

# **Information Paper on Hazardous Materials Automated Cargo Communications for Efficient and Safe Shipments (HM-ACCESS): Electronic Shipping Papers for Shippers and Carriers**

## **Introduction**

HM-ACCESS is a pilot project under the Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21) legislation. The Pipeline and Hazardous Materials Safety Administration (PHMSA), Office of Hazardous Materials Safety (OHMS), is collaborating with modal administrations, law enforcement personnel, emergency response providers, and industry representatives to evaluate the feasibility of allowing the use of electronic shipping (e-shipping) papers for hazardous materials (HM) shipments for the purpose of:

- Improving the availability and accuracy of hazard and response information for shipments and packages,
- Improving the speed by which information is available to emergency responders when accidents occur,
- Improving the security of imported containers through better knowledge of shipments and reduced potential for diversion, and
- Allowing U.S. companies to compete more effectively in the global economy by using the best tools available.

Interviews were held and comments solicited to determine the needs of all effected stakeholders (shippers, carriers, emergency response providers, and law enforcement). Additionally, workshops were held for the stakeholders on September 27-28, 2012, to receive feedback on synopsis papers, and identify priority issues, gaps, and concerns not previously discovered during the interviews. The following are the results of the research conducted to date.

## **Description of Stakeholders**

Shippers are required to prepare HM shipping papers for most HM placed in transport, and carriers are required to maintain the HM shipping paper when the HM is in commerce. Both shippers and carriers are required to maintain shipping papers for a certain period of time after delivery is complete.

## **Shipper and Carrier Feedback and Opinions**

Collectively, shippers and carriers identified a need to:

- Examine the existing domestic and international requirements,
- Understand the variances in the modes of transportation,
- Recognize the impact on carriers when implementing e-shipping papers,
- Better understand the needs of emergency responders and the law enforcement community,
- Consider the relevance of freight forwards and brokers in the implementation of e-shipping documents.

Some shippers stated that they use electronic systems (e-systems) for business purposes that contain the HM information/fields currently required on the HM shipping paper. They print hardcopy shipping

papers from these systems. Shippers with access to e-systems should be able to transition to an electronic format.

Shippers and carriers stated that e-shipping papers should be: permitted, not mandated; performance based; and flexible--not based on a single technology. There was the recognition that, without a mandate, e-shipping papers could vary by mode and by carrier; therefore, accuracy and completeness of information are critical. Further, it is important to be able to identify shippers and carriers with e-HM communication capability.

Additional considerations by mode include:

**Air:** Air carriers have sophisticated security protocols for electronic records (e.g., passenger information); therefore, e-HM communication may be implemented into existing protocols. In addition, international air shipments already allow for e-dangerous goods records, so HM-ACCESS should be able to leverage these existing systems.

**Maritime:** For maritime carriers, the ability to use electronic, in lieu of hardcopy, shipping papers for exports would present a business benefit. Most maritime vessel operators have developed electronic business systems to manage HM shipping documents, and international maritime commerce is currently performed electronically. Vessel operators are granted authority by the U.S. Government to exchange HM information electronically for US shipments.

**Rail:** Rail carriers' shipment data are received electronically in electronic data interchange (EDI) format. The transition to e-HM communication for most rail carrier operations is possible because information is already exchanged via EDI. Hardcopy HM shipping papers are carried by train crews for use by emergency responders in the event of an incident and to meet the existing regulatory requirement.

**Motor Carrier:** Motor carrier transport is significantly different from other modes of transportation. Motor carriers may transport a single commodity along defined transportation routes, pickup and deliver multiple commodities along routes that change based on delivery needs, or conduct long-haul shipments. Motor carriers generally travel shorter distances, thus conduct more individual transportation trips. Presently, motor carriers receive hardcopy HM manifests and bills of lading; however, some motor carriers scan shipment information for billing purposes.

Motor carriers that transport chemicals via tank truck fleets use electronic or automatic on-board recording devices to track drivers' hours of service, delivery confirmation, etc. Owner-operators pay the installation costs and a monthly fee for use. The possibility exists to add an e-HM communication capability to these devices; however, this would increase the cost of the devices and service. For motor carriers who deliver a single HM or who always deliver the same HM to the same locations, e-HM communication could be implemented, assuming electronic devices are available and cost effective.

### **Shipper and Carrier Concerns, Gaps, and Vulnerabilities**

Stakeholders expressed concern about security and business-related issues once e-HM communication is conducted outside of a controlled environment. They also communicated a difference in the need for electronic information for business purposes and the need for information that accompanies HM shipments for emergency response purposes; they believe these different needs should not be tied together, as one side may be hindered.

Stakeholders expressed a concern that the issues of inaccurate and missing information experienced in the paper-based system could be carried over to an e-system; therefore, a successful e-system would need to be able to accept corrections. Further, there would need to be a means to establish administrative rights to ensure only appropriate authorities could upload and manage shipping paper information.

Existing electronic and automatic on-board recording devices do not function in some areas of the U.S. and Canada with Internet connectivity and wireless dead spots. These same issues would likely exist for e-HM communication systems. Stakeholders expressed concern regarding the capability of emergency response providers and inspectors to receive e-HM communication in rural, remote, and geographically challenging areas, and at some small/volunteer departments.

Stakeholders stressed that e-HM implementation should not make compliance requirements more complicated (i.e., the Government should not mandate that shippers provide e-HM information in both hardcopy and electronic formats). If the Government decides to require e-HM communication, some shippers believe some companies will be at a disadvantage because of associated implementation costs.

Shippers and carriers expressed the desire for trade and technical names to be available.

Different domestic and international requirements may be necessary to ensure the responsibilities for data provided to domestic emergency response providers and law enforcement personnel are clearly defined and understood.

The carrier industry places high importance on the current HM shipping paper documentation trail (for billing purposes, driver payment records, etc.). Some trucking companies and some small motor carrier companies either cannot afford to purchase an electronic system or do not see a business reason to invest in one. Motor carriers recommend that PHMSA establish the performance standard for e-HM communication and keep the existing requirements for hardcopy HM shipping papers.

Additional considerations by mode include:

**Air and Maritime:** The air and maritime carriers reported that EDI is not organized in a manner that requires sequence of information or fields, and neither the data or how and in what order emergency response information is presented is standardized. In addition, different requirements for the format and sequence of e-HM information for domestic and international HM shipments may need to be developed.

The air and maritime carriers recommend that mandatory HM shipping paper fields be clarified and defined, with the most important emergency response providers information presented first. Furthermore, air and maritime carriers mentioned that because each of the four major rail carriers has different EDI requirements for rail billing, providing e-HM information to multiple rail carriers for intermodal HM transfers is time consuming and redundant.

**Rail:** Rail carriers permit e-HM shipping paper data to be provided to them in EDI format. To be able to perform intermodal transfers with rail carriers, air and maritime carriers have been using EDI for e-HM shipping paper communication. EDI currently has all the HM data elements required by 49 CFR 172 and the International Maritime Dangerous Goods (IMDG) Code.

**Motor Carrier:** Motor carriers who do not have on-board technology also are concerned that they will be unable to provide e-HM information directly and readily to enforcement personnel and emergency

response personnel. Currently, an electronic environment does not exist for some motor carriers to receive HM shipping documents from, or to send HM shipping documents to, any other carrier modes.

## **Top Considerations and Gaps**

PHMSA aggregated similar considerations and gaps; then, identified the top issues in each of two information papers, for shippers/carriers and for emergency response providers/law enforcement personnel, respectively. The goal of this prioritization is to identify the key considerations and gaps that need to be addressed to ensure the successful implementation of paperless HM communication.

The top considerations and gaps for shippers and carriers are:

### Considerations

- Paperless communication should be regulated by means of a flexible, performance-based approach to allow current business systems to be utilized.
- E-HM format requirements should be standardized, sequenced, and linked to international requirements to support electronic-mapping efforts.
- While e-HM communication is being demonstrated to show equivalent level of safety, hardcopies of shipping papers still should be carried to meet the needs of emergency response providers and law enforcement personnel.

### Gaps

- E-HM communication should be allowed, but not mandated, so not to potentially create a competitive disadvantage for some companies, if mandated.
- The transmission of e-HM information should: satisfy multiple agency needs, ensure continuity, and allow the responsible party (shippers or carriers) to exchange e-HM information to emergency response providers and law enforcement personnel.
- Existing connectivity limitations (limited equipment and connectivity/dead zones) could hinder access to electronic information by emergency response providers.

## **Common HM-ACCESS Requirements among All Stakeholders**

Common requirements for the implementation of e-shipping papers identified by shippers, carriers, emergency response providers, and law enforcement personnel are:

- Equivalent or higher level of safety to current requirements;
- Internationally harmonized and uniformed information;
- Secured from potential threats;
- Capable of allowing shippers to be responsible for data entry and error correction;
- Cost effective; and
- Able to allow e-shipping papers to be accessible through wireless capabilities.

## **Summary**

Advancements have been made in e-HM communication domestically and internationally and the HM community has invested in and implemented internal systems to meet business needs and demands of global transportation to improve e-communication and e-commerce. Some stakeholders including the International Air Transport Association and the United Parcel Service are in the early stages of demonstrating proof of concepts to examine the use of e-shipping papers. Further, the UN Model regulations incorporate the use of electronic shipping papers. All stakeholders are taking strides to create a transportation environment that does not have e-communication boundaries, improves global

harmonization, and creates performance-based systems that are striving to provide an equivalent or better level of safety to the current paper requirements.

PHMSA understands that shippers, carriers, emergency response providers, and law enforcement personnel are critical stakeholders for HM-ACCESS, and providing an equivalent or better level of safety to shipping regulations must be tested and accounted for during the pilot program. The issues and challenges identified in this paper serve as the initial steps towards identifying parameters of the pilot provided for by MAP-21.

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