National Association of Chemical Distributors

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May 7, 2018

Docket Operations
U.S. Department of Transportation
West Building, Ground Floor
Room 140, Routing Symbol M-30
1200 New Jersey Avenue, SE
Washington, DC 20590

Via Electronic Filing at http://www.regulations.gov

RE: Docket No. PHMSA-2018-0001; Notice No. 2018-01: Request for Information on Regulatory Challenges to Safely Transporting Hazardous Materials by Surface Modes in an Automated Commercial Vehicle Environment

The National Association of Chemical Distributors (NACD) appreciates the opportunity to comment on the Pipeline and Hazardous Material Safety Administration (PHMSA) Request for Information on Regulatory Challenges to Safely Transporting Hazardous Materials by Surface Modes in an Automated Commercial Vehicle Environment.

About NACD

NACD is an international association of nearly 450 chemical distributors and their supply-chain partners. NACD members represent more than 85 percent of the chemical distribution capacity in the nation and generate 93 percent of the industry's gross revenue. NACD members, operating in all 50 states through more than 2,800 facilities, are responsible for nearly 130,000 direct and indirect jobs in the United States. NACD members are predominantly small regional businesses, many of which are multi-generational, and family owned.

NACD members meet the highest standards in safety and performance through mandatory participation in NACD Responsible Distribution®, the association's third-party-verified environmental, health, safety, and security program. Through Responsible Distribution, NACD members demonstrate their commitment to continuous performance improvement in every phase of chemical storage, handling, transportation, and disposal operations.

Hazardous materials transportation is an integral part of the chemical distribution business. In 2016, NACD members made nearly 4.4 million shipments, were responsible for 39.9 million tons of product, and drove more than 149 million miles while safely making deliveries to customers every 8.4 seconds. In 2016, NACD members achieved a handling/storage safety record of 99.87% and averaged just one incident for every 601,699 miles driven. NACD members include companies that use their own private fleets.

NACD commends the Department of Transportation (DOT) and PHMSA for encouraging the use of new and emerging technologies to increase efficiencies in transportation. With an increasingly severe driver shortage, this is now more important than ever. However, safety

must remain the top priority for hazardous materials transportation. PHMSA itself states that "the emergence of surface automated vehicles and the technologies that support them may create unique and unforeseen challenges for hazardous materials transportation." NACD agrees with this statement and asks PHMSA to consider carefully the issues below.

Placarding/Paperwork

One of the top questions regarding the use of automated vehicles for hazardous materials transportation is how to keep placards current for trucks making multiple deliveries. It is common practice for the drivers and trucks of chemical distributors to make multiple stops to different customers each day. In these cases, the drivers remove or change placards following deliveries based on what materials remain in the trucks. In some instances, chemical distributors will pick up empty intermediate bulk containers (IBCs) for their customers. This requires new DOT paperwork as the IBCs may contain residual materials, which would require placards. It is unclear how automated vehicle systems could perform the function of keeping placards current to inform emergency responders.

Driver/Carrier Routine Responsibilities

Another major question when considering the replacement of human drivers with automated technologies is how responsibilities that currently fall on the drivers would be handled. In addition, transportation frequently involves unexpected circumstances to which drivers must respond such as accidents, breakdowns, and routing changes. The stakes are higher when hazardous materials are involved.

Drivers frequently use GPS coordinates, street addresses, or verbal directions to arrive at the correct entry gate or loading dock when making deliveries. How would the automated system account for directions that may not be accurate or require reconciliation? Once the automated vehicle does have the correct address or precise GPS coordinates, how will the system ensure that the relevant data about the location remains secure from outside actors?

Next, once the vehicle has arrived, the loading dock or yard may be too busy to allow the truck to unload, which sometimes requires drivers to wait or even to unload at alternate locations. How would the automated system determine alternate unloading locations when needed? And how would the autonomous vehicle alert the customer of its arrival? Would the customer be required to send personnel to the alternate location for unloading?

One major change resulting from the replacement of drivers with automated systems is that receiving customers would need to handle all aspects of cargo tank unloading. To do so, their employees would need proper equipment, training, and experience. Because incidents are more likely to occur during loading and unloading, many customers today will not off-load trucks and are satisfied to have their suppliers' drivers perform that function.

Another complicating factor could be when multiple customers use the same autonomous truck. With a Full Truckload (FTL) shipment, everything on a truck is the responsibility of single shipper. On a Less than Truckload (LTL) shipment, where the truck is carrying multiple orders for different customers, how will the autonomous vehicle determine the correct person is picking up the correct package, and not that of another customer? How will each party know that someone didn't add a bomb onto the truck or otherwise tamper with another order? In current practice, the carrier is responsible for making sure the product is delivered

accurately and safely. Would that responsibility remain with the carrier or would it transfer to the receiver in the absence of a driver that can verify delivery?

Under current operations, the truck driver and the carrier know the axel weight on the truck, and therefore know the best method for stacking and arranging material within the truck based on weight limits. This weight distribution affects the handling of the truck and its overall safety. How will autonomous vehicles account for this weight distribution that is normally determined by the driver? Would the shipper become responsible for weight distribution and the potential impacts of how the unit handles on the road if they load the truck? How will the system account for weight re-distribution in the cases of LTL orders, such as after a large order has been removed from the truck?

Another complication involves pre and post delivery safety checks. In cases in which this now is the driver's responsibility, the parties would need to determine how this task would be addressed. Would the automated vehicle sensors be capable of performing the checks, maintaining records, and relaying the results? There could also be instances where the automated vehicle systems perform the pre-checks and find no issues but then malfunctions such as lights burning out occur during transportation. If these vehicles are pulled in for DOT inspections, would tickets be issued to the carrier?

Driver/Carrier Responsibilities and Liabilities/Unexpected Circumstances/Emergencies

One of the biggest concerns in replacing drivers with automated systems is how in-transit leaks or spills would be handled in the absence of a human being who has received specific training for these situations. Would there be a way for the automated system to determine what actions to take if a load begins to shift or leak? Would the system be able to notify the shipper and receiver and to take measures to minimize the damage? Would the vehicle be able to stop automatically and contact emergency responders? If the load simply shifts without spilling because of a sudden vehicle movement such as a swerve to avoid another vehicle, without a driver, it is unclear how the load could be re-secured to prevent a spill.

Liability is a complicating concern. If the product being delivered is leaking, or if damage occurs to the vehicle or product, this would raise questions about whether the carrier or the customer is responsible for clean-up or damages. Without a driver, it would be challenging to determine who or what caused the leak. For example, a truck could hit a large pothole on the road, causing a drum to separate from its securement and split open. Would an automated vehicle be able to detect such an occurrence, or would the leak be discovered by the customer upon arrival?

In addition to equipment malfunctions and spills, changing or unexpected circumstances frequently present themselves to hazardous materials drivers. It is unclear how automated vehicles would safety handle these instances. Examples include railroad crossings with approaching trains and no warning devices, stopped school busses, approaching emergency vehicles, congested delivery areas requiring trucks to maneuver without blocking driveways and roads, and the sudden approach of severe weather conditions such as snow white-outs and tornadoes.

Sensor Functionality in Adverse Conditions

Another area of concern is the effectiveness and reliability of automated vehicle sensors in adverse conditions. The sensors would need to be fully operational in extreme heat and cold and be protected from the corrosive effects of salt and sand in localities with harsh winters. Automated braking systems have been in operation for years, and there have been many reports of malfunctions caused by severe weather and road conditions. It is critical for sensor technology to function seamlessly in all conditions if automated vehicles are to replace drivers safely in carrying dangerous cargo.

Security

Finally, security is a major concern when considering the use of automated vehicles to deliver hazardous materials. Hazardous materials drivers today must pass background checks, receive security training, and comply with security regulations. It is unclear how automated systems could be trained on security measures. In addition, without drivers attending to loads of hazardous materials, it would be easier for adversaries to steal these cargoes or attach explosive devices to them. Another issue is the possibility of the automated systems being hacked to divert the hazardous materials to terrorist organizations to be used to inflict mass casualties.

Conclusion

The adoption of automated vehicles to replace commercial vehicles in general presents many technological and safety challenges. These challenges substantially multiply with the transportation of hazardous materials. Until technology is more advanced and a solid safety record has been established for passenger vehicles and commercial vehicles not carrying hazardous materials, NACD urges PHMSA to keep the Hazardous Materials Regulations as is and to continue to require trained and background-checked human drivers to carry hazardous materials.

Thank you for the opportunity to comment. If you have questions or need additional information, please do not hesitate to contact me.

Sincerely,

Jennifer C. Gibson
Vice President, Regulatory Affairs