

RAILROAD SAFETY  
AND  
SECURITY  
TASK FORCE



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*INITIAL REPORT AND RECOMMENDATIONS*

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DRAFT

APRIL 9, 2015

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## ABSTRACT

After the April 30, 2014, derailment and fire, in downtown Lynchburg, Virginia, of a 105-car CSX unit train hauling crude oil from the Bakken shale formation to a terminal in York County, Virginia, Governor Terry McAuliffe established the Virginia Railroad Safety and Security Task Force. The Task Force is co-chaired by Secretary of Transportation Aubrey Layne and Secretary of Public Safety and Homeland Security Brian Moran. Comprised of state officials from agencies with various responsibilities for rail safety and security, the Task Force has conducted four public meetings with participation from local, state, and federal agencies, environmental groups, railroads, industry experts, news media, and other stakeholders. The focus of this initial report is on rail transportation of flammable liquids, particularly crude oil and ethanol. However, the majority of the Task Force's recommendations are broadly applicable to overall rail safety and security in Virginia.

## EXECUTIVE SUMMARY

Virginia's considerable railroad infrastructure and five key transportation nodes provide strategic economic opportunities to communities and businesses across the state, but the safety of residents and visitors is always paramount. On May 9, 2014, Virginia Governor Terry McAuliffe formed the Commonwealth's Railroad Safety and Security Task Force ("Task Force") to engage the necessary agencies and stakeholders responsible for addressing the risk of transporting crude oil and other hazardous materials by rail. The Task Force's collaboration has produced a series of actions and recommendations for government agencies and industry to help prevent, prepare for, respond to, and recover from potential rail-related incidents.

Given the overall frequency and volume of commodities, including hazardous materials of every type, shipped by railroads throughout Virginia daily, without incident, it seems clear that rail transportation is generally a safe, efficient, and reliable method for moving freight and passengers. Still, the spate of recent derailments and fires involving Bakken crude oil and other flammable liquids, such as ethanol, across North America is a cause for concern.

This concern is reinforced by federal studies attempting to quantify the risks posed by rail transport of crude oil and ethanol. Without further action to improve the safety of these shipments, research by the U.S. Department of Transportation (USDOT) concludes:

The analysis shows that expected damages based on the historical safety record could be \$4.5 billion and damages from higher-consequence events could reach \$14 billion over a 20-year period in the absence of the rule.<sup>1</sup>

In the United States, promulgation and enforcement of rail safety and security regulations is generally reserved to the federal government under the Commerce Clause (Article 1, Section 8, Clause 3) of the U.S. Constitution. The vast majority of these regulations are described in Title 49 of the Code of Federal Regulations (CFR). While states are, in some cases, delegated authority to enforce specific rail and hazardous materials safety regulations on behalf of their federal agency counterparts, the development and codification of these regulations is primarily accomplished through the federal rulemaking process.

Given this fact, the Task Force appreciates the continued attention paid to rail safety and security issues by Senator Mark Warner and Senator Tim Kaine who have, as recently as

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<sup>1</sup> U.S. Department of Transportation (2014) Pipeline and Hazardous Materials Safety Administration. *Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains; Regulatory Impact Analysis for Notice of Proposed Rulemaking*. July 2014. Washington, DC. 10

March 23, 2015,<sup>2</sup> called for the appropriation of additional federal funds to help address the hazards posed by crude oil trains, along with timely completion of the federal rulemaking process to codify a number of identified opportunities for improving product characterization, tank car design, and overall rail system safety.<sup>3</sup> The Task Force hopes that Virginia's delegation, and other interested members of Congress, will continue addressing states' salient rail safety and security concerns.

The Task Force also looks forward to the expected release of the National Transportation Safety Board (NTSB) report on the April 30, 2014, derailment of a 105-car CSX unit train carrying Bakken crude oil through the City of Lynchburg. While the joint local, state, federal, and private sector response to that incident exemplifies Virginia's readiness and capability to address the hazards posed by crude oil and other commodities, it is also apparent that the impacts on life, property, and the environment could have been more severe. The Task Force has benefited greatly from the NTSB's interim recommendations<sup>456</sup> and hopes the agency will continue to investigate and report on incidents involving high-hazard flammable trains (HHFTs) in a timely fashion.

The Task Force appreciates the continued engagement and outreach provided by the federal Pipeline and Hazardous Materials Safety Administration (PHMSA) within the U.S. Department of Transportation (USDOT). Acting PHMSA Administrator Timothy Butters provided a briefing to the Task Force during its August 20, 2014, meeting in Lynchburg and PHMSA has routinely provided useful information and insight in the wake of several other train derailments across the United States and Canada. The Task Force urges PHMSA to aggressively develop and promulgate the additional regulations contemplated in its August

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<sup>2</sup> Warner, Kaine, et al. (2015) *Letter to Senator Collins and Senator Reed*. March 23, 2015. <http://www.warner.senate.gov/public/index.cfm/pressreleases>

<sup>3</sup> Warner and Kaine (2015) *Letter to Administrator Howard Shelanski, Office of Information and Regulatory Affairs, Office of Management and Budget*. February 20, 2015. <http://www.warner.senate.gov/public/index.cfm/pressreleases>

<sup>4</sup> National Transportation Safety Board. (2012) *Safety Recommendation Letters: R-12-5 through -8 and R-07-4 (reiteration)*. March 2, 2012. Washington, DC.

<sup>5</sup> National Transportation Safety Board. (2014) *Safety Recommendation Letters: R-14-001-003 and R-14-004-006. January 23, 2014*. Washington, DC.

<sup>6</sup> National Transportation Safety Board. (2015) *Safety Recommendation Letters: R-15-14 through -17. April 3, 2015*. Washington, DC.



2014 Notice of Proposed Rulemaking (NPRM)<sup>7</sup> and Advanced Notice of Proposed Rulemaking (ANPRM).<sup>8</sup>

Given the constitutional limitations on state governments to address the root causes of rail emergencies, the Task Force's efforts were necessarily focused on opportunities to enhance response and recovery, with some limited prevention and safety-related activities conducted within the authority delegated to the State Corporation Commission (SCC) by the Federal Railroad Administration (FRA).

From its inception, Governor McAuliffe charged the Task Force with taking immediate action whenever possible, and not waiting for a report to move forward on identified enhancements. To this end, a number of actions have already been taken by several state agencies, in concert with federal and other partners:

- Increased State Corporation Commission (SCC) inspection frequency of identified crude oil shipping route
- Increased investment in Virginia Department of Fire Programs (VDFP) foam firefighting trailers located across the Commonwealth
- Joint Virginia Department of Emergency Management (VDEM)/CSX training for localities along identified crude oil shipping route
- Increased VDEM, VDFP, and local first responder training with CSX, Norfolk Southern, and TRANSCAER<sup>9</sup>
- Continuous engagement with USDOT/PHMSA
- Public information sharing on VDEM website<sup>10</sup>
- Continuous interaction with Virginia's congressional delegation

While there remains some disagreement about the relative contributions of various factors to the consequences of derailments involving shale crude oil, for state and local responders the scientific nuances are merely interesting. It seems clear from recent events that derailments, even at relatively low speeds, of unit trains hauling crude oil are major emergencies and will require a commitment of resources well beyond the capacity of most localities in the Commonwealth.

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<sup>7</sup> U.S. Department of Transportation (2014) Pipeline and Hazardous Materials Safety Administration. *Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains*. Notice of Proposed Rulemaking. August 1, 2014. Washington, DC.

<sup>8</sup> U.S. Department of Transportation (2014) Pipeline and Hazardous Materials Safety Administration. *Hazardous Materials: Oil Spill Response Plans for High-Hazard Flammable Trains*. Advanced Notice of Proposed Rulemaking. August 1, 2014. Washington, DC.

<sup>9</sup> Transportation Community Awareness and Emergency Response. <http://www.transcaer.com/>

<sup>10</sup> <http://www.vaemergency.gov/em-community/hazmat/resources>

Responding to, and recovering from, a rail incident where hazardous materials are involved is inherently a team effort. By necessity, local, state, and federal agencies, the railroads and their contractors, and other partner organizations will be required to work together for days, weeks, and even months at a time. The state agencies comprising the Task Force have a long history of collaboration with each other, and their response partners, during all phases of the emergency management cycle. The relationships that underpin this cooperation are perishable, however, and continual work must be done to promote collaborative training, exercises, and the development and maintenance of operating practices that meet all agencies' dynamic needs.

The degree to which Virginia first responders can safely and effectively address a major rail incident is directly related to their baseline capabilities for addressing emergencies arising from all hazards. Regardless of the specific cause, a major fire, mass casualty incident, and/or security situation will be handled by local and state first responders during the critical first minutes and hours following an event. To the extent these responders have unmet needs—for baseline training, staffing, vehicles, and equipment—their response to, and recovery from, an extraordinary incident will also suffer.

Similarly, the capability to respond to, and recover from, a major hazardous materials spill or release is costly to develop and maintain. While the Commonwealth has historically provided support to selected local fire departments to help maintain a hazardous materials (“HAZMAT”) response capacity in eight regions across the state, the level of state support has diminished through the years and localities are generally providing the majority of the funding to support the state's core HAZMAT response capability.

The goal of Virginia's Railroad Safety and Security Task Force is to complete an in-depth review of current agency and partner actions, activities, and opportunities to ensure that, within the scope afforded to states by federal regulations, Virginia is doing everything possible to provide a safe and effective response and recovery to a rail safety or security incident. While the focus of this report is on rail transport of hazardous materials, especially crude oil and ethanol, we anticipate continued efforts by the Task Force to identify and address the overall safety and security of Virginia's rail system.

## KEY FINDINGS

- Considering the overall volume and diversity of cargo transiting daily, without incident, along Virginia's railroad lines, rail transportation remains a relatively safe method of moving hazardous materials.
- Virginia has a robust, integrated, and longstanding system to plan for, respond to, and recover from hazardous materials emergencies along rail lines and in other locations across the Commonwealth.
- The upward trends in crude oil and ethanol shipments are expected to continue across North America and Virginians are rightly concerned, based on recent experience and current research, about the safety of these products during rail transport.
- Rail transportation has been legally defined as interstate commerce and the vast majority of safety and security regulations are both promulgated and enforced by federal agencies.
- Beyond some limited authorities for railroad inspection that are delegated to the SCC by the FRA, local and state governments' role(s) in rail safety and security is generally confined to preparing for, responding to, and recovering from emergency incidents along privately-owned railroad rights-of-way.
- Local and state response agencies across the Commonwealth enjoy longstanding working relationships with Virginia's railroad companies, as demonstrated by multiple joint training activities, incident responses, grant funding opportunities, information sharing, and equipment donations.
- Virginia state agencies have positive relationships with the federal agencies responsible for various aspects of rail safety and security in the Commonwealth.
- While Virginia has a solid foundation to help address the impacts of a rail incident, there are a number of potential opportunities, given additional funding, to enhance responders' operational capabilities.
- Given the constitutional restrictions on state regulation of interstate commerce, there are limited opportunities for state-level legislation to enhance rail safety and security beyond the creation of additional funding streams for planning, response, and recovery programs.
- More specific information on railroad-related infrastructure, train locations and consists, and detailed hazardous materials response plans should be readily available to local and state response agencies for planning, response, and recovery. However, this type of information could be used for nefarious purposes and must be protected to help ensure the safety and security of both rail corridors and shippers/consignees across the Commonwealth.

# BACKGROUND & OBJECTIVES

## BACKGROUND

Virginia Governor Terry McAuliffe initiated the Railroad Safety and Security Task Force (“Task Force”) after the derailment of a CSX freight train carrying crude oil shipped from the Midwest to a terminal in York County, Virginia. The incident, which resulted in a fire and contamination of the James River by spilled crude oil, occurred in downtown Lynchburg, Virginia.

The train derailment that occurred on April 30th raises important public safety and health concerns. While fortunately no one was hurt, it is critical that we determine the cause of this accident to help better protect Virginia’s families. The Task Force will help ensure that the Commonwealth is a national leader in preventing, preparing for, and responding to these types of events.<sup>11</sup>

In an effort to ensure collaboration with federal partners, Governor McAuliffe sent a letter to United States Secretary of Transportation Anthony Foxx relaying his support and eagerness to strengthen federal regulations regarding the safety of rail cars carrying crude oil, as well as improving communication between railroads, first responders, and community officials.

Furthermore, Governor McAuliffe directed the Task Force, while not technically a public body per the Code of Virginia, to conduct its meetings and deliberations in full view of relevant stakeholders and citizens. The Task Force conducted four meetings with robust participation from local, state, and federal agencies, environmental groups, railroads, industry experts, news media, and representatives from other interested organizations.

- Richmond—June 4, 2014
- Lynchburg—August 20, 2014
- Norfolk—October 24, 2014
- Richmond—April 9, 2015

The Task Force didn’t just look at rail safety and security while in-transit, but also received briefings from staff at the Plains (“Plains”) All American Pipeline tank farm and transloading facility in York County, along with staff from the United States Coast Guard (USCG) responsible for addressing the potential marine impacts of a crude oil spill while the product is transloaded onto barges for ultimate delivery to refineries along the East Coast.

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<sup>11</sup> McAuliffe, T. (2014) *Governor McAuliffe Announces Railroad Safety and Security Task Force*. May 9, 2014. <https://governor.virginia.gov/newsroom/newsarticle?articleId=4801>

## OBJECTIVES

The Railroad Safety and Security Task Force is charged with making recommendations and taking appropriate actions to bolster the Commonwealth's capacity to protect lives, property, and the environment along Virginia's many rail lines. The Task Force was given three main objectives: (1) solicit input from industry stakeholders, local governments, and members of the public regarding the threats and vulnerabilities of transporting products such as crude oil and ethanol by rail; (2) identify opportunities to address the negative consequences of a large-scale rail incident; and (3) strengthen relationships and communication channels between the various entities involved in responding to, and recovering from, a rail-related emergency.

Governor Terry McAuliffe established the Task Force to take a comprehensive approach to balancing the health and wellness of Virginia's communities with the extensive history of rail service in the Commonwealth, following many high-profile incidents involving the transportation of crude oil. This report summarizes thousands of pages, which were gathered from subject matter experts, Commonwealth officials, federal agencies, public input, and industry specialists.

The report lays a foundation through a brief discussion of some current issues surrounding rail transport of flammable liquids, and by outlining the objectives of the Task Force. A snapshot of Virginia's expansive railroad network follows an introduction to materials of concern including crude oil and ethanol. Some recurring response considerations and information sharing issues are summarized before describing the roles of seven key state agencies to provide background for the recommendations that follow.

The agencies' recommendations are separated into four sections:

- A. Proposed Agency Recommendations
- B. Proposed Agency Actions With Funding
- C. Proposed Or Current Agency Actions Without Funding
- D. Proposed Agency Actions With Legislation

While the focus of this report is on rail transport of hazardous materials, especially crude oil and ethanol, we anticipate continued efforts by the Task Force to identify and address the overall safety and security of Virginia's rail system.

## CURRENT ISSUES

When considering rail safety and security issues, it is important to place the risk of a major derailment, and subsequent fire or hazardous materials release, in context. Despite a spate of recent derailments in locations across North America, the overall probability of such an incident remains relatively low compared to other types of transportation-related emergencies. The probability of life loss and significant property or environmental damage is lower still, but the sheer quantities of the materials involved, along with the many unanswered questions about how the physical and chemical properties of crude oil affect fire dynamics in the event of a derailment, warrant continued attention.

In reviewing the evolving literature on hazardous materials incidents involving the rail transportation of Bakken crude oil, the Task Force noted a tendency to focus on the characteristics of individual rail (tank) cars versus potential improvements to the safety and security of the overall rail transportation system. It is notable that even the improved DOT 111 Casualty Prevention Circular 1232 (CPC-1232) railcars that are currently preferred for the transportation of shale oil have ruptured and released product that ignited when they were subjected to the physical forces of a derailment, even at relatively low speeds. It seems clear that the complexity of the overall system for transporting crude oil, and other commodities, demands a systems thinking approach to describing the multi-dimensional aspects of the problem and potential solutions.

The Pipeline and Hazardous Materials Safety Administration (PHMSA) within USDOT has issued a Notice of Proposed Rulemaking (NPRM)<sup>12</sup> and Advanced Notice of Proposed Rulemaking (ANPRM)<sup>13</sup> signaling its intention to enhance classification standards, hazard categorization, preparedness planning, and rail system safety related specifically to high-hazard flammable trains (HHFTs) transporting large volumes of crude oil and ethanol. Requirements in the proposed rule address:

- rail routing restrictions;
- tank car integrity;
- speed restrictions;
- braking systems;
- proper classification and characterization of mined liquid and gas; and

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<sup>12</sup> U.S. Department of Transportation (2014) Pipeline and Hazardous Materials Safety Administration. *Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains*. Notice of Proposed Rulemaking. August 1, 2014. Washington, DC.

<sup>13</sup> U.S. Department of Transportation (2014) Pipeline and Hazardous Materials Safety Administration. *Hazardous Materials: Oil Spill Response Plans for High-Hazard Flammable Trains*. Advanced Notice of Proposed Rulemaking. August 1, 2014. Washington, DC.



- notification to State Emergency Response Commissions (SERCs).<sup>14</sup>

This rulemaking process is not yet complete, but anticipation is mounting for timely federal regulatory action given the most recent Bakken crude oil derailment and fire in Mount Carbon, West Virginia on February 16, 2015;<sup>15</sup> and subsequent recommendations sent by the National Transportation Safety Board (NTSB) to PHMSA on April 6, 2015.<sup>16</sup>

## A. MATERIALS OF CONCERN

Although a wide range of hazardous materials are routinely transported by rail and regulated by USDOT under Code of Federal Regulations (CFR) Title 49, of particular concern at present are crude oil and ethanol.

Transportation of flammable liquids poses safety and environmental risks. The risk of flammability is compounded in the context of rail transportation because petroleum crude oil and ethanol are commonly shipped in large unit trains.<sup>17</sup>

### CRUDE OIL

Within the last decade, the United States has dramatically increased its ability to access, extract, and refine domestic crude oil.<sup>18</sup> Since 2005, U.S. crude oil production has nearly doubled; from about five million barrels per day, to a projected nine million barrels per day by the end of 2015.<sup>19</sup> The most concerning type of crude oil is found in the Bakken shale formation located in North Dakota and eastern Montana.<sup>20</sup> The elevated concern is due to the higher volatility of the Bakken crude as compared with other crude oil samples.<sup>21</sup> This makes Bakken crude oil more

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<sup>14</sup> U.S. Department of Transportation (2014) Pipeline and Hazardous Materials Safety Administration. *Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains; Regulatory Impact Analysis for Notice of Proposed Rulemaking*. July 2014. Washington, DC. 2

<sup>15</sup> National Transportation Safety Board (2015) *NTSB Gathering Information on CSX Crude Oil Train Derailment in West Virginia*. February 17, 2015. <http://www.nts.gov/news/press-releases/Pages/PR20150217.aspx>

<sup>16</sup> National Transportation Safety Board. (2015) *Safety Recommendation Letters: R-15-14 through -17*. April 3, 2015. Washington, DC.

<sup>17</sup> U.S. Department of Transportation (2014) Pipeline and Hazardous Materials Safety Administration. *Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains; Regulatory Impact Analysis for Notice of Proposed Rulemaking*. July 2014. Washington, DC.

<sup>18</sup> Association of American Railroads (2015) *Crude Oil By Rail*. <https://www.aar.org/safety/Pages/crude-by-rail-facts.aspx> - .U34OCfldV8E

<sup>19</sup> Association of American Railroads (2015) *U.S. Crude Oil Production*. <https://www.aar.org/Pages/U.S.-Crude-Oil-Production.aspx>

<sup>20</sup> Keane, A.G. and Drajem, M. (2014) *Bakken Crude More Dangerous to Ship Than Other Oil*. Bloomberg Business. January 2, 2014. <http://www.bloomberg.com/news/articles/2014-01-02/bakken-crude-more-dangerous-to-ship-than-other-oil-u-s->

<sup>21</sup> *Id.*

flammable than traditional heavy crude oil, which has forced the entire rail industry to reexamine its approach to safely transporting Bakken crude.<sup>22</sup> Under CFR Title 49, crude oil was previously considered a packing group III hazard based on its chemical composition, but due to Bakken crude's unique characteristics and the impact of recent train derailments, the USDOT issued an emergency order requiring crude oil to be tested, categorized, and transported as either a packing group I or II hazard.<sup>23</sup>

A March 2015 study by Sandia National Laboratories<sup>24</sup> lends weight to concerns raised by industry and first responders about the uncertainties posed by crude oil sourced from the Bakken shale formation and the resulting potential for negative consequences if incidents occur during rail transportation.

Relationships between crude oil properties and probability or severity of combustion events in rail car spill scenarios have not been established. Although it is likely that a combination of crude oil properties—especially those associated with potential for flammable vapor formation—could be used to predict combustibility, no specific, objective data were found that correlated known crude oil properties with the likelihood or severity of rail transport-related combustion events. While industry groups actively working on this problem have been identified, their progress and results have not yet been released to the public.<sup>25</sup>

### ETHANOL

Although Bakken crude oil has captured public attention in recent months, ethanol is another flammable liquid that is often transported by rail in bulk quantities with a similar fire and explosion potential if involved in a large-scale rail incident. Ethanol is a denatured alcohol biofuel created by using corn, which is widely used as a gasoline additive.<sup>26</sup> Ethanol is unable to be transported through existing pipeline networks due to its tendency to destroy the pipeline seals.

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<sup>22</sup> Pipeline and Hazardous Materials Safety Administration (2015) *Operation Safe Delivery: A Comprehensive Federal Action Plan To Address The Safe Transportation Of Crude Oil And Other Flammable Liquids*.

<http://www.phmsa.dot.gov/hazmat/osd/operation-safe-delivery-update>

<sup>23</sup> United States Department of Transportation (2014) *Emergency Order, Docket No. DOT-OST-2014-0025*.

March 6, 2014. <http://www.dot.gov/briefing-room/dot-issues-emergency-order-requiring-strict-standards-transport-crude-oil-rail>.

<sup>24</sup> Sandia National Laboratories (2015) *Literature Survey of Crude Oil Properties Relevant to Handling and Fire Safety in Transport*. DOE/DOT Tight Crude Oil Flammability and Transportation Spill Safety Project. Report# SAND2015-1823. March 2015. Albuquerque, NM.

<sup>25</sup> *Id.*, 12

<sup>26</sup> U.S. Department of Agriculture (2007) *Ethanol Backgrounder*. September 2007. Washington, DC.

<http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELPRDC5063605>.



As an alternative to pipelines, the vast majority of ethanol is transported by rail from the Midwest to mixing stations near the coasts where it is mixed with gasoline at a ratio of usually 15% ethanol to 85% gasoline.<sup>27</sup> Denatured ethanol is shipped in bulk quantities on rail lines throughout Virginia and fixed facilities for production, mixing, and transloading ethanol are located in several communities across the Commonwealth. The anticipated federal regulations for transporting Bakken crude oil will also be applicable to ethanol during rail shipment in large quantities.

## B. VIRGINIA RAILROADS

The Commonwealth of Virginia contains a significant railroad infrastructure consisting of:

- Two “Class 1” railroads – Norfolk Southern and CSX<sup>28</sup>
- Nine “Class 3” railroads, often referred to as “shortlines”<sup>29</sup>
- Twelve different railroad companies operating within the Commonwealth<sup>30</sup>
- Two passenger rail systems – Amtrak and VRE<sup>31</sup>
- Over 3,400 route miles, most of which are operated by Norfolk Southern and CSX<sup>32</sup>
- Five “key nodes” located in Norfolk, Richmond, Lynchburg, Roanoke, and Alexandria<sup>33</sup>
- Over 5,775 highway/railroad crossings<sup>34</sup>
- 1,865 public crossings, and over 2,751 known private crossings<sup>35</sup>
- Yorktown terminal, with a 6 million barrel storage capacity, that can unload two crude oil trains per day, and load one crude oil barge per day<sup>36</sup>

The federal government has ultimate authority for rail safety under the Federal Railroad Administration (FRA), which is an agency of the United States Department of Transportation (USDOT). Federal legislation preempts state authority to regulate or restrict railroads, which the

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<sup>27</sup> Environmental Protection Agency (2015) *Biofuel Ethanol Transportation Risk*. Science Brief. <http://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100E4QX.txt>

<sup>28</sup> Virginia Department of Rail and Public Transportation (2013) *2013 Virginia Statewide Rail Plan*. Commonwealth of Virginia. Richmond, VA. 31

<sup>29</sup> *Id.*

<sup>30</sup> *See infra.*

<sup>31</sup> *Id.*

<sup>32</sup> *Id.*

<sup>33</sup> *Id.*

<sup>34</sup> Virginia Department of Transportation (2014) *Highway/Rail Safety Improvement Program*. Presentation to Railroad Safety and Security Task Force. June 4, 2014.

<sup>35</sup> *Id.*

<sup>36</sup> Plains All American Pipeline (2014) *Yorktown Terminal Update*. Presentation to Railroad Safety and Security Task Force. October 24, 2014.

Supreme Court has resoundingly upheld as constitutional under the Commerce Clause (Article I, Section 8, Clause 3).<sup>37</sup>

Virginia's State Corporation Commission (SCC) is responsible for assisting the FRA in maintaining the safety and efficiency of Virginia's railway system.<sup>38</sup> In 1970 Congress passed the Federal Railroad Safety Act (FRSA), which gave authority to the U.S. Secretary of Transportation to regulate all aspects of railroad safety.<sup>39</sup> However, two exceptions to the FRSA allow states to (1) enforce a law or regulation until the federal government addresses the subject matter, and (2) to enforce more stringent safety laws or regulations.<sup>40</sup> The more stringent standards are only allowed if the safety laws and regulations are (1) necessary to reduce the apparent hazard, (2) are not incompatible with federal laws, and (3) do not burden interstate commerce.<sup>41</sup>

Railroad yard operations create a heavy industrial setting and safety is paramount. Train movements into and out of yards are compounded by the constant shifting and movement of rail cars from one track to the other. The lighting of railroad yards at night to enhance employee safety, particularly on petroleum train routes, was brought to the attention of the Task Force by several railroad operating employees. The topic of yard lighting was noted as a potential area for future review and recommendation.

Railroad train operations typically include one, two, or three man crews. Long-haul non-stop trains typically have fewer crew members necessary for safe train operations. Another potential area for future discussion is the topic of what is the optimal number of crew members necessary to safely operate certain trains identified by commodity types being hauled.

## C. RESPONSE CONSIDERATIONS

Virginia is no stranger to the potential safety and security challenges posed by rail transport of hazardous materials through the Commonwealth. For more than 30 years, the Virginia Department of Emergency Management (VDEM), in partnership with the Virginia Department of Fire Programs (VDFP) and a number of local fire departments, has maintained

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<sup>37</sup> United States v. E.C. Knight Co., 156 U.S. 1, (1895); Houston E. & W.T.R. Co. v. United States, 234 U.S. 342 (1914).

<sup>38</sup> Department of Rail and Public Transportation (2014) *DRPT Role in Rail Safety and Security*. Presentation to Rail Safety and Security Task Force. June 4, 2014.

<sup>39</sup> *Id.* 5.

<sup>40</sup> State Corporation Commission (2014) *Railroad Safety*. Presentation to Rail Safety and Security Task Force. June 4, 2014.

<sup>41</sup> *Id.*

a regional hazardous materials (HAZMAT) response program, as well as a statewide HAZMAT training program for first responders across Virginia.<sup>42</sup>

On May 29, 2014, the Virginia Department of Fire Programs (VDFP) hosted a workshop for PHMSA that brought fire chiefs of several jurisdictions across the United States, who experienced crude oil train derailments and fires, to Virginia to identify opportunities for improving the fire service response to this type of emergency. The resulting report<sup>43</sup> suggested several immediate actions that VDFP and other state agencies have already started implementing.

While the likely strategy for dealing with a major derailment and fire would not involve extinguishing the burning material, as demonstrated in Lynchburg and other recent incidents, there are some locations in Virginia where a major fire could pose a great enough risk to life and property that an aggressive and protracted firefighting operation would be the only tactical option.

This type of incident truly represents a worst-case scenario and would require specialized training, expertise, equipment, and personnel that will immediately exceed the available response resources in the Commonwealth. Foam firefighting is a highly-technical discipline that requires a level of training, experience, and equipment that is difficult to maintain given the low frequency of events in Virginia that require the use of this capability. This is not to say that Virginia doesn't have a need for additional capacity to address the risk of such emergencies, but rather that maintaining a level of capability to deal with the worst-case scenario will be very costly and require continual investments in personnel, equipment, training, and supplies.

## D. INFORMATION SHARING

In the interest of furthering a “whole community” approach to emergency preparedness, the Task Force believes that general information regarding commodity flows along rail lines should be readily available to the public. To this end, the notifications that railroads transporting crude oil trains of more than 1 million gallons must provide to states, pursuant to federal emergency order, are now routinely shared on VDEM's website.

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<sup>42</sup> Virginia Department of Emergency Management (2015) *Hazardous Materials Response Program*. <http://www.vaemergency.gov/em-community/hazmat/program-overview>

<sup>43</sup> U.S. Department of Transportation (2014) Pipeline and Hazardous Materials Safety Administration. *Crude Oil Rail Emergency Response: Lessons Learned Roundtable Report*. July 1, 2014. Washington, DC.

More specific information on railroad-related infrastructure, train locations and consists, and detailed hazardous materials response plans should be readily available to local and state response agencies for planning, response, and recovery. However, this type of information could be used for nefarious purposes and must be protected to help ensure the safety and security of both rail corridors and shippers/consignees across the Commonwealth. Current laws make it difficult to strike a balance between appropriate public release and facilitating secure, detailed, real-time information sharing between state agencies, local emergency management officials, railroads, and other key response partners.

## **E. AGENCY ROLES**

### [VIRGINIA DEPARTMENT OF EMERGENCY MANAGEMENT](#)

VDEM is an agency within the Public Safety and Homeland Security Secretariat. VDEM has seven divisions: operations, training and exercise, finance and grants, preparedness, recovery and mitigation, local support services, and technological hazards. In coordination with state agencies and other partners, VDEM is responsible for maintaining state emergency management plans, including the Commonwealth of Virginia Emergency Operations Plan (COVEOP), reviewing local emergency plans, staffing the Virginia Emergency Operations Center (VEOC), supporting search and rescue activities, responding to hazardous materials (HAZMAT) incidents, coordinating disaster mitigation, response, and recovery, managing federal grant funding for emergency management and homeland security-related activities, and conducting statewide training and exercises. VDEM's cadre of eight regional HAZMAT and radiological officers, thirteen regional HAZMAT teams, and regional HAZMAT coordinators are continuously prepared to respond across the Commonwealth. In the event of a rail incident, VDEM will initiate and staff the VEOC, notify the Virginia Emergency Response Commission (VERC), and help coordinate response and recovery activities.

### [VIRGINIA DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION](#)

DRPT is one of six agencies administered by Virginia's Secretary of Transportation. The DRPT reports alongside the Virginia Department of Transportation (VDOT) to the Commonwealth Transportation Board (CTB), which directly reports to the Secretary of Transportation. DRPT and VDOT both assist in providing for rail safety to all federally classified railways through the administration of several rail infrastructure improvement grant programs and rail highway grade crossing safety upgrade grants. DRPT also collaborates with the Virginia State Corporation Commission (SCC) to improve rail safety and security through the distribution of many of its

codified grant funding programs, improvement of operating practices, provision of track infrastructure improvements, and enhancement of signal systems and crossing upgrades.<sup>44</sup>

### VIRGINIA DEPARTMENT OF HEALTH

Virginia's State Health Commissioner, who oversees multiple subsectors of the agency, administers the Virginia Department of Health (VDH). The Health Commissioner also acts as the incident commander on VDH All Hazard Incident Management Team (AHIMT) activations. Among the various agency duties, VDH is responsible for instituting an all-hazards approach to public health, medical consultation, coordinating emergency preparedness, response, and recovery issues with local health districts, hospitals and other healthcare facilities, and providing technical assistance and support to other agencies. VDH is responsible for implementing state-level Emergency Support Functions (ESF) ESF-3 (Mass Care) and ESF-8 (Medical) under the COVEOP. During a HAZMAT incident, VDH's Offices of Epidemiology, Drinking Water, Environmental Health, and Radiological Health will engage, as needed, with local and state response partners. VDH also manages the Virginia Medical Reserve Corps (MRC).<sup>45</sup>

### VIRGINIA STATE POLICE

In addition to enforcing criminal laws, traffic safety, and crime prevention, the VSP has extensive all-hazards training in the areas of anti-terrorism, threat assessments, weapons of mass destruction, vehicle crash investigations including crashes at railroad grade crossings, arson and explosives, and crime scene investigations. Additionally, VSP oversees Virginia's Fusion Center, in cooperation with VDEM, bringing together emergency response stakeholders from multiple industries to gather, analyze, and respond to real-time threats and hazards.<sup>46</sup>

### VIRGINIA DEPARTMENT OF FIRE PROGRAMS

VDFP is located within the Secretariat of Public Safety and Homeland Security. VDFP has five branches: funding, professional development, research, operational support and technical assistance, and fire prevention inspections. VDFP supplements funding to localities, trains and certifies first responders statewide, and enforces fire codes across the Commonwealth. The training and technical services branch is responsible for the Virginia Fire Marshal Academy (VFMA), maintaining aircraft rescue firefighting (ARFF) proficiencies, adherence to the National Incident Management System (NIMS), and providing specialized training for technical rescue and other capabilities. VDFP prepares Virginia's first responders, fire departments, and citizen volunteers to be ready for incidents arising from all hazards. The operations branch has

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<sup>44</sup> Department of Rail and Public Transportation (2014) *DRPT Role in Rail Safety and Security*. Presentation to Rail Safety and Security Task Force. June 4, 2014.

<sup>45</sup> Virginia Department of Health (2014) *Emergency Preparedness and Response Programs*. Presentation to Rail Safety and Security Task Force. June 4, 2014.

<sup>46</sup> Virginia State Police (2014) Presentation to Rail Safety and Security Task Force. June 4, 2014.

seven strategically located offices throughout the Commonwealth to ensure strong partnerships with Virginia's 715 fire departments, and to provide immediate support and technical assistance during a large-scale incident.

#### VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

VDEQ is an agency within the Natural Resources Secretariat and is responsible for the enforcement of Virginia's air, water, and waste laws and regulations. VDEQ's mission is the protection of human health and the environment. In the context of hazardous materials incidents, VDEQ accomplishes this mission by providing timely responses to pollution incidents within the Commonwealth and providing regulatory and technical assistance to partner agencies and responsible parties. VDEQ ensures that responsible parties mitigate environmental impacts and restore the environment to pre-impact conditions. VDEQ maintains two funding streams that can be used to initiate response actions when responsible parties fail to act or do not act in a timely manner after an event.

#### VIRGINIA STATE CORPORATION COMMISSION

Railroad regulation represents one of the original areas of responsibility assigned to the State Corporation Commission (SCC) when it was created by the Virginia Constitution of 1902. Today, the Railroad Safety Section within SCC's Division of Utility and Railroad Safety works with the Federal Railroad Administration (FRA) to help ensure the safe operation of railroads within the Commonwealth. SCC's railroad safety staff investigates citizen complaints regarding blocked rail crossings, conducts accident investigations, inspects railroad tracks, rail cars and locomotives, and reviews railroad operating procedures to help ensure compliance with FRA standards.

## RECOMMENDATIONS

### A. PROPOSED AGENCY RECOMMENDATIONS

#### VIRGINIA DEPARTMENT OF EMERGENCY MANAGEMENT

##### PLANNING:

1. Develop inventory of high-priority corridors and potential improvements.

*Not all communities in Virginia are equally vulnerable to the impacts of a spill or release of hazardous materials following a derailment. The Task Force recommends that the Department of Environmental Quality and the Virginia Department of Health identify those segments of Virginia's railroads that may pose a more imminent threat to public health and safety in the event of a spill of release.*



*Also, the Task Force recommends that the Department of Rail and Public Transportation identify those segments that could be improved through reasonable infrastructure enhancements. [DEQ, VHD, and DRPT]*

2. Continue to monitor threat streams and analyze threats/suspicious activities involving rail.

*Continued monitoring of human-caused threats is a prudent action for the Commonwealth to undertake. Through this monitoring state and local law enforcement, in conjunction with the railroads, may provide early warning of any criminal activity and treats to the railroad infrastructure. The Fusion Center should determine whether this treat information should be an open file report or should be protected information. [VSP]*

3. Develop a risk and vulnerability assessment briefing and present to Task Force in closed session.

*This assessment will be a valuable tool for the Task Force moving forward. This briefing should be developed using best available information and updated through time. [VSP]*

4. Develop/improve air and water plume modeling capabilities accessed through VEOC.

*Plume models are an important tool in the prediction of the fate and transport of any airborne vapors and combustion products and waterborne transport of materials following a spill or release of flammable liquids. While some modeling capability does exist within the Commonwealth, the predictive quality and user-friendliness of such models should be evaluated. The Health Department and the Department of Environmental Quality, in consultation with appropriate other state agencies and institutions of higher education, should evaluate and determine which existing models – if any – should be adopted for use by the Commonwealth. Once appropriate models have been identified, arrangements must be made to access and use the models. The Department of Emergency Management's Emergency Operations Center would be the appropriate place to access the models. [VDH, DEQ, VDEM]*

#### ORGANIZATION:

5. Develop a Rail Safety and Security Working Group at the agency level.

*A standing Rail Safety and Security Working Group, modeled after the existing Homeland Security Working Group and possibly a subcommittee of that group, should be established to provide agency-level coordination of all rail safety and security matters.*

6. Increase agency liaison staffing in DRPT to facilitate information sharing with railroads.

*This recommendation is internal to the Department of Rail and Public Transportation and provides one FTE to coordinate information sharing between the agency and the railroads. [DRPT]*

7. Fund two existing VSP critical infrastructure positions in the Virginia Fusion Center.

*This recommendation is internal to the Virginia State Police to fund two existing positions to support critical infrastructure activities, including railroad transportation of bulk flammable liquids. [VSP]*

#### TRAINING:

8. Identify additional potential funding sources for training – CSX, federal grants, other.

*Training is developed and presented using current agency appropriations. The increased training requirements associated with bulk flammable liquid transportation spills and releases will require additional funding that may go beyond current budgets. The Task Force recommends that all potential sources of training funds be explored and that a funding plan be developed. [VDFFP]*

9. Purchase railcar simulator.

*The Task Force believes that Virginia responders would benefit from the purchase of a railcar simulator. This specific training aid could be employed at the Yorktown facility or taken from site to site within the Commonwealth. A similar approach to aircraft incident training has been employed by the Department of Fire Programs for several years. A source of funding will need to be identified. [VDFFP]*

10. Increased track safety training.

*The Task Force has identified a need for increased training on track safety throughout Virginia. This additional training will allow the Department of Rail and Public Transportation to increase their monitoring of track safety. [DRPT]*



## 11. Host railroad safety training in Virginia.

*This recommendation addresses bringing appropriate federal and vendor training opportunities to Virginia responders. [DRPT and VDFP]*

## 12. Develop railway safety prop.

*The Task Force recommends that the Department of Fire programs continue its negotiations to develop a railway safety prop for firefighter training. [VDFP]*

## 13. Purchase training software.

*The Task Force recommends that training software be identified and evaluated regarding the bulk transport of flammable liquids by rail. Once identified, the Task Force recommends the purchase of this software and the delivery of training opportunities. [VDFP]*

## 14. Increase use of “5 Alive” website training.

*This website, along with others, should be leveraged to provide training to the maximum possible audience. The Task Force supports such distance learning tools, as appropriate, and encourages the use of them. [VDFP]*

## INTELLIGENCE AND INFORMATION SHARING:

## 15. Provide information and training for suspicious activity reports.

*Suspicious activity reports (SARs) are the primary vehicle for tracking suspicious activities involving critical infrastructure within the Commonwealth. The Task Force supports additional training on SARs and how to develop them. [VSP]*

## 16. Develop a reporting template.

*The USDOT Emergency Order of May 7, 2014, does not specify a reporting template for crude-by-rail shipments or derailments. The Task Force supports the development of a standardized reporting template for use nationwide. [VDEM, in concert with the National Emergency Management Association (NEMA)]*

## 17. Develop a comment forum.

*The Task Force notes that there is no current vehicle for the easy exchange of information on the bulk transport of flammable liquids by rail between states. The*

*Task Force supports the development of such a vehicle – perhaps as a web forum – moderated by NEMA. [VDEM]*

18. Develop a national database of incidents.

*Similarly, the Task Force notes that there is no central repository of information regarding incidents of bulk transport of flammable liquids by rail. The Task Force supports development of such an online database by USDOT, NEMA, or other appropriate body. [VDEM, VDFP, and DRPT]*

19. Information sharing regarding transport.

*The Task Force believes that the bulk transport of flammable liquids by rail deserves greater transparency and communication. The Task Force recommends that the stakeholder community should explore mechanisms to better share information while still honoring the legitimate security and competitive advantage concerns associated with rail transport. [DRPT]*

20. At-risk residential communities.

*There is a need to identify those communities, and portions thereof, most at risk from potential bulk transport of flammable liquid by rail incidents. These include public safety, public health, and environmental impacts, as well as impacts to the economy. The Task Force recommends that each community in Virginia identify its own risk and plan on how best to mitigate those risks. [All Localities, with support from the Offices of the Secretary of Public Safety and Homeland Security, the Secretary of Natural Resources, The Secretary of Health and Human Resources, and the Secretary of Commerce and Trade, or their designee agencies]*

21. Collaborate with railroads to improve transparency and timely information sharing and characterization of hazardous cargoes.

*The Task Force recognizes that there is a need to coordinate and collaborate with the railroads to improve transparency. The flow of information must include all partners if it is to be effective. The Task Force recommends that the Commonwealth establish an agency to be the primary point of contact in the sharing of information with the railroads.*

22. Leverage agencies for threat-related technical expertise.

*Several state agencies possess expertise in areas affecting and affected by rail safety and security. This expertise may be technical, informational, or human-based. The Task Force recommends that all appropriate agencies be engaged and provide their particular expertise to the problem.*

23. Incentivize data sharing with federal government.

*Some information is held exclusively by the federal government, particularly USDOT. The Task Force recommends that state agencies do all they can to ensure that critical information be shared to the degree possible.*

RESPONSE:

24. Determine impact on health and on drinking water systems.

*The Department of Health has the subject matter expertise to determine health impacts and the impacts of these materials on public drinking water systems. The Task Force recommends that VDH maintain these capabilities at the highest level. [VDH]*

25. Coordinate mass casualty and/or mass fatality response.

*The Department of Health has legal authority over mass casualties and mass fatalities at the state level. The Task Force recommends that VDH ensure that bulk transport of flammable liquid by rail incidents are included in their response plans. [VDH]*

26. Coordinate behavioral health response.

*The Department of Health has legal authority over behavioral health response at the state level. The Task Force recommends that VDH ensure that bulk transport of flammable liquid by rail incidents are included in their behavioral health response plans. [VDH]*

27. Enhance ESF 3 (Public Works and Engineering) and ESF 8 (Public Health) response and support to agencies and local governments.

*The Department of Health has lead agency status within ESF 3 and ESF 8. The Task Force recommends that VDH ensure the strongest possible capabilities in these two critical Emergency Support Functions to the Virginia Emergency Operations Center. [VDH]*

## FUNDING:

28. Encourage CSX and NS to establish regular grant programs.

*The Commonwealth should use its influence to encourage the railroads to help support local government and state agency activities in responding to the bulk transport of flammable liquids by rail incidents.*

29. Encourage CSX and NS to establish a foundation similar to that established by Union Pacific Railroad.

*Similarly, the Commonwealth may choose to encourage the railroads to establish such a foundation.*

## REGULATORY AND LEGISLATIVE:

30. Add SCC rail inspectors to first responder list

*The Task Force recommends that the State Corporation Commission Rail Inspectors be recognized as first responders. [SCC]*

31. Restrict rail speeds based upon the commodity being transported.

*The Task Force acknowledges that the Federal Railroad Administration has implemented speed restrictions on Bakken Crude oil shipments. The Task Force recommends that the FRA explore additional restrictions that may be appropriate in sensitive areas, such as those that may be identified in studies conducted as recommendations in this report. [DRPT]*

32. Develop a compliance monitoring program and increase fines for deficiencies found

*The Task Force recommends that DRPT explore the possibility of monitoring railroad safety and security compliance and that increased fines be imposed for deficiencies that may be found. [DPRT]*

VIRGINIA DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION

1. Recommendations for statewide rail mitigation measures:
  - a. Add Virginia State Corporation Commission rail inspectors to the list of first responders.
  - b. Improve classification and characterization of hazardous cargo.
  - c. Enhance the requirements for reporting hazard-related information to the public and to agencies regarding derailments.

- d. Increase grant funding and establish a fund for comprehensive oil spill response plans.
  - e. Restrict speeds based on commodity regardless of track conditions.
  - f. Address security concerns of railroad companies to facilitate real-time information sharing of security sensitive information.
2. Recommendations for potential emergency management mitigation measures:
    - a. Create a designated funding source for emergency services associated with rail safety.
      - i. Example -- California implemented a \$.065 tax per transported barrel of crude oil to support emergency services.
    - b. Increase training exercises to prepare first responders for a large-scale train derailment.
    - c. Enter into and/or strengthen any existing agreements with railroads for voluntary sharing of real-time information for use by emergency services in the event of a train derailment.
    - d. Establish system to ensure that basic or comprehensive plans and equipment have been distributed to areas of need.
  3. Recommendations for the federal government:
    - a. Provide comments to the tank car design specifications to improve tank car design and performance.
    - b. Increase fines for tank car route track deficiencies found.
    - c. Increase the specificity related to the classification and characterization of hazardous cargo.
    - d. Enhance the requirements for reporting hazard-related information to the public and to agencies regarding derailments.
    - e. Restrict rail speed based on commodity regardless of track conditions.
    - f. Address the railroad companies' security concerns in light of their apprehension to share all commodity types.
    - g. Incentivize data sharing of federally held safety inspection information.

#### VIRGINIA DEPARTMENT OF HEALTH

1. Provide situational awareness of all-hazard threats requiring state and local response resulting from a rail incident.
2. Incorporate the U.S. Center for Disease Control's deployable subject matter experts who can assist with assessment of chemical exposures (ACE) and emergency response health monitoring and surveillance (ERHMS) issues.

#### VIRGINIA STATE POLICE

1. Develop and approve federal legislation limiting the transportation of crude oil to DOT-111 tank cars built, tested and inspected in 2011 or later.

#### VIRGINIA DEPARTMENT OF FIRE PROGRAMS

1. Develop communication procedures for disseminating railway-related notifications to targeted areas of need.
2. Initiate state and federal funding for specific railway-related training initiatives.
3. Create notification mechanism for railway-related incidents to at-risk residential communities, which are to be identified based on population, location, and density.
4. Mandate that railroads and/or shipping companies affix two additional placards (top and bottom of rail car) to the four already required on tank cars (front, back and both sides).

#### VIRGINIA STATE CORPORATION COMMISSION

Recommendations for FRA:

1. Require the development of rail Safety Management Systems (“SMS”) by the railroad industry. Studies have demonstrated the effectiveness of the use of SMS on the safety of rail operations in Canada, and a number of other industries such as the airline, nuclear and chemical industries here in the United States.
2. Require railroad companies to share safety related records and data with SCC upon request, including, but not limited to:
  - a. Geometry and Sperry car data,
  - b. Accident Information,
  - c. Downloads from Locomotive Event Recorders and Braking Logs,
  - d. Crew Schedules and Timesheets,
  - e. Freight Manifests, and
  - f. Other Railroad Operational Data as needed.
3. Require more frequent ultrasound examination of rail (Sperry Car) on track carrying passengers, crude oil, or hazardous materials. Currently, 49 C.F.R § 213.237 Inspection of Rail, requires an internal rail inspection on Class 4 and 5 track, or Class 3 track with regularly-scheduled passenger trains or that is a hazardous materials route, at intervals not exceeding 370 days.
4. Require Automated Track Inspection Car (Geometry Car) inspections on track carrying passengers, crude oil, or hazardous materials. Currently, the only requirement for inspection by a Geometry Car is found in 49 C.F.R. §213.234, Automated Inspection of Track Constructed with Concrete Crossties. This regulation only speaks to Class 3, 4, and 5 tracks used for passenger service, not

crude oil or other hazardous materials. In addition, there is no requirement for the use of a Geometry Car on rail with wooden crossties, or on slower speed Class 1 and 2 tracks.

5. Include inspection data from states in the FRA's National and Region Inspection Plan development and risk modeling and work with the states to ensure the adequacy of the rail safety risk reduction process. The inspection data should also capture the GPS location of the defect to allow mapping in a Geographic Information System database to better assess areas of repeated safety issues.
6. Work with Virginia and other states to coordinate inspection frequencies based upon statistical modeling of all federal and state data.
7. Increase penalty amounts for the maximum allowable and repeat violations.
8. Revise the FRA's enforcement process to provide Virginia and other states access to the disposition of all violations cited in their respective states and consider states' input in the enforcement process.

## **B. PROPOSED AGENCY ACTIONS WITH FUNDING**

### VIRGINIA DEPARTMENT OF EMERGENCY MANAGEMENT

#### ORGANIZATION:

1. Provide improvements/upgrades to HAZMAT Teams.

*The Task Force recommends that VDEM continue to provide support to the regional contract hazardous materials response teams and increase number of VDEM hazmat officers in regions that have rail transportation of bulk crude and hazardous materials transportation. [VDEM] Estimated funding needed: \$390,000 per year for team support (\$30,000 per team) and \$700,000 per year for seven additional hazardous materials officer positions (one per region).*

#### EQUIPPING:

2. Purchase and stockpile of booms.

*Booms can be an effective waterborne spill countermeasure under some circumstances. The recommendation addresses the need for additional booming equipment strategically placed throughout the Commonwealth. This recommendation includes review of existing boom capabilities, identifying and recommending appropriate additions and upgrades as needed, and identifying appropriate locations for the boom. Ongoing maintenance and out-year costs should be identified. A source of funding for the booming equipment should also be*



*identified and, once established, the materials should be purchased. [VDEM and DEQ] Estimated funding needed: \$60,000 one-time fee with an annual cost of \$15,000 for consumable replacements and maintenance.*

**TRAINING:**

3. Develop a bulk liquids spill course for Operations and Technician/Specialist.

*The Task Force believes that enhanced, hazard-specific training for bulk transport of flammable liquids may be appropriate. The training should be presented at two levels: the operations level for those involved in defensive operations and the technician/specialist level for members of hazardous materials response teams. Agencies should determine whether off-the-shelf training is adequate or if Virginia should develop new training that addresses the Commonwealth's specific needs. Courses developed or selected should receive wide distribution throughout the response community. [VDFP and VDEM] Estimated funding needed: \$20,000 for course development and \$60,000 per year for the delivery of four three-day classes per year (for 24 students each).*

4. Create Rail Hazardous Materials Specialist Category for HAZMAT Specialists.

*Other states have created a Rail Hazardous Materials Specialist designation for Hazardous Materials Response Specialists. The Task Force recommends that the Department of Emergency Management investigate these programs and adopt or develop a Rail Car Hazardous Materials Specialist certification for Virginia. [VDEM] Estimated funding needed: \$20,000 for course development and \$60,000 per year for the delivery of four three-day classes per year (for 24 students each).*

5. Improve access to Security and Emergency Response Training Center (SERTC) training, to include leveraging railroad scholarships and a mechanism to provide backfill costs.

*Full-scale railroad hazardous materials emergency training is available through the FRA facility in Pueblo, Co. This training is available to Virginia responders and is coordinated through the Department of Emergency Management. The Task Force recommends that VDEM explore and develop a strategy to allow a greater number of Virginia responders attend the SERTC training. The strategy should address how best to leverage existing scholarships through Virginia's railroads in greater numbers and how to address the issue of backfill costs associated with*



*students attending this training. [VDEM] Estimated funding needed: \$3,500 per person (for tuition, travel, and lodging) plus the cost of backfill per student.*

6. Improve access to federal training at Security and Emergency Response Training Center (SERTC) and Texas A&M Engineering Extension Service (TEEX).

*SERTC and TEEX provide specialty training either at reasonable cost or at no cost. The Task Force recommends that VDEM, in coordination with other state agencies, explore ways to better leverage attendance and training opportunities at these institutions.*

7. Purchase additional training props and simulators for Virginia's CBRNE Response Training Center in Yorktown.

*The Commonwealth supports the CBRNE Training Center at Yorktown. This center provides classroom and hands-on training for hazardous materials and CBRNE response activities. Funding for additional props and simulators to support training for bulk flammable liquids in rail transportation will improve Virginia's overall response posture. A source of funding will need to be identified for the purchase of these training aids. Estimated funding needed: \$300,000.*

8. Other equipment specific to bulk flammable liquid response.

*The Task Force recommends that agencies identify appropriate other training aids to enhance current fire and hazardous materials training. A source of funding will need to be identified to purchase the appropriate number and types of these training aids. Estimated funding needed: \$150,000.*

9. Promote all-hazards training (including terrorism) for affected disciplines.

*The Task Force supports training for all disciplines including terrorism. The Task Force recommends that additional resources be targeted toward the bulk transport of flammable liquids across the board. Estimated funding needed: \$100,000 to conduct 100 eight-hour classes on bulk liquid response awareness, to include cost of instructor, travel, material and administration.*

#### EXERCISING:

10. Conduct tabletop exercises with key agencies and officials.

*Exercises occur along a spectrum from discussion-based to operations-based activities. The Task Force encourages exercises involving scenarios including the*

*bulk transport of flammable liquids by rail. The Homeland Security Exercise and Evaluation Program, administered by VDEM, provides a vehicle for the conduct of exercises at little or no cost. All agencies and localities are encouraged to participate in the HSEEP and to include rail scenarios in their exercises. [VDEM] Cost Estimate: \$40,000 per exercise.*

11. Evaluate the utility of an exercise-in-the-box program for train derailments.

*The Commonwealth should explore the feasibility and utility of a simple and efficient exercise for train derailments that can be implemented at the locality level. The Task Force recommends that VDEM explore whether such an exercise-in-the-box exists and, if not, whether Virginia should develop one. HSEEP should consider including such an exercise-in-the-box as part of its exercise offerings. [VDEM] Cost Estimate: \$60,000 to evaluate and revise for Virginia-specific needs. FEMA is creating one, but it will need significant work to be applicable for Virginia.*

12. Fund regional and interagency drills.

*The Task Force supports additional discussion-based exercises and drills addressing the bulk transport of flammable liquids by rail. It recommends that a source of funding be identified for such activities. [VDEM] Cost Estimate: \$25,000 per locality impacted by train movement, per exercise.*

INTELLIGENCE AND INFORMATION SHARING:

13. Information sharing regarding derailments – increase immediacy and accuracy.

*There is a need to pass information regarding derailments in general and for the bulk transport of flammable liquids specifically in a more timely and accurate manner. The Task Force supports improvements to the reporting process in the interests of public safety, public health, and the environment. Cost Estimate: Unknown.*

14. Improve situational awareness in general.

*There is a need to ensure good situational awareness, and information flow in general, surrounding the bulk transport of flammable liquids by rail. The Task Force recommends an aggressive study of how best to ensure timely and accurate information sharing and situational awareness regarding and derailment involving hazardous materials. Cost Estimate: cannot be determined until parameters of study are defined.*

15. Leverage existing public communications systems, such as university notification systems, to push information.

*Many localities, businesses, and communities have existing emergency communications systems. Many universities, for instance, already are required to pass emergency information to their students, faculty, and staff. The Task Force recommends that these already-existing communications systems be leveraged as part of any rail incident communications system. Cost Estimate: unable to determine until an evaluation of the existing emergency communication systems can be conducted.*

#### VIRGINIA DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION

1. Allow railroads to utilize the amount of FRA fines as local match for state grant funding.
2. Sponsor training of railroad personnel for track safety.
3. Host railroad safety training in Virginia.
4. Require and/or provide funds for development of comprehensive railroad response plans.
5. Develop statewide inventory of high priority corridors and identify potential improvement areas.
6. Provide funding for infrastructure improvements that reduce safety risk to the Commonwealth.

#### VIRGINIA DEPARTMENT OF HEALTH

1. Develop in-state water and air plume modeling capability, or arrange access to federal modeling capabilities.
  - a. Additional agencies will benefit from the improved modeling capabilities.
  - b. The modeling program should be located in the VEOC.
2. Create or purchase a database of commonly transported chemicals and their known health and environmental effects, which will allow for quick reference searches.

#### VIRGINIA STATE POLICE

1. Utilize social media to educate and engage citizens in rail safety.
2. Provide information and training regarding suspicious activity reporting through the use of public service announcements.
3. Develop all hazards (including terrorism) training for all affected disciplines.
4. Send first responders to hazard-related training at [SERTC](#) and [TEEX](#).
5. Conduct tabletop exercises with key agencies and officials.

### VIRGINIA DEPARTMENT OF FIRE PROGRAMS

1. VDFP is currently working with potential vendors to develop a railway safety training prop.
  - a. The agency is attempting to utilize our existing mobile airport rescue firefighting (MARFF) burn pans and to purchase the rail car simulator.
  - b. VDFP is exploring budget and funding opportunities to procure the rail car simulator.
2. VDFP currently sponsors regional schools throughout the Commonwealth where railway safety courses are offered.
  - a. Partner with stakeholder organizations (VDEM, CSX, NS, etc.) and provide rail-specific classes.
3. Purchase training software that simulates the implementation of the incident command system, and the importance of successful incident action plans.

## **C. PROPOSED OR CURRENT AGENCY ACTIONS WITHOUT FUNDING**

### VIRGINIA DEPARTMENT OF EMERGENCY MANAGEMENT

#### PLANNING:

1. Development of comprehensive railroad response plans.

*Each local government and state agency should develop a rail safety and security response plan as part of its all-hazards emergency operations plan. The railroad response plans should identify the threats, vulnerabilities, and potential consequences of any spill or release associated with a derailment. [Local Governments and VDEM]*

2. Review, evaluate, and suggest improvements to Local Emergency Planning Committees' (LEPCs) community hazardous materials response plans for bulk transport of flammable liquids.

*All Virginia localities are responsible, through their Local Emergency Planning Committees, to develop community hazardous materials response plans. The Task Force recommends that all communities along rail lines that routinely transport bulk flammable liquid shipments ensure that their response plans adequately address this hazard. The Task Force recommends that localities submit their plans to the Virginia Department of Emergency Management for review, evaluation, and suggested improvements. [Local Governments and VDEM]*

3. Conduct various threat assessments regarding crude by rail and similar activities, to include cyber impacts.

*The Commonwealth should develop a statewide threat assessment addressing the transportation of bulk flammable liquids by rail. This assessment should incorporate all natural and human-caused threats to public safety that may result from a spill or release due to a derailment or other intentional or accidental act. The Task Force recommends that this analysis be performed by the Virginia Fusion Center. The assessment should include any threats associated with malicious cyber activities. The Fusion Center should determine whether this treat assessment should be an open file report or should be protected information. [VSP and VDEM]*

4. Initiate physical security assessments for railroad infrastructure.

*The Commonwealth should partner with the railroads to ensure all appropriate physical security assessments are completed and that the information is available to appropriate state agencies and local governments. The Fusion Center should determine whether these assessment should be an open file report or should be protected information, including the possibility of their inclusion as Protected Critical Infrastructure Information (PCII). [VSP and VDEM]*

#### TRAINING:

5. Continue to provide the course in “Crude Oil Movement in Virginia” to localities.

*The Department of Emergency Management has developed a course on crude oil movement in Virginia. The Task Force recommends that VDEM continue to deliver this training as requested by agencies and local governments. [VDEM]*

6. Coordinate with CSX, VFCA, and VFSA on potential training opportunities.

*Training opportunities may exist in cooperation with the Commonwealth’s partners, such as CSX, the Virginia Fire Chiefs Association (VFCA), and the Virginia State Firefighters Association (VSFA). The Task Force believes that Virginia should explore and maximize such training opportunities. [VDFFP and VDEM]*

7. Utilize CSX and NS training opportunities.

*There may be specific training opportunities regarding CSX and NS operations that could be useful to Virginia agencies and localities. The Task Force recommends*

*that Virginia explore and take advantage of any such training opportunities. [DRPT, VSP, VDFP, and VDEM]*

#### INTELLIGENCE AND INFORMATION SHARING:

8. Loosen information sharing while still ensuring protection of commodity and safety-sensitive materials information.

*While the Task Force recognizes that that the sharing of information regarding the bulk transport of flammable materials by rail is governed primarily by USDOT, it recommends that stakeholders become engaged in a dialogue to determine the most appropriate way to protect public safety, public health, and the environment through enhanced information sharing with the Commonwealth. [DRPT, DEQ, VDH, VSP, VDEM, VDFP]*

9. Enhance social media capabilities – educate and engage.

*The Task Force recognizes the power and importance of social media before during an emergency. There is a clear need to establish a coordinated and focused approach to engaging the community through social media. The Task Force recommends that agencies develop a strategy addressing social media as a public information tool. [VDEM]*

10. Notify stakeholders of all updates and safety issues received.

*The field of the bulk transport of flammable liquids by rail is dynamic and involves many groups and areas of concern. The Task Force recommends that a process be established by which all relevant technical, safety, and incident information updates be distributed to all affected parties. [DRPT, VDEM]*

11. Enter into and strengthen agreements at all levels of government and with the private sector.

*The issue of rail safety and security cuts across all levels of government, the private sector, and the citizenry at large. The Task Force recommends that all groups review their formalized agreements, where they exist, and ensure that they address rail safety and security issues. Where they do not already exist, it is recommended that they be established as appropriate. [All agencies, localities, and the private sector]*

12. Improve availability of federal subject matter experts.



*Much subject matter expertise relevant to the bulk transport of flammable liquids by rail resides within the federal government. The Task Force recommends that all state agencies leverage this federal expertise where available, especially during an event. Agencies are encouraged to strengthen existing coordination with federal counterparts and ensure clear information exchange is expected during incidents. [All agencies]*

**FUNDING:**

## 13. Secure grant funds.

*Many of the activities recommended by the Task Force may require funding not currently appropriated to agencies. The Task Force recommends that agencies aggressively seek funding from grant programs that support their agencies to support these initiatives. Additionally, agencies are encouraged to seek available and eligible funding from other sources they do not currently receive funding from. [All agencies]*

## 14. Leverage SHSGP and UASI funding.

*Agencies and localities are encouraged to propose eligible projects to the State Homeland Security Grant Program and the Urban Area Security Initiative (if they qualify) grant programs to implement recommendations contained in this report. [Qualifying agencies and localities]*

**REGULATORY AND LEGISLATIVE:**

## 15. Provide comments on rule-making.

*The Task Force recommends that all state agencies and localities take the opportunity to comment on any proposed rulemaking opportunities afforded by USDOT that impact the bulk transport of flammable liquids by rail. [All agencies and localities]*

## 16. Federal legislation regarding DOT 111 tank cars.

*The Task Force recommends that all agencies and localities take the opportunity to comment and provide testimony to any rulemaking action involving the design, construction, and operation of DOT 111 and similar railcars. [All agencies and localities]*

## 17. Affixing additional placards.

*The Task Force encourages USDOT and all stakeholder organizations to consider the required placement of additional placards on railcars transporting bulk flammable liquids. [No specific lead agency]*

18. Improve classification/characterization of HAZMAT, including increased specificity.

*The Task Force encourages USDOT to strengthen its regulations on the testing and classification/characterization of hazardous materials involved in bulk transport of flammable liquids by rail. The Task Force also encourages all stakeholder agencies to support this recommendation and to petition USDOT for their action. [No specific lead agency]*

#### VIRGINIA DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION

1. DRPT will designate staff to act as interagency liaisons between railroads and state agencies to facilitate the sharing of hazard-related information.
2. DRPT will collaborate with our railroad partners and state agencies to improve transparency and timely information dissemination regarding the classification and characterization of hazardous cargo.
3. Increase the immediacy and accuracy with which derailment notifications are relayed to affected agencies and the public at large.
4. Identify opportunities to modify railway speeds based on the commodity being transported.
5. Schedule and regularly conduct railroad safety workshops in order to maintain proficiencies in the latest hazard-related safety issues.
6. Create a compliance monitoring system to properly ensure adherence to federal and state safety regulations by grant applicants and recipients.

#### VIRGINIA DEPARTMENT OF HEALTH

1. VDH will help provide threat-related (CBRNE) technical expertise, guidance and response activities in coordination with local, state and federal response partners.
2. VDH will determine the impact on public health and on drinking water as a result of a train derailment involving a HAZMAT spill.
3. Coordinate mass casualty and/or fatality response resulting from a rail safety or security event.
4. Coordinate behavioral health response resulting from a rail safety or security event.
5. Facilitate ESF 3 and ESF 8 response resulting from a rail safety or security event.

#### VIRGINIA STATE POLICE



1. Fill two analyst positions in the Virginia Fusion Center dedicated to critical infrastructure and key resources (CI/KR).
2. The VSP will conduct a variety of different assessments such as a crude-by-rail threat assessment.
  - a. The VFC is currently working with other fusion centers in states affected by the shipment of Bakken crude oil to develop a joint threat assessment.
3. Develop a cyber threat assessment, which will look at the cyber threats to the rail industry.
4. Initiate physical security assessments, which assess the physical security at sites along rail lines considered critical (railroad bridges, crossings, switch yards, highly populated areas, etc.).
5. The VFC will continue to monitor threat streams and analyze all threats and suspicious activity involving the rail sub-sector.
6. The VFC can produce a risk vulnerability assessment regarding threats to rail, which includes information regarding transportation of Bakken crude oil, and then present the results to the Task Force in a closed session.

#### VIRGINIA DEPARTMENT OF FIRE PROGRAMS

1. VDFP has reached out to CSX and the fire services stakeholder groups to create a working relationship where CSX can provide Virginia's fire services with railway safety training.
  - a. Currently, CSX is communicating with both the VFCA and VSFA (as both organizations host large conferences and have the potential to reach the largest number of fire services members) about potential training opportunities.
  - b. VDFP has also reached out to CSX to determine if grant or other funding opportunities exist for Virginia's fire services.
2. Encourage fire service entities to utilize CSX online training opportunities.
3. Encourage fire service entities to continue using the "5 Alive" website training platform.
4. Continue to provide fire service entities with additional proactive notifications regarding updates and safety issues from hazardous materials and corresponding rail transportation industries.

## **D. PROPOSED AGENCY ACTIONS WITH LEGISLATION**

#### VIRGINIA DEPARTMENT OF EMERGENCY MANAGEMENT

ORGANIZATION:

1. Establish an interagency Transportation Safety and Security position to coordinate all state agency activities in support of rail safety and security.

*This recommendation involves the attachment of an existing Department of Emergency Management position to the Office of the Secretary of Public Safety and Homeland Security. This position should be charged with interagency coordination of all rail safety and security activities, including membership/leadership on the working group identified below. [VDEM and SPSHS] Estimated funding needed: \$80,000 annual to cover salary and benefits for one position.*

**FUNDING:**

2. Create designated funding source.

*The Task Force recommends that the Commonwealth designate a funding source that maybe used to support activities recommended in this report. This may require legislative or regulatory action. [Secretary of Public Safety and Homeland Security and other Secretariats]*

3. Propose and champion legislative action to establish a funding source for crude by rail and ethanol transportation activities.

*To the degree consistent with the laws of the Commonwealth, and in conformance with established processes and protocols, the Task Force recommends that agencies and localities propose appropriate legislative action to further the recommendations included in this report. [All agencies and localities]*

4. Establish a Hazardous Materials Administration Trust Fund.

*The Task Force recommends the establishment of a fund to promote the administration of the hazardous materials response system in Virginia. This fund could be sourced through general funds, special funds, or the imposition of a hazardous materials fee at the discretion of the General Assembly and the Governor. [VDEM]*

5. Provide funding for infrastructure improvements.

*The Task Force acknowledged that providing funding to a private corporation for infrastructure improvements may be difficult. Nevertheless, the Task Force recommends that the Commonwealth explore mechanisms to otherwise encourage infrastructure improvements within the rail sector. [No agency specified]*

## 6. HAZMAT Fee or Rail Service Fee.

*The Commonwealth should explore the potential for generating revenue through a hazardous materials or rail service fee. Such a fee would help offset costs to the Commonwealth in preparing for incidents involving the bulk transport of flammable liquids by rail. [VDEM]*

## REGULATORY AND LEGISLATIVE:

## 7. Federal HAZMAT Exemptions.

*The Task Force recommends that the Commonwealth explore any existing hazardous materials exemptions that may be granted that impact the bulk transport of flammable liquids by rail. [DRPT and VDEM]*

## 8. Allow railroads to utilize FRA fines as a local match, allow capital improvements to be an eligible use of program funds, and allow use of some safety enhancement funds as a match.

*The Task Force believes that this is a reasonable use of such fines and encourages legislative or regulatory amendments to allow this to happen. [No specific lead agency]*

VIRGINIA DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION

1. Improve information sharing related to the protection of the commodity and safety-sensitive details that should be provided to emergency responders.
2. Allow capital improvements aimed at reducing safety risks to be considered an eligible use of rail program funds.
3. Allow higher state funding match rates for safety enhancements that are constructed as part of eligible capacity improvement projects.

VIRGINIA STATE CORPORATION COMMISSION

1. Amend §56-411 of the Code of Virginia to increase sight distance visibility at crossings, as the current requirement is only 100 feet on both sides of the crossing regardless of train speed. Further, there is no requirement that the railroad keep structures such as signal control buildings out of the sight plane. The majority of train-related injuries and fatalities occur at grade crossings.
2. Require railroads to share all safety related records and data with SCC upon request, including, but not limited to:
  - a. Geometry and Sperry car data,

- b. Accident Information,
  - c. Downloads from Locomotive Event Recorders and Braking Logs,
  - d. Crew Schedules and Timesheets,
  - e. Freight Manifests, and
  - f. Other Railroad Operational Data as needed.
3. Require more frequent ultrasound examination of rail (Sperry Car) on track carrying passengers, crude oil, or hazardous materials. Currently, 49 C.F.R § 213.237 Inspection of rail, requires an internal rail inspection on Class 4 and 5 track, or Class 3 track with regularly-scheduled passenger trains or that is a hazardous materials route, at intervals not exceeding 370 days.
  4. Require Automated Track Inspection Car (Geometry Car) inspections on track carrying passengers, crude oil, or hazardous materials. Currently, the only requirement for the use by a Geometry Car is found in 49 C.F.R. §213.234, Automated inspection of track constructed with concrete crossties. This regulation only speaks to Class 3, 4, and 5 tracks used for passenger service, not crude oil or other hazardous materials. In addition, there is no requirement for the use of a Geometry Car on rail with wooden crossties, or on slower speed Class 1 and 2 tracks.

## CONCLUSION

After more than eight months of research and input from numerous information sources, the Virginia Railroad Safety and Security Task Force has developed a pragmatic list of recommended actions accounting for the multiple variables involved in local, state, and federal governance. The Task Force will continue monitoring developments and adjust its recommendations accordingly. The safety and security of Virginia communities along rail corridors will remain a priority and Task Force agencies—in concert with partner organizations—will take action when and where necessary to prevent, prepare for, respond to, and recover from rail-related incidents.

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## ACRONYMS & ABBREVIATIONS

<b>ANPRM</b>	Advanced Notice of Proposed Rulemaking
<b>AAR</b>	American Association of Railroads
<b>ACE</b>	Assessment of Chemical Exposures
<b>CBRNE</b>	Chemical, Biological, Radiological, Nuclear, and Explosives
<b>CI/KR</b>	Critical Infrastructure/Key Resources
<b>CSX</b>	CSX Transportation
<b>DEQ</b>	Virginia Department of Environmental Quality
<b>DFP</b>	Virginia Department of Fire Programs
<b>DOT-111</b>	Tank cars built to U.S. DOT specification 111-A100W1
<b>DRPT</b>	Virginia Department of Rail and Public Transportation
<b>EMS</b>	Emergency Medical Services
<b>EPA</b>	Environmental Protection Agency (federal)
<b>EPCRA</b>	Emergency Planning and Community Right to Know Act of 1986
<b>ERHMS</b>	Emergency Responder Health Monitoring and Surveillance
<b>ESF</b>	Emergency Support Function
<b>FRA</b>	Federal Railroad Administration
<b>FRSA</b>	Federal Rail Safety Act of 1970
<b>HAZMAT</b>	Hazardous Materials
<b>HHFT</b>	High-Hazard Flammable Train
<b>IAP</b>	Incident Action Plan
<b>ICS</b>	Incident Command System
<b>LEPC</b>	Local Emergency Planning Committee
<b>LRT</b>	Light Rail Transit
<b>MARFF</b>	Mobile Airport Rescue Fire Fighting
<b>NIMS</b>	National Incident Management System
<b>NPRM</b>	Notice of Public Rulemaking
<b>NS</b>	Norfolk Southern Corporation
<b>NTSB</b>	National Transportation Safety Board
<b>PHMSA</b>	Pipeline and Hazardous Materials Safety Administration
<b>PSA</b>	Public Service Announcement
<b>SAR</b>	Suspicious Activity Report
<b>SCC</b>	Virginia State Corporation Commission
<b>SERTC</b>	Security and Emergency Response Training Center
<b>SFPE</b>	Structural Firefighter Protective Equipment
<b>SHSGP</b>	State Homeland Security Grant Program
<b>SMS</b>	Safety Management System

<b>TEEX</b>	Texas A&M Engineering Extension Service
<b>UASI</b>	Urban Areas Security Initiative
<b>VDEM</b>	Virginia Department of Emergency Management
<b>VDH</b>	Virginia Department of Health
<b>VDOT</b>	Virginia Department of Transportation
<b>VEOC</b>	Virginia Emergency Operations Center
<b>VERC</b>	Virginia Emergency Response Council
<b>VFC</b>	Virginia Fusion Center
<b>VFCA</b>	Virginia Fire Chiefs Association
<b>VRE</b>	Virginia Railway Express
<b>VSFA</b>	Virginia State Firefighters Association
<b>VSRP</b>	Virginia Statewide Rail Plan
<b>VSP</b>	Virginia State Police
<b>WMATA</b>	Washington Metropolitan Transit Authority

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