Section VIII Division 1, latest edition of the ASME Code.
16144	To authorize the transportation in commerce of certain Class 1 materials without EX classification for approximately 15 miles by motor vehicle.
16145	To authorize the transportation in commerce of certain flammable and combustible liquids in alternative packaging having a capacity of 119 gallons or more by air.
16146	To authorize the transportation in commerce of certain Division 1.1, 1.2 and 1.3 explosives that are forbidden for transportation by cargo aircraft.
16147	To authorize the transportation in commerce of certain hazardous materials in support of the recovery and relief efforts within the flood disaster areas Newaygo and Osceola Counties in Michigan.
16150	Authorizes the transport of propane in DOT-specification 4B240, 4BA240, 4BW240 cylinders via helicopter utilizing sling loads.
16151	To authorized the one-time transportation in commerce of certain explosives that are forbidden for transportation by cargo only aircraft.
16153	To authorize the transportation in commerce of certain cargo tanks with ring stiffers manufactured between October 2011 through May 2013 that are not in compliance with 178.347-7(d).
16155	To authorize the transportation in commerce of certain fireworks in UN-certified large packagings.
16159	To authorize the transportation in commerce of a Division 1.4S material without marking, labeling or placarding.

**Figure C-1: Hazardous Materials Special Permits, 2013-2014<sup>43</sup>**

Permit Number	Special Permit Summary
16163	To authorize that the required 5 year periodic pressure test on UN portable tanks used in the transport of a Division 4.3 material be performed pneumatically (with nitrogen) rather than with water.
16164	To authorize the one time one way transportation in commerce of four Model 30B cylinders that contain a small residual heel of uranium hexafluoride.
16165	To authorizes the manufacture, marking and sale of a non-DOT-specification pressure vessel comparable to a DOT-3HT cylinder for the transportation of compressed gas.
16166	To authorize the transportation in commerce of a Class 8, PG II material in a custom designed packaging as a material of trade when the mass or capacity limits are exceeded.
16169	To authorize the transportation in commerce of certain hazardous materials by 14 CFR part 133 Rotorcraft External Load Operations transporting hazardous materials attached to or suspended from an aircraft, in remote areas of the U.S. only, without being subject to hazard communication requirements, quantity limitations and certain loading and stowage requirements.
16170	To authorize the removal of certain requalification markings from DOT-3AL cylinders that have previously been retested in accordance with DOT-SP 14546 or DOT-SP 14854, to allow them to be returned to a 5 year hydrostatic retest schedule and eliminate the need for quality control for the gases to be used.
16171	To authorize the transportation in commerce of batteries in alternative packaging by motor vehicle.
16172	To authorize the transportation in commerce of a Zone B toxic by inhalation gas in a DOT3AA cylinder that is fitted with an alternative pressure relief device.
16174	To authorize the transportation in commerce of certain lithium batteries that do not have the original UN test certifications by motor vehicle.
16175	To authorize the transportation in commerce of a Division 1.4S explosive without an EX classification approval and carbon dioxide in a non-DOT-specification cylinder.
16178	To authorize the transportation in commerce of compressed gases in non-DOT-specification cylinders.
16180	To authorize the one-way transportation in commerce of unapproved fireworks for use in a research testing project.
16185	To authorize the manufacture, marking, sale and use of a non-DOT-specification portable tank with a capacity of 150 liters similar to a UN Portable T20 tank for the transportation of bromoacetone.
16186	To authorize the one-way transportation in commerce by motor vehicle certain hazardous materials in alternative packaging.
16187	To authorize the transportation in commerce of 70 pounds of solid lithium with an argon blanket in a non-DOT-specification pressure vessel by motor vehicle.
16194	To authorize the transportation in commerce of certain compressed gases in non-DOT-specification pressure receptacles.
16195	To authorize the manufacture, marking, sale and use of non-DOT-specification cylinders made in conformance with DOT-specification 3E with exceptions, for shipment of certain Division 2.1 and Division 2.2 gases.
16200	To authorize the transportation in commerce of Class 1.2 explosives, by cargo aircraft only, which is otherwise forbidden by the regulations.
16209	to authorize the transportation in commerce of forbidden explosives by cargo aircraft

**Figure C-1: Hazardous Materials Special Permits, 2013-2014<sup>43</sup>**

Permit Number	Special Permit Summary
16218	To authorize the transportation in commerce of certain hazardous materials by 14 CFR part 133 Rotorcraft External Load Operations transporting hazardous materials attached to or suspended from an aircraft, in remote areas of the U.S. only, without being subject to hazard communication requirements, quantity limitations and certain loading and stowage requirements.
16219	To authorize the manufacture, marking, sale and use of aluminum-lined carbon-fiber composite cylinders for use in transporting certain Division 2.1 and 2.2 hazardous materials.
16263	To authorize the one-time transportation in commerce of certain explosives that are forbidden for transportation by cargo only aircraft.
16266	To authorize the transportation in commerce of Ebola contaminated waste for disposal or incineration.
16267	To authorize the one-time transportation in commerce of certain explosives that are forbidden for transportation by cargo only aircraft.
16278	To authorize the transportation in commerce of Ebola contaminated medical waste in alternative packaging for disposal or incineration.
16279	To authorize the transportation in commerce of Ebola contaminated waste in alternative packaging.
16295	To authorize the transportation in commerce of certain IBCs containing combustible liquids with a placard meeting the label specifications for size in § 172.407(c).
16311	To authorize the offering in air transportation of certain Class 1 explosives which are forbidden or exceed the quantity limitations authorized for transportation by cargo aircraft.
16340	To authorize the transportation in commerce of certain DOT cylinders marked with RIN A890 that have not been requalified in accordance with subpart C of part 180.
15515	To authorize the transportation in commerce of a non-DOT-specification cylinder further packed in an ATA-300 Category 1 outer packaging.
15638	Authorizes the transportation of Fireworks, Division 1.3G, UN0335 by cargo aircraft only, which is otherwise forbidden for air transportation.
15650	To authorize the continued transportation in commerce of certain DOT-specification 20WC radioactive material packagings after October 1, 2008.
15660	To authorize a 10-year requalification for DOT-3AL carrying Division 2.1 and 2.2 materials.
15676	To authorize the transportation in commerce of anhydrous ammonia by cargo aircraft exceeding the quantities authorized in Column (9B).
15693	To authorize the transportation in commerce of certain hazardous materials by part 133 Rotorcraft External Load Operations, attached to or suspended from an aircraft, without meeting certain hazard communication and stowage requirements.
15706	To authorize the manufacture, mark and sale of specially designed combination type packaging for transporting certain hazardous materials in limited quantities without required labelling and placarding.
15707	To authorize the transportation in commerce of a gas purification apparatus containing bulk quantities of certain Division 4.2 (spontaneously combustible) solids in non-DOT-specification stainless steel pressure vessels.
15713	To authorize the manufacture, marking, sale and use of DOT 400 series cargo tanks using alternative materials of construction, specifically duplex stainless steels.

**Figure C-1: Hazardous Materials Special Permits, 2013-2014<sup>43</sup>**

<b>Permit Number</b>	<b>Special Permit Summary</b>
15716	To authorize the transportation in commerce of boron trifluoride in radiation detectors.
15720	To extend the service life of certain permitted cylinders by certifying them by an alternative retest.
15723	To authorize the transportation in commerce of Division 4.1 and 4.2 material in non-specification packaging.



## Appendix D: National Transportation Safety Board Recommendations

In CY 2013-2014, OHMS closed a total of 16 NTSB recommendations using a variety of approaches with over 80 percent of these recommendations being classed as acceptable closures. At the start of CY 2013, OHMS had 31 open NTSB recommendations and at the end of CY 2014, OHMS has 23 open NTSB recommendations. The following NTSB recommendations were closed during the preceding two-year period.

<b>Figure D-1: National Transportation Safety Board Closed by OHMS in CY 2013-2014</b>				
<b>ID Number</b>	<b>Topic</b>	<b>PHMSA action</b>	<b>Date Closed</b>	<b>NTSB Response</b>
R-92-23	Periodic Inspection and Testing of Rail Tank Cars	Adopted alternative tank car qualification program through rulemaking and conducted research with FRA	01/11/2013	Closed-Acceptable Action
R-01-03	Rail Tank Car Pressure Relief Devices	Adopted alternative tank car qualification program through rulemaking and conducted research with FRA.	01/11/2013	Closed-Acceptable Action
I-07-1	Standards for Partially Pressurized Aluminum Cylinders	No Action. Communicated our position that the incident was unique and does not reflect the commercial transportation of compressed gas in an aluminum cylinder; the accident was not related to a malfunctioning PRD; the HMR provides for measures to prevent failure of an aluminum cylinder; and incident data does not support amendments.	02/04/2013	Closed-Unacceptable Action
I-07-2	Guidance on Risks of Overpressure Failure of Partially Pressurized Aluminum Cylinders	Issued guidance to operators following the incident; continuous emergency response guidance offered in the ERG, and the cylinder safety notices and alerts.	02/04/2013	Closed-Acceptable Action
H-12-2	Advisory Notice on Swansea Incident.	Issued an updated Safety Advisory Notice with FMCSA.	02/04/2013	Closed-Acceptable Action
H-12-5	Meaning of "In Service" for Cargo Hose Assembly Inspection	Issued a letter of interpretation on the meaning of "In Service."	02/04/2013	Closed-Acceptable Action
H-11-1	Specification Cargo Tank Data	No action. Informed of position we do not intend to require motor carriers to annually submit the number and types of DOT-specification cargo tank motor vehicles owned or leased along with the information displayed on the	07/08/2013	Closed-Unacceptable Action

**Figure D-1: National Transportation Safety Board Closed by OHMS in CY 2013-2014**

		specification plates for the cargo tanks.		
A-07-107	Lithium Battery Incident Reports	Revised HMR to specifically report lithium battery incidents. Informing NTSB of the criteria/decision making in determination of retention of failed battery items.	09/06/2013	Closed-Acceptable Alternative Action
I-02-01	Loading/Unloading	Issued Safety Advisory guidance. Also, developed a Guide and Pocket Guide for Cargo Tank Motor Vehicle Loading and Unloading Operations.	10/29/2013	Closed-Acceptable Alternative Action
I-02-02	Loading/Unloading	Issued Safety Advisory guidance. Also, developed a Guide and Pocket Guide for Cargo Tank Motor Vehicle Loading and Unloading Operations.	10/29/2013	Closed-Acceptable Alternative Action
R-04-10	Heating of Hazmat in Rail Tank Cars for Unloading	Issued Safety Advisory guidance.	10/29/2013	Closed-Acceptable Alternative Action
H-12-4	Partial Failure of a Cargo Hose Assembly.	No Action. Communicated position that the incident was an outcome of noncompliance, that there are already regulations that cover the recommendation, limited technologies available and costly, and infrequency of incidents.	06/19/2014	Closed-Unacceptable Action
H-12-6	Guidance to Clarify Testing and Recordkeeping of Cargo Tank Assemblies Used for Liquefied Compressed Gases.	Updated a Compliance Assistance Guide to clarify testing and recordkeeping requirements.	06/19/2014	Closed-Acceptable Action
A-07-108	Lithium Battery Incident Analysis	Published a rulemaking adopting ICAO TI provisions for the transport of lithium batteries.	11/12/2014	Closed-Acceptable Alternative Action
A-07-109	Small Lithium Battery Exceptions	Published a rulemaking adopting ICAO TI provisions for the transport of lithium batteries.	11/12/2014	Open-Acceptable Alternate Response (OAR)
H-92-1	Guidance on Rollover Protection Devices for Cargo Tanks	PHMSA updated previous guidance and reissued it for public use as a standalone document entitled, "Guidelines for Structural Evaluation of Cargo Tank Rollover Damage Protection Devices;" also made it available for viewing and download at our respective websites; and supplemented this information with a link to a similar document developed by TTMA.	12/12/2014	Closed-Acceptable Action