Transporting Crude Oil in New York State:

A Review of Incident Prevention and Response Capacity

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NEW YORK state department of HEALTH

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Executive Summary

North American production of crude oil has boomed in the last five years. Nearly overnight, this boom has helped to position the United States as the leading producer of crude oil in the world, surpassing the net output of Saudi Arabia. Much of the boom is from production areas in North Dakota and Montana in the U.S. and Manitoba and Saskatchewan in Canada from a shale oil region known as the Bakken formation.

In the absence of pipelines from the Bakken formation, much of this newly-produced crude is transported along "virtual pipelines" by railroads to refineries and ports across the country. Domestic shipments of crude oil by rail have grown from 9,500 train car loads in 2008 to 407,642 loads in 2013, an increase of over 4,000 percent, according to the American Association of Railroads. This growth includes Canadian tar sands oil which is shipped by rail to U.S. Gulf Coast refineries as well as to refineries in Canada. This boom is helping to realign the global energy market.

However, the boom in crude oil transportation has also raised serious public safety and environmental concerns due to the inherent volatility of Bakken crude, the sheer volume being transported, and the poor safety record of the type of tank cars used to carry the majority of crude oil. In the past nine months, there have been multiple crude-by-rail incidents in North America that resulted in damage to property, the environment, and catastrophic loss of life due. Canadian tar sands oil does not have the same volatility, but because it is denser than water and sinks if spilled into waterways, it is a major environmental concern.

New York State is one of at least 35 states now grappling with the impacts of this boom, and that number could rise. Despite having no refineries, as much as 1,000 miles of the state's 4,100-mile rail network is part of this virtual pipeline from the north Great Plains. The Port of Albany has become a major hub for crude transshipment and storage, receiving crude oil shipments by rail, and transferring them to ships or barges that further transport the crude oil down the Hudson River. Another transshipment hub is contemplated for the Mid-Hudson town of New Windsor. Communities in 22 counties, including Buffalo, Syracuse, Utica, Albany, and Plattsburgh and nearly all of the state's major waterways are subject to this network.

In recognition of the increased risk of accidents and public concerns associated with the increased volume of crude oil being transported through New York State, on January 28, 2014, Governor Andrew M. Cuomo issued Executive Order 125 (EO 125), directing state agencies to immediately conduct a coordinated review of New York State's crude oil incident prevention and response capacity. In EO 125, Governor Cuomo called upon state agencies to address the following specific issues:

(i) a summary of the State's readiness to prevent and respond to rail and water incidents involving petroleum products

(ii) recommendations concerning statutory, regulatory, or administrative changes needed at the State level to better prevent and respond to incidents involving the transportation of crude oil and other petroleum products by rail, ship, and barge

(iii) recommendations concerning the role that local governments across the State have in protecting their communities and their residents from spills of petroleum products shipped by rail and water

(iv) recommendations concerning enhanced coordination between the State and federal agencies in order to improve the State's capacity to prevent and respond to incidents involving the transportation of crude oil and other petroleum products by rail, ship, and barge

This report, “Transporting Crude Oil in New York State: A Review of Incident Prevention and Response Capacity,” was created pursuant to EO 125 and is a coordinated review conducted by the New York State Departments of Environmental Conservation (DEC), Health (DOH, and Transportation (NYSDOT), along with the Division of Homeland Security and Emergency Services (DHSES) and New York State Energy Research and Development Authority (NYSERDA).

New York State has been successful at preventing, mitigating, and responding to emergencies, given its recent experience with seven federally-declared disasters since 2011, including three major storms. However, the dramatic increase in crude oil shipments by rail and barge presents a unique challenge to federal, state, and local authorities. The sheer volume of product being transported, coupled with its volatility and the inadequacy of the tank cars carrying this product, has uncovered gaps in the regulatory regime that must be addressed.

The federal government has nearly exclusive jurisdiction over the transportation of crude oil, from tank car standards to product classification. It is of the utmost importance that federal agencies demonstrate strong and swift leadership. The report details eleven critical recommendations that the state strongly urges the federal government to adopt.

The industry – crude oil producers, transporters, and refiners – that are profiting from the boom in crude oil must work with all levels of government to address newly identified concerns. The boom has outpaced proper regulation, leading to a situation where risks are largely externalized on states and local entities. The industry must move swiftly to address this by supporting common sense reforms that will provide lasting protections to communities and the environment. In addition to needing industry support for all of the report’s recommendations, the report details four industry-specific recommendations.

New York State is committed to aggressively doing its part to protect the state from the impacts of the crude oil boom. The report outlines many steps that the state has taken to date. The report also includes eleven forward-looking recommendations, including administrative, regulatory, and legislative reform.

This report provides an overview of this boom and New York State’s capacity to effectively prevent and respond to incidents involving the transportation and storage of crude oil. While the report does make seven public safety recommendations, the report does not analyze the potential impact of a crude oil transport-related terrorism or sabotage event as such issues are separately reviewed by the state’s homeland security agencies. Further, as this report is focused on incident prevention and response in known crude oil corridors, implementation of the recommendations will reinforce the capacity of New York State to prevent and mitigate incidents involving other types of hazardous materials as well. Every type of hazardous material needs to be transported or stored safely all over New York State.

It is beyond the scope of this report to evaluate oil extraction and refining out of state or broader climate change concerns resulting from the ultimate burning of refined petroleum products. While not refined here, some of the crude oil that is transported through New York is ultimately consumed by New York residents and businesses. Even though New York is among the most energy efficient states in the country, products that are made from crude oil – gasoline, diesel, and heating oil – are critical to the state’s economy and used by New Yorkers every day. In 2011, New Yorkers consumed over 60 billion gallons of these products. As New York take steps to make our fuel delivery systems safer, it is recognized that alternative transportation and energy policies – while not a focus of this report – are a part of the solution. New York will continue to lead the country to reduce reliance on fossil fuels through

mass transit and electric vehicle infrastructure investments, and initiatives such as the New York Green Bank and the NY-Sun solar energy program. The report finds the following:

Key Judgments:

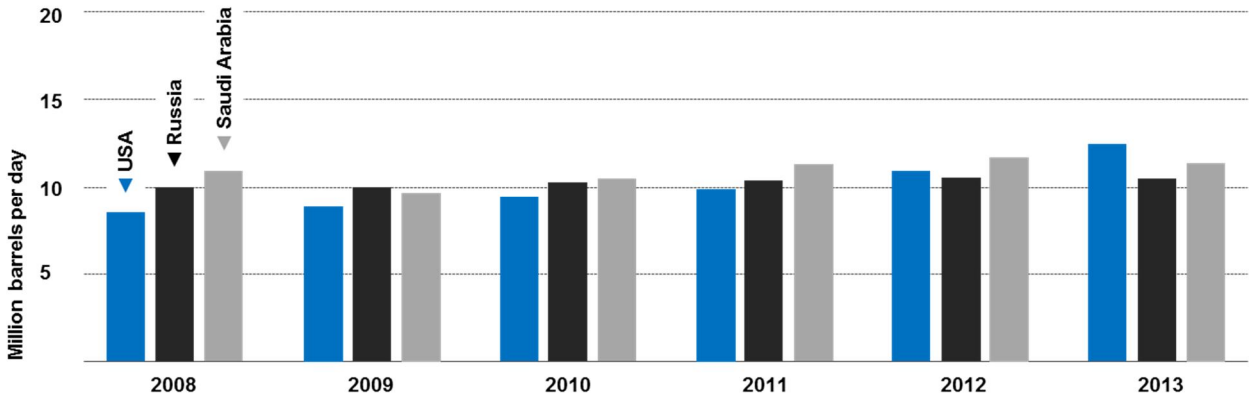
- **New York State is a major conduit for the North American crude oil boom.**
- **The transportation of Bakken and Canadian tar sands crude each present unique risks.**
- **Major recent incidents involving crude oil transportation have heightened national awareness.**
- **Federal and State agencies have a strong hazardous material safety oversight record, but the sharp increase in crude oil poses new challenges.**
- **The majority of the tank cars used to transport crude oil are outdated.**
- **Recently-adopted voluntary measures are incomplete and need to be incorporated into mandatory regulations on an expedited basis.**
- **New York State needs for Bakken producers to provide critical information on crude oil characteristics and to mitigate at the source to ensure safe transportation.**
- **Federal environmental and contingency response plans need to be expanded and updated to account for crude oil.**
- **Trend and train-specific information is needed to prevent and respond to crude oil related incidents.**
- **State legislative, regulatory, and administrative changes would enhance prevention and response capacity.**
- **Local response agencies are the first line of defense and need to be properly trained and equipped.**

New York State is a Major Conduit for the North American Crude Oil Boom

North America has witnessed a boom in crude oil extraction, primarily due to a significant increase in shale oil and tar sands production. The shale oil formations are primarily in Texas and the Bakken formation in North Dakota and Montana as well as Manitoba and Saskatchewan, Canada.[1] From 2003 to 2013, Texas extraction rose from approximately 1.1 million barrels to 2.6 million barrels while North Dakota crude extraction rose from approximately 81,000 barrels per day to 900,000.[2] Additionally, between 2002 and 2013 tar sands oil extraction from Alberta and Saskatchewan, Canada increased by approximately 250 percent.

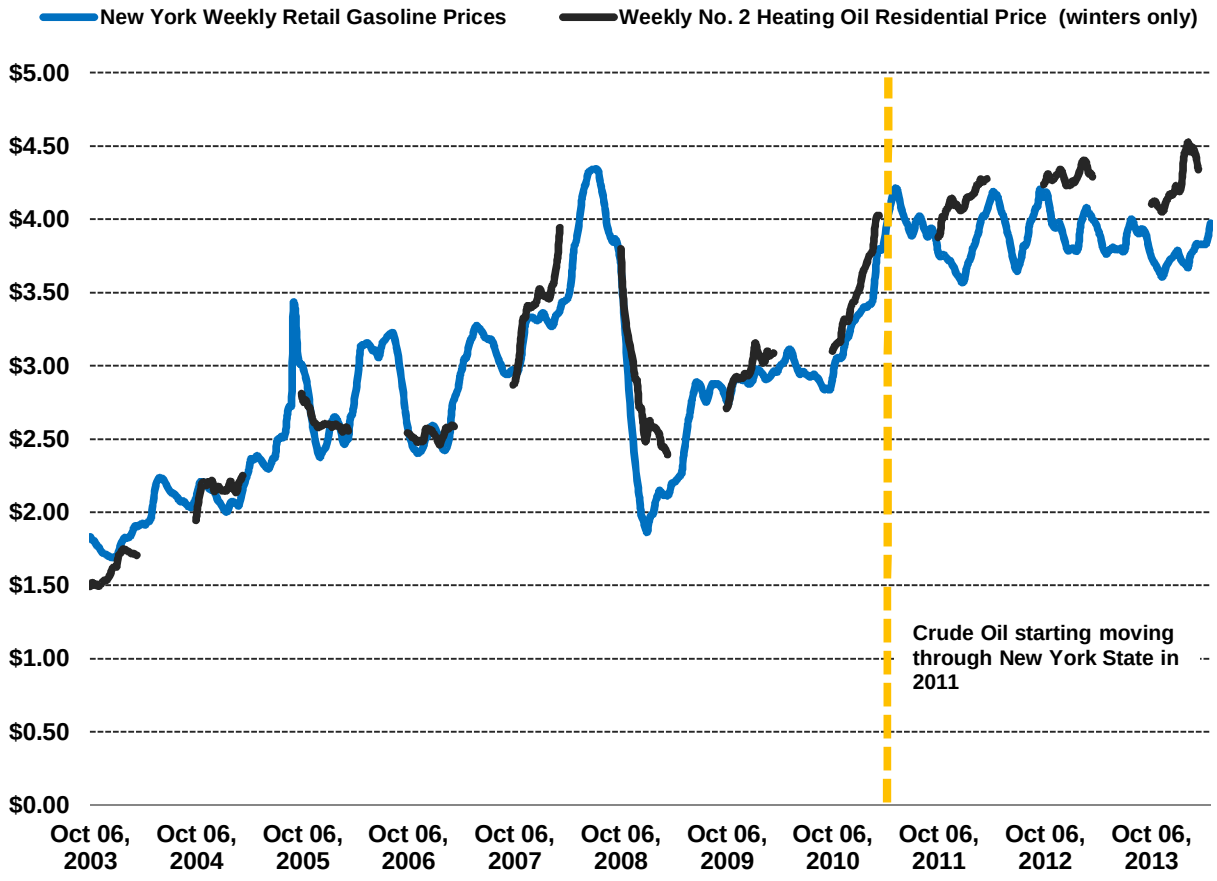
As a result of this sharp rise in production, the U.S. surpassed Saudi Arabia in 2013 as the number one producer of crude oil, according to U.S. Energy Information Administration estimates. The chart on the following page depicts the change in production levels for the three largest crude oil producers: the United States, Russia, and Saudi Arabia. This production increase has decreased America's dependence on foreign sources of oil. The U.S. Energy Information Agency estimates net energy imports will drop from a high of 30 percent of energy consumption in 2005 to 4 percent by 2040.[3]

The U.S. Is Now the Largest Crude Oil Producer in the World[4]



The boom in domestic production has increased the U.S.'s energy independence and may well be exerting downward pressure and stability on petroleum prices, but it has not had a noticeable effect at the pump or on heating bills in New York. Over the last decade, prices have continued to rise, and since 2011, when the boom in crude-by-rail transportation began in New York, prices have remained largely flat. The following graph shows the trends in New York home heating oil and gasoline prices.

New York State Weekly Gasoline and Home Heating Oil Prices[5]

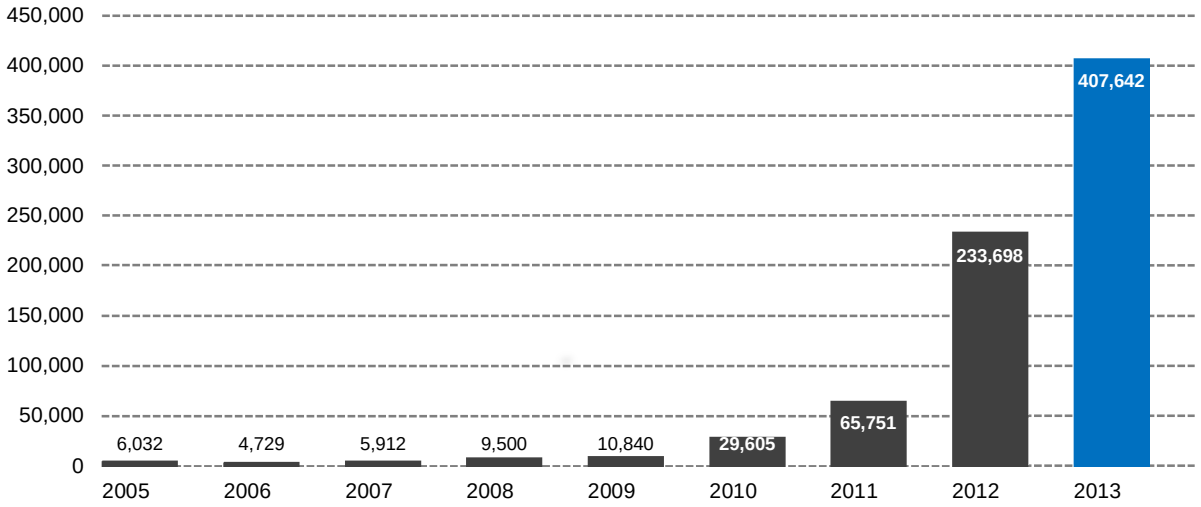


Historically, most crude oil has been transported to refineries via pipeline and tanker, while rail, barge, and truck collectively carried a small percentage of transported crude.[6] However, several factors are leading to the transport of Bakken crude oil by rail instead of pipeline, including the rapid expansion of resource extraction, the ability of the rail industry to respond to the rapid increase, the flexibility that rail currently offers in a rapidly growing industry, and the as-still relatively expensive extraction costs for Bakken fuel resulting in oil companies not yet investing the necessary capital in pipeline infrastructure. Additionally, the controversy surrounding the proposed Keystone XL pipeline project has forced Canadian tar sands crude oil producers into augmenting existing pipelines with crude-by-rail.

In 2012, approximately 5.18 billion barrels (93 percent) of the total crude oil produced in North America was transported by pipeline and oil tanker to refineries across the United States and Canada.[78] The remaining 400 million barrels (7 percent) were transported via truck, rail, and barge.[910] In just one year, from 2011 to 2012, the volume transported by rail rose 423 percent from 6.5 million to 34.2 million barrels.[11] That data, however, only accounts for the final mode of transportation, so intermodal transports, i.e. rail-to-barge or rail-to-tanker, are undercounted. In 2013, despite the fact that the cost of crude-by-rail is $5 to $10 higher per barrel than via pipeline, the Association of American Railroads, using industry information that includes intermodal transit, estimated an 11 percent market share of crude oil transported by rail.[12] Crude-by-rail's advantage over pipelines is the geographic flexibility created by a nationwide network of 140,000 miles of rail as opposed to only 57,000 miles of crude oil pipeline.[1314]

Crude oil trains are typically at least 50 cars long and can be 100 or more. Each DOT-111 tank car, which carries crude oil and other hazardous and non-hazardous materials, holds approximately 700 barrels. Therefore, a single unit train – a train with carrying multiple cars of a single commodity – can carry upwards of 70,000 barrels or 2.2 million gallons of crude oil to refineries.

Carloads of Crude Oil on U.S. Class I Railroads[15]

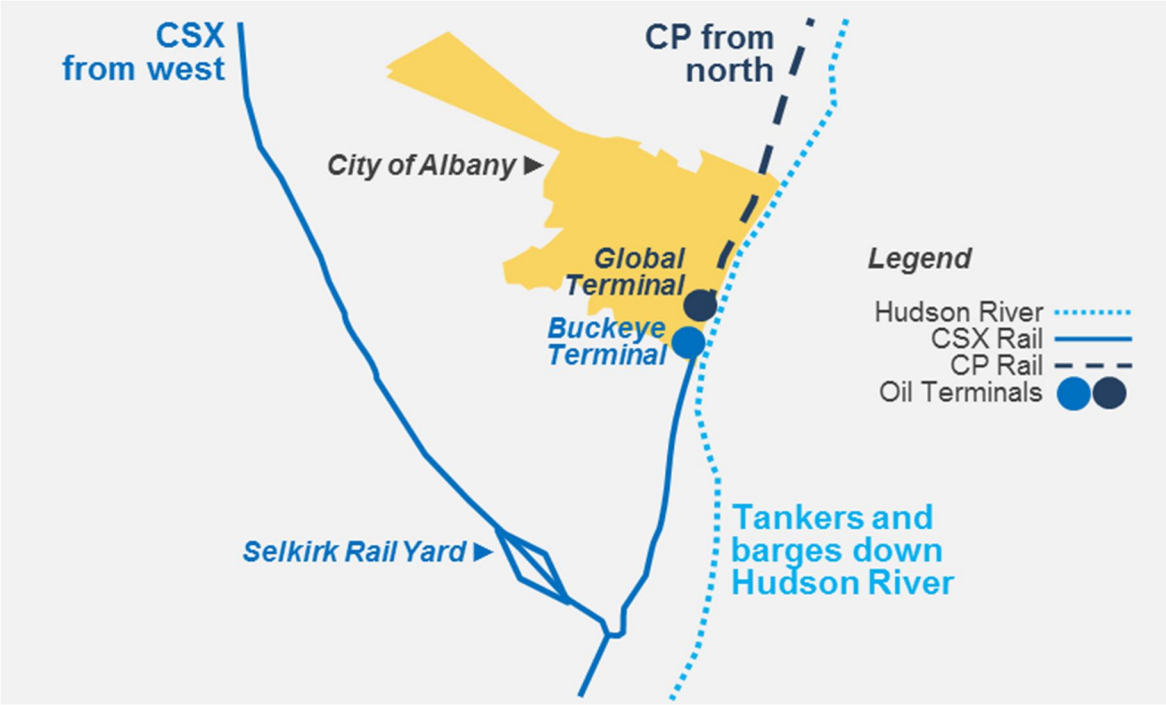


Despite having no refineries located within New York State, the state has become a major rail conduit for the transport of crude oil from the Bakken formation in North Dakota and Canada to refineries in the Mid-Atlantic States and eastern Canadian provinces. Geographically and logistically, New York State has become a transit route because of routes through Appalachian Mountains to East Coast refineries, access to the navigable Hudson River through Albany, and its link to the Midwest and Canada by rail.

Crude Oil Transportation Corridors in New York State, Rail and Water

Two major rail lines, CSX and Canadian Pacific (CP), transport crude oil through New York State and converge in Albany. The east-west CSX rail line delivers the crude oil to Albany from Chicago after Burlington Northern Santa Fe (BNSF) has brought it from North Dakota to Chicago transfer points. The rail line carries crude oil through Buffalo, Rochester, Syracuse, and Utica, to terminals in Albany. This section of CSX's rail line is also used by Amtrak for passenger service. Some of the crude oil bypasses Albany and continues down the north-south CSX rail line, which follows the western shore of the Hudson River south, passing Newark and New York City on its way to New Jersey and Pennsylvania refineries. The Canadian Pacific rail line delivers crude oil from the north through Montreal to Albany. The rail line carries crude oil from Rouses Point through Plattsburgh, along Lake Champlain, and through Saratoga to terminals in Albany.

Port of Albany Terminals



Once the crude oil arrives at terminals in Albany, it is transferred to large storage tanks before being loaded onto barges and tankers for further transport to those refineries not equipped to receive crude by rail. Tankers regularly move crude oil from the Port of Albany south on the Hudson, through the New York Harbor, and via the Atlantic Ocean to refineries in St. John, New Brunswick. Tugs and barges also move down the Hudson to refineries along the Arthur Kill in northern New Jersey and to other facilities along the East Coast.

Global Partner's Albany Terminal includes petroleum product tanks and truck and marine loading positions. GP receives its oil shipments from CP Rail. Global is headquartered in Massachusetts.

Buckeye Partners Albany Terminal provides crude oil services including off-loading unit trains, storage, and throughput. Buckeye Partners receives its shipments from CSX Rail. Buckeye is headquartered in Texas.

In 2011, after public notice and a comment period, the Department of Environmental Conservation (DEC) issued a permit modification allowing Global Partners ("Global") to begin storing crude oil and transferring it to tankers and barges at their existing Port of Albany facility. In 2012, Global asked for and was granted, following notice and public comment, a permit modification expanding the amount of crude oil throughput authorized. In 2012, DEC granted a permit modification for Buckeye Partners to allow the storage and transfer of crude oil at their Port of Albany facility.

In 2013, Global Partners submitted two permit applications to DEC to expand or alter operations at its facilities at the Port of Albany and in New Windsor. Both of these are pending. DEC has jurisdiction over air emissions from and petroleum storage at such facilities. For the Port of Albany facility, Global seeks to install boilers to produce heat that could be applied to storage tanks and tank cars fitted with coiled piping. The applicant claims that air emissions from the proposed boilers would be minimal. The applicant

further claims that the amount of crude oil allowed to pass through the facility would actually be reduced by 50 million gallons per year if Global's application is approved. DEC has required Global to provide additional information and conduct an enhanced public outreach effort in accordance with the Department's environmental justice policy—prior to any issuance of a permit. Global's permit to expand its New Windsor terminal to accept crude by rail for transfer to tanker and barge has thus far been deemed incomplete, but DEC will hold the applicant to the same standards that have been applied on the pending permit at the Port of Albany.

The Transportation of Bakken and Canadian Tar Sands Crude Oil Present Different Risks

The safe transportation of crude oil is complicated by the varied nature of the product itself. Bakken crude oil is inherently volatile with a flash point and vapor pressure similar to gasoline. An additional and serious danger is often the amount of dissolved natural gas and volatile organic compounds within the crude. This gas affects the vapor pressure of the crude. When contained in tank cars or other vessels, the vessel itself can become highly pressurized, almost like a soda can. The vapor pressure of a liquid, which varies with temperature, is a measure of how much vapor the liquid releases during evaporation. Materials with high vapor pressures tend to burn more violently because the liquid can change into vapor more readily, feeding a fire. As discussed below, the classification and packaging of crude oil does not currently account for vapor pressure.

While the spike in Bakken crude oil has focused attention on the transportation of crude oil in New York State, there is also a concern over the possibility of transporting Canadian Tar Sands crude oil through the state. Canadian Tar Sands oil presents a different set of challenges to effective prevention and response. Tar Sand oil is less volatile than Bakken crude oil, but can become heavier than water and will sink to the bottom of any waterway particularly after volatile diluents have evaporated. If transported through New York State, the Canadian tar sands crude oil would travel along, or on many of the state's major waterways, including Lake Erie, the Mohawk River, Lake Champlain, or the Hudson River. Since Tar Sand oil sinks when introduced to water, different spill response equipment and protocols would be needed.

Major Recent Incidents Involving Crude Oil Transportation Have Heightened National Awareness

While New York's safety record is strong, the sharp increase in crude oil moving through the state has changed the equation for the State's preparedness. New York State is not alone in its concerns, but it is currently the leading state in pushing for national changes to reduce the risk of another crude oil-related incident. These three representative incidents underscore the inherent dangers of crude oil when human error and substandard equipment combine to cause or worsen an incident:

- **Lac-Mégantic, Quebec:** On July 6,2013, due to human error, an unattended train began rolling, uncontrolled, down a descending grade into the town center of Lac-Mégantic. Sixty three tank cars derailed, spilling crude oil from DOT-111 tank cars. The runaway train was traveling at nearly 80 mph on a stretch of track only rated for 10 mph. The spilled oil ignited, resulting in a large fire that burned for more than a day. Oil that did not burn contaminated soil, two rivers, and Lac-

Mégantic. Forty-seven people died, and buildings, vehicles, roads, and railway tracks were destroyed. About 2,000 people were evacuated from the area.[16]

Lac-Mégantic, Quebec Tragedy - July 6, 2013[17]

- **Casselton, North Dakota:** On December 30, 2013, a westbound grain train derailed near Casselton, North Dakota, and fouled the eastbound rail line. An eastbound petroleum crude oil unit train collided with a derailed car from the grain train. The collision caused the locomotive and 21 tank cars to derail. Twenty of the derailed cars were carrying crude oil, and 18 of those were punctured. More than 400,000 gallons of crude oil was released, some of which ignited. No injuries were reported, though approximately 1,400 people from nearby Casselton voluntarily evacuated.
- **Mississippi River, Louisiana:** On February 23, 2014, the United States Coast Guard closed a 65-mile stretch of the Mississippi River to all traffic. A barge carrying crude oil ran into a towboat between Baton Rouge and New Orleans. The barge ruptured and spilled 30,000 gallons of light crude into the Mississippi. The spill forced the closure of public drinking water intakes along the river. No public health issues were noted, but a larger spill or longer term cleanup may have negatively affected drinking water reserves and supply. Further, over 30 vessels were delayed due to the spill and resulting cleanup.

Federal and State Agencies have a Strong Hazardous Material Safety Oversight Record, but the Sharp Increase in Crude Oil Poses New Challenges

Federal, state, and local government oversight of hazardous materials transportation, storage and transfer in New York State has helped to improve the safety record of the industry in New York. However, the boom in crude oil transportation through New York State is posing new challenges, given the sheer volume and volatility of the oil, and the inadequacy of tank cars.

The federal government has nearly exclusive jurisdiction over the interstate rail and water shipment of hazardous materials, including crude oil. The United States Department of Transportation (USDOT) regulates railroads and hazardous materials transportation, the U.S. Coast Guard (USCG) regulates shipments through coastal waters, and the Environmental Protection Agency (USEPA) regulates

petroleum storage. Therefore, the federal government is chiefly responsible for protecting New Yorkers from incidents involving railroads, tankers, and barges.

New York State agencies play a supplementary but important regulatory role. The New York State Department of Transportation partners with the Federal Railroad Administration to conduct rail inspections. The Department of Environmental Conservation regulates bulk petroleum storage in partnership with the U.S. Environmental Protection Agency and Coast Guard. The Division of Homeland Security and Emergency Services, in partnership with federal and local agencies, ensure appropriate emergency response plans are in place. The Department of Health administers the Emergency Oil Spill Relocation Network and is the lead. The New York State Energy Research and Development Authority ensure the state's critical fuel stocks are monitored. Local governments are chiefly responsible for first response to incidents.

New York State has not experienced a crude oil spill, fire, or explosion since the product began to be transported through New York State in 2011. However, while this reflects a relatively small sample size, the longer term historical record suggests it is not an aberration. New York's rail transportation record has been steadily improving over the last decade. As shown in the figure below, joint federal and state track inspection has helped to decrease rail incidents by 64 percent over the last 10 years.[18]

Rail Incidents in New York 2003-13

New York's water-borne hazardous materials transportation record is similarly impressive. The changes brought about at the federal level by the Oil Pollution Act of 1990 (OPA 90) have increased the safety of transporting crude oil and other petroleum products via water. Among several important requirements, OPA 90 forced the shipping industry to adopt double hulls for all new tankers and barges. For example, there have only been four significant vessel incidents on the Hudson River since the law was passed. Most barges and tankers operating on the state's waterways are post-OPA 90 double-hulled vessels. That change prevented the tanker Stena Primorsk, which ran aground, loaded with crude seven miles south of the Port of Albany on December 20, 2012 from spilling crude oil into the Hudson River. The attention paid by OPA 90 to prevention and mitigation measures present a viable model for crude-by-rail regulatory changes to follow.

At major oil storage facilities (MOSF) over the last 10 years, there were an average of 14 spills per year (at facilities with a capacity of greater than 400,000 gallons of oil), with a median spill of 50 gallons. The majority of these are prevented from escaping to the environment by secondary containment measures. To put this into context, the Department of Environmental Conservation receives approximately 14,000 non-MOSF spill notifications per year. In 2013, there were 17 MOSF spills with only four affecting the environment – all were considered minor and cleaned up by the responsible party. Small spills will continue to be a challenge, but the required secondary containment mechanisms at MOSFs generally ensure that spills do not reach the surrounding environment.

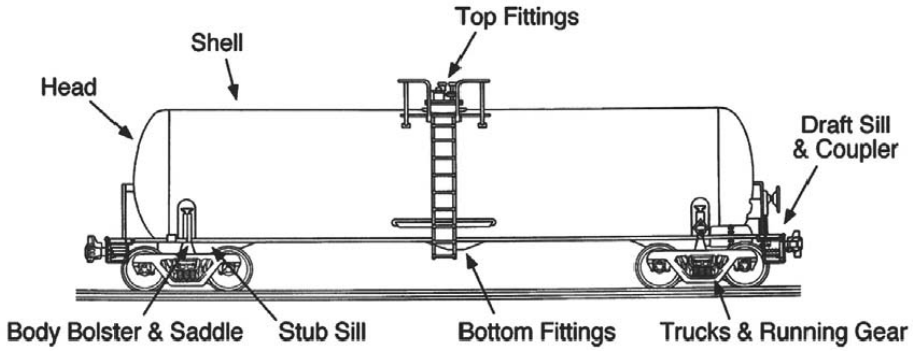
Lastly, New York's recent experiences with disaster response in the wake of nine federally-declared disasters since 2010, including three significant hurricanes and tropical storms, has strengthened the State's multi-jurisdictional prevention and response capabilities. The State Emergency Operations Center coordinated the response of 37 state agencies and hundreds of local organizations for 31 consecutive days during Hurricane Irene and Tropical Storm Lee and for 67 consecutive days following Superstorm Sandy. The aggressive responses ensured that the thousands of assistance requests were expeditiously answered and the effects of the storms were mitigated. Additionally, the storms provided invaluable lessons and experience to state and local first responders and disaster coordinators.

Despite this strong existing regulatory and preparedness structure, the dramatic spike in crude oil shipments by rail and barge in New York State is presenting a unique challenge to the federal, state and local regulatory regime. Nearly overnight, a thousand miles of New York's rail network has become a virtual pipeline. The sheer volume of product being transported, coupled with its volatility and the inadequacy of the tank cars carrying this product, has plainly uncovered gaps in the regulatory regime that must be addressed.

The Majority of the Tank Cars Used to Transport Crude Oil are Inadequate

As much as 82 percent of the DOT-111 tank cars carrying Bakken crude across North America are the older models with a poor safety record that failed catastrophically in Lac-Mégantic. The remaining 18 percent are new or retrofitted as part of an industry led effort to improve the safety of the car.[19] Generally, the oil production company shipping the product, not the railroads, either owns or leases the tank cars. Twenty three years ago, the National Transportation and Safety Board revealed several safety issues concerning the transport of hazardous materials in DOT-111 tank cars. Investigation of more recent incidents confirm that the design of the DOT-111 tank car makes it susceptible to damage and puncture during derailments.

DOT-111 Tank Car[20]



Following the Lac-Mégantic disaster, in September 2013, USDOT published an advance notice of proposed rulemaking that addresses the issue of DOT-111 tank cars. Publication of the proposed rulemaking in the Federal Register indicates consideration and information gathering to create revised or additional regulation in this area but does not create new requirements.[21]

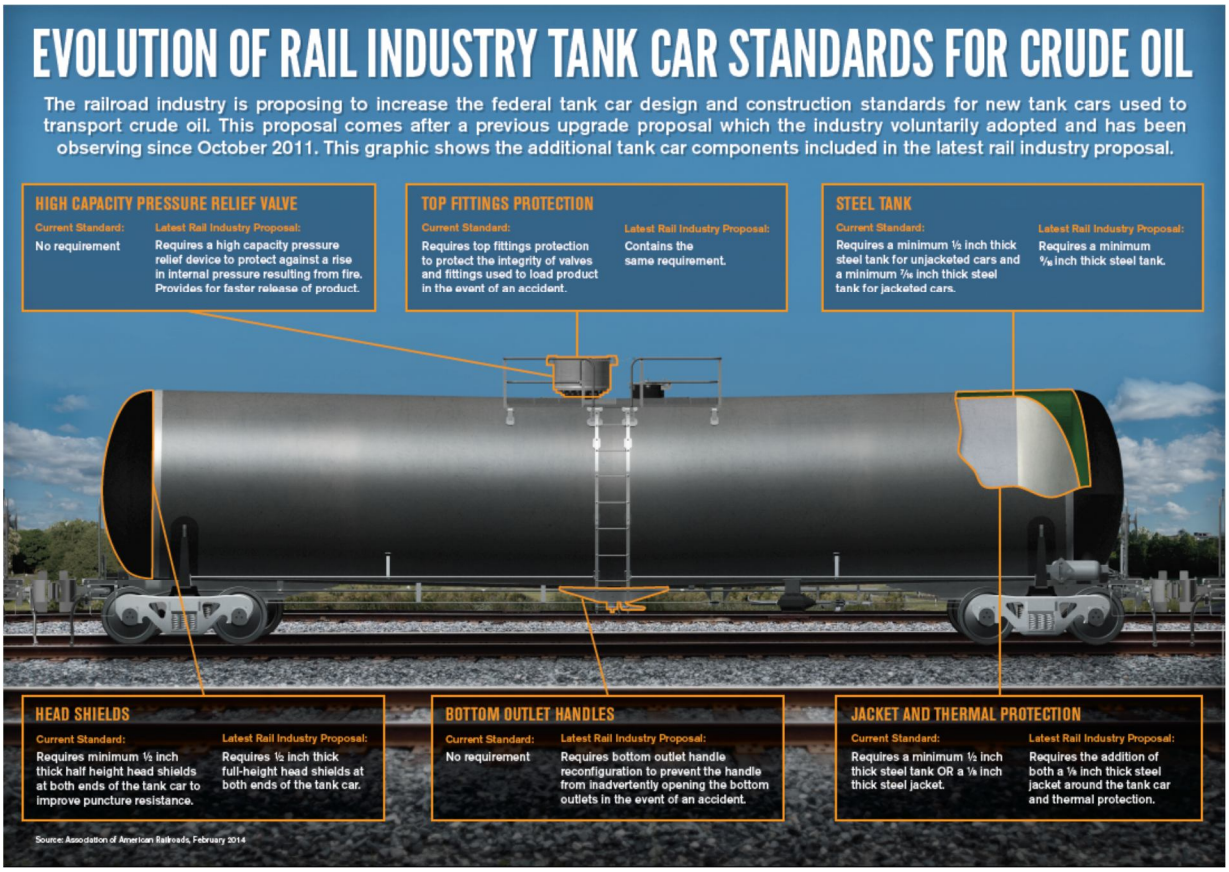
Some railroads have announced that they are moving to proactively enact policies with regard to the perceived risks associated with continued use by shippers of the older tank cars. For example, Canadian Pacific Railroad announced in February of this year that, effective March 14, 2014, it would begin assessing a $325 "general service tank car safety surcharge" on each tank car of crude oil that is shipped in any container other than the newer, hardened models. BNSF, which operates primarily on the West Coast, has taken the unprecedented step of buying up to 5,000 safer DOT-111 tank cars that it will lease to shippers on its lines.

On January 28, 2014, as part of the letter to their federal counterparts, the New York State Departments of Transportation, Environmental Conservation, and Health and the Division of Homeland Security and Emergency Service urged USDOT to expeditiously phase out the DOT-111 tank car for crude oil and set an aggressive timetable for its replacement. On March 3, 2014, as part of his letter to USDOT and the U.S. Department of Homeland Security (USDHS), Governor Cuomo again called on his counterparts update the tank car regulations to ensure the highest level of safety.

Increasingly, that message is being echoed and heard. On April 23, 2014, the National Transportation Safety Board Chairman Deborah Hersman said USDOT was moving too slowly in updated tank car regulations and called on President Obama to phase out older model DOT-111 tank cars by executive order, if necessary. On the same day, the Canadian Transport Minister Lisa Raitt announced that all DOT-111 oil tank cars on Canadian lines will be taken out of service or retrofitted within three years. The On April 24, 2014, USDOT Secretary Anthony Foxx announced, after a visit to the North Dakota town evacuated due the massive crude oil train incident there, that USDOT would be publishing a comprehensive rulemaking package the week of April 28th. Secretary Foxx did not provide any detail but mentioned that different options for new tank car safety standards would be offered.

The most protective option, proposed by the American Association of Railroads (AAR) and supported by the authors of the report, goes beyond the industry led efforts in 2011. The figure below shows AAR's proposal, which includes a thicker shell, thermal protections to prevent unaffected cars from igniting, full height additional protection on each end, and a high capacity pressure relief valve.

American Association of Railroads Proposed New Tank Car Standards[22]



Recently-adopted Voluntary Measures are Incomplete and Need to be Incorporated into Mandatory Regulations on an Expedited Basis

On February 21, 2014, following the recent catastrophic derailment incidents, the Association of American Railroads (AAR) in conjunction with the U.S. Department of Transportation adopted a suite of voluntary safety measures with regard to crude oil trains. These measures, detailed below, are purely voluntary and cannot be enforced by federal and state regulators:

- *Increased track inspections* – Effective March 25, 2014, railroads will perform at least one additional internal-rail inspection each year and use of track geometry inspection equipment on crude oil routes
- *Braking systems* – No later than April 1, 2014, railroads will equip all trains with 20 or more carloads of crude oil with either distributed power or two-way telemetry end-of-train devices.
- *Use of rail traffic routing technology* – No later than July 1, 2014, railroads will begin using the Rail Corridor Risk Management System (RCRMS) to aid in the determination of the safest and most secure rail routes for trains with 20 or more cars of crude oil.
- *Lower speeds* – No later than July 1, 2014, railroads will operate trains with 20 or more tank cars carrying crude oil that include at least one older DOT-111 car no faster than 40 miles-per-hour in the federally designated 46 high-threat-urban areas (HTUA).
- *Community relations* - Railroads will continue to work with communities through which crude oil trains move to address location-specific concerns that communities may have.

- *Increased trackside safety technology* – No later than July 1, 2014, railroads will begin installing additional wayside wheel bearing detectors every 40 miles for crude oil routes
- *Increased emergency response training and tuition assistance* – Railroads have committed by July 1, 2014 to provide $5 million to develop specialized crude by rail training and tuition assistance program for local first responders.
- *Emergency Response Capability Planning* – Railroads will by July 1, 2014 develop an inventory of emergency response resources for responding to the release of large amounts of crude.

These measures are a first step, but alone are fundamentally flawed due to their voluntary nature. They must be formally incorporated into mandatory federal regulations on an expedited basis.

Further, the voluntary measures fail to account for human factors as causes of incidents. Per FRA data, almost half of all train accidents in New York State were caused by human factors, not equipment or track failures. In addition, the lower speed voluntary measure does little to address safety concerns in New York State as Buffalo is the only designated HTUA that has crude traveling through it via rail.

New York State Needs Bakken Producers to Provide Critical Crude Oil Characteristic Information to Ensure Safe Transportation

The United States Department of Transportation (USDOT) has pushed for additional information from Bakken crude oil producers, but the oil producers have not been forthcoming. Without a clear understanding of the flammability, vapor pressure, and non-crude content of Bakken crude oil, USDOT cannot properly regulate its transport, to ensure public and environmental safety.

The lack of information about the chemical properties has led to improper classification of crude oil, identified by the USDOT's recent "Operation Classification" which resulted in large fines to private industry. In January 2014, USDOT issued a safety alert "to notify the general public, emergency responders, and shippers and carriers that recent derailments and resulting fires indicate that the type of crude oil being transported from the Bakken region may be more flammable than traditional heavy crude oil."[23] Consequently, in February 2014, PMHSA issued an emergency order requiring proper testing and that all Class 3 petroleum crude oil be treated as a Packing Group I or II hazardous material for shipment.[24]

Some of the volatility of Bakken crude oil could be reduced by separating dissolved gas prior to packaging the material for transport. This is a common practice but not universally-adopted in the oil industry. New York, and indeed every state on the crude-by-rail network, needs oil companies to institute aggressive safety protocols to ensure the product they are offering for shipment presents as little risk as possible.

Federal Environmental and Contingency Response Plans Need to be Expanded and Updated to Account for Crude Oil

Following the Oil Pollution Act of 1990, federal agencies are required to maintain response plans to guide incident response and a catalogue of coastal environmental resources to understand the sensitivity of certain natural resources. Both of these are designed to help the federal government better prepare for and respond to potential petroleum and other chemical spills. States, as impacted partners, play important roles with environmental and contingency plans.

The contingency response plan for coastal waterways in New York, such as the Hudson River, is known as the Area Contingency Plan (ACP) and is administered by the U.S. Coast Guard (USCG). The ACP also provides guidance on issues such as identifying sensitive areas and the size of the response organization that may be required. Content of the ACP is identified in the Clean Water Act (CWA). The ACP is developed with input from stakeholders ranging from local officials to wildlife experts. ACPs are generally reviewed annually, are updated as needed, and may undergo extensive review every few years. The ACP covering the Hudson River needs to be updated to account for the increased dangers of crude oil transportation by barge or railroad.

The catalogue of coastal environmental resources including the Hudson River is known as an Environmental Sensitivity Index (ESI) and is administered by the National Oceanographic and Atmospheric Administration (NOAA). As with the ACP, the ESI covering the Hudson River needs to be updated to account for the increased dangers of crude oil transportation by barge or railroad.

The response plans for inland waterways in New York, such as the Mohawk River, are known as Inland Area Contingency Plans (IACP) and are administered and updated by the U.S. Environmental Protection Agency (USEPA). The New York IACP identifies available resources (i.e., equipment and trained personnel) and sets forth the process for coordinating the activities of the different government agencies and private organizations that need to be notified and involved in the response. The IACP covering the Mohawk River and Lake Champlain has not been updated in decades and does not account for the increased dangers of crude oil transportation by railroad. Additionally, there is no equivalent planning protection to the ESI for inland waters.

The ACP, IACP, and ESI covering New York are critical documents and must be updated and expanded to account for the crude oil boom confronting the state. On April 10, 2014, New York State, the USCG, and USEPA released a joint statement announcing an agreement to complete the following actions:

- Review and update the NY/NJ ACP in 2014
- Review and update the NY IACP in 2014
- Work with the NOAA to prioritize updating of the New York State–Hudson River Area ESI maps sooner than currently scheduled for 2015

NOAA subsequently agreed to begin updating of the New York State–Hudson River Area ESI maps in the summer of 2014.

Trend and Train-specific Information is Needed to Prevent and Respond to Crude Oil Related Incidents

Currently, no governmental agency, at either the state or federal level, collects or monitors trend or train-specific data on the movement and volume of crude oil in New York State. Maintaining an adequate data collection system and knowledge base surrounding the petroleum products moving through New York State is essential for properly investing in response equipment and developing and updating federal, state and local response plans.

Through a July 2007 pilot and then a June 2009 Memorandum of Understanding with the railroad company CSX, New York State has access to a proprietary application known as “CSX Now” which provides important, real-time information regarding the location and type of materials being transported through New York State. This application gives the Division of Homeland Security and Emergency

Services (DSHES) valuable real-time insight into railroad information to aid its homeland security mission. CSX is currently the only railroad to offer this level of access. However, CSX Now is not designed to build a database of long term trends. At present, the only complete records of any train's contents are the dispatch center or a single copy of the paper waybill kept in the engine car. If a fire or explosion were to consume the engine car that information would be completely lost and first responders would be dependent on getting the information from a distant source.

State Legislative, Regulatory, and Operational Changes would Enhance Prevention and Response Capacity

The State has the opportunity to strengthen prevention and response capacity through legislation, regulatory reform, and administrative action. The full list of potential actions is presented later in the report.

These four actions would strengthen the State's preparedness:

1. *Penalties for Failure to Report Incidents* - Railroads have been inconsistent in complying with the State's existing incident reporting requirements, which mandate that incidents be reported within one hour to the New York State Department of Transportation (NYSDOT). This was evidenced by two recent CSX derailments, the first in Ulster County on February 25, 2014 and the second in the Selkirk Rail Yard in Albany County on February 28, 2014. CSX failed to notify NYSDOT about the Ulster County incident, and was late in making the required notification about the Albany County incident. Delayed notification of incidents involving hazardous materials such as crude oil could delay and complicate response operations. Currently, NYSDOT is authorized to impose penalties of up to $5,000 per occurrence. This is insufficient to encourage compliance. The state could consider increasing penalties for failure to make timely incident reports.
2. *Mandate Volume Reporting* - As noted previously, companies shipping crude oil through the state are not required to report volumes, routes, modes of transportation, or crude oil characteristics. While New York does receive information from CSX through its CSX NOW information sharing platform made available to DHSES, this is only one railroad, and not all the data needed is provided. A mechanism to obtain a more complete picture would provide the necessary planning information discussed above.
3. *Pre-transfer Booming* – DEC could promulgate regulations requiring pre-transfer booming, taking into account possible exemptions when pre-transfer booming would not be required and booming would not be effective. Canadian Tar Sands crude oil, for instance, is heavier than water, so booming would not provide any spill mitigation value. DEC should only allow transfer operations in locations that meet state regulatory requirements or have been approved by the USCG. This would prevent spills from vessels at facilities insufficiently equipped to manage spills.
4. *Incident Reporting Requirements* – In coordination with the legislative recommendation above to increase penalties for failure to make timely incident reports, NYSDOT could promulgate regulations strengthening and clarifying rail incident reporting requirements, ensuring compliance and that needed information can be readily disseminated to effected agencies while simplifying the process for railroads.

A number of administrative actions have or would strengthen the State's preparedness, including the following:

1. The 2014-15 enacted budget included Governor Cuomo's request for five additional railroad inspectors at NYSDOT, and the agency has begun the hiring process to expand the State's capability as part of the Federal Railroad Administration's participating state program.
2. New York State could partner with federal, local, and industry response organizations to develop a comprehensive, tiered response asset network. This proposal would ensure that the proper equipment could be strategically deployed around the state in areas affected by crude oil transportation.
3. In partnership with USEPA and the USCG, New York State will develop detailed geographic response plans for all areas of the state. These plans provide detail analyses about human use, environmentally sensitive areas, and economic activity to ensure best possible response outcomes.
4. The State could develop a one stop web portal that provides access to emergency points of contact, training, grants, and other preparedness and response resources

Local Response Agencies are the First Line of Defense and Need to be Properly Trained and Equipped

Emergency response efforts begin at the local level. In the event of an incident involving storage, transfer, or transport of crude oil, the first notifications is generally to a local emergency dispatcher. Crude oil moved by rail, vessel, and barge in New York State travels through areas of dense population as well as through rural areas and small towns. Local emergency management is responsible for local risk assessments, response plans, and coordination of local incident response. This capability often resides with local fire departments.

There are 1,786 fire departments in New York State, serving large cities and rural areas. A larger municipality like the City of Albany has a fire department made up of 245 career firefighters and 16 companies operating out of 8 stations. A fire department in a rural area of New York State might have only 25 to 30 volunteer firefighters. Rural areas constitute the vast majority of the state's rail network. All firefighters in New York State are trained at a basic level for hazardous material response, but without a clear understanding of the properties of the hazardous material being shipped, appropriate measures may not be used.

Most local emergency response organizations do not have the necessary equipment required either to fight a crude oil fire, such as fire suppressant foam trucks or trailers, or to respond to a large oil spill on water, such as skimmers, containment boom, and work boats. Additionally, depending on the severity of an incident, and the location, dependence on mutual aid between communities may be required.

The recommendations in this report account for the challenges faced by local emergency response planners and the responders themselves. In addition to the support provided by the State, local response agencies need the rail and petroleum industry, which have made significant profits from this boom, to increase the training and equipment provided to ensure effective first response.

Findings and Recommendations

The report details 26 findings and associated recommended actions for safer crude oil transportation and improvements to incident prevention and response. The findings and recommendations were developed by subject matter experts in New York State agencies through a working group process and through interactions with federal, local, and private partners. The report divides the findings and recommendations by the authority responsible for a particular action. As shown in the "Status" column of the table below, New York State has worked to implement some actions in parallel with the development of this report.

	Federal / International Recommendations	Status
1	The US Department of Transportation should finalize new and retrofitted tank car regulations immediately.	Begun, not complete
2	The United States Department of Transportation should strengthen the voluntary measures put forward by the AAR and codify them in regulations.	Not yet addressed; petition sent to USDOT
3	The United Nations, which assigns unique hazardous materials identifiers, should recommend new classifications based on crude oil characteristics to enable appropriate packaging and to inform response personnel as to the qualities of the crude oil.	Canadian and U.S. governments have requested; petitioned sent to UN in support
4	US Department of Transportation should update its regulations governing the requirement for railroads to develop route-specific contingency plans as trains carrying crude oil in DOT-111 tank cars do not currently meet the volume threshold, which is done by container, rather than the total volume of the train.	Not yet addressed; petition sent to USDOT
5	US Department of Transportation should restore cuts and increase the amount of matched funding available through the Hazardous Materials Emergency Preparedness Grant Program to account for the increased risk to New York State from crude oil transiting federally-regulated travel corridors.	Not yet addressed; petition sent to USDOT
6	The U.S. Coast Guard, U.S. Environmental Protection Agency, and the National Oceanographic and Atmospheric Administration should expedite the update of environmental and contingency response plans.	Begun, not complete
7	The United States Department of Transportation should expeditiously amend its regulations to make industrial facility railroads subject to the same standards and inspection protocols as general system railroads.	Not yet addressed; petition sent to USDOT
8	The U.S. Coast Guard and the U.S. Environmental Protection Agency should update the delayed Oil Spill Research and Technology Plan as soon as feasible.	Plan in draft; update 17 years overdue
9	The U.S. Coast Guard should establish a civilian planning position in Sector NY in order to provide organizational continuity to better support New York State-centric preparedness and response.	Not yet addressed; petition sent to USCG
10	The U.S. Coast Guard should review the Vessel Response Plans of the tanker and tugs carrying crude oil in New York State to ensure their response protocols account for the unique risks posed by Bakken and Canadian tar sands crude oil.	Not yet addressed; petition sent to USCG
11	The U.S. Department of Homeland Security should update the authorized equipment list eligible for grant funding to include crude oil firefighting equipment.	Not yet addressed; petition sent to USDHS

State Actions		Status
1	New York State should hire additional railroad inspectors and train new and existing staff in other inspection program components.	Hiring process begun
2	The State should partner with federal, local, and industry partners to increase the number, frequency, and variety of preparedness training opportunities and drills.	Planning begun
3	New York State should establish a mechanism to obtain more complete information on the volume and characteristics of crude oil being transported and stored in the state.	Legislative language being considered
4	The State should develop a one-stop web portal that provides access to emergency points of contact, training, grants, and other preparedness and response resources.	Planning begun
5	New York State should partner with federal, industry, and local response organizations to develop and deploy a comprehensive, geographically-tiered equipment network to ensure timely and effective response in underserved areas.	Planning begun
6	New York State should develop a comprehensive database of available crude oil-specific response equipment to support timely and effective response.	Planning begun
7	The New York State should partner with the U.S. Environmental Protection Agency and Coast Guard to expand upon existing environmental and contingency plans and develop Geographic Response Plans for all areas of the state.	Agreement in place; State participation subject to funding
8	New York State should promulgate regulations that require placing oil containment booms around waterborne transfers and only allow transfer operations in locations that meet state regulatory requirements or have U.S. Coast Guard approval.	Regulatory language being considered
9	New York State should enact legislation and amend existing regulations to improve rail incident reporting and ensure railroad reporting compliance.	Legislative language being considered
10	New York State should develop more effective plume modeling capability to assist first responders.	Review and planning process underway
11	DHSES, on behalf of the Disaster Preparedness Commission, should review current federal, state, local, and industry response plans to ensure efficient planning, coordination and application.	Review begun

Industry Recommendations		Status
1	The API along with its member oil companies should commit to reducing the volatility of Bakken crude before submitting a tank car for shipment.	Not yet addressed; petition sent to API
2	The Class I railroads should implement a web-based information access system to provide real-time information on hazardous materials	Commitment to create by the end of the year
3	AAR in conjunction with API should clarify and expand community engagement requirements outlined but not explained in the voluntary measures undertaken by the railroads.	Not addressed; petition sent to AAR and API
4	Class I railroads should conclude their computer model-based route risk analysis, which accounts for 27 factors affecting the transportation of hazardous material by rail, as soon as practical and update it regularly.	Not yet addressed; petition sent to AAR

Next Steps

As demonstrated in this report, since Governor Cuomo issued Executive Order 125, the State has been aggressively acting to ensure that the expanding crude oil industry impacting New York is being operated as safely as possible. The timeline below details some of the state's actions taken to date.

Given the federal government's primacy over the interstate transportation of crude oil, the federal government must also demonstrate the same aggressive commitment to protect New York State and the many other states that are subject to this industry.

The crude oil transportation industry must also embrace the seriousness, aggressiveness, and commitment to safety that the State is demanding of itself and its federal partners. Crude oil producers, railroads, shippers, storage and trans-loading facilities, and, ultimately, out-of-state refineries – each of whom are profiting from this boom – must commit to the highest possible standards in order to ensure that this industry can be operated safely. No state can afford another crude oil incident like those that occurred in Quebec and North Dakota.

Safe practices of private partners and effective federal and state regulation and oversight will greatly assist in preventing, mitigating, preparing for, and responding to incidents. New York State will continue to work with private and federal partners on the recommendations where partnerships are required.

Jan 28, 2014

- Governor Andrew M. Cuomo issues Executive Order 125 directing several state agencies to do a top-to-bottom review of accident prevention and response capacity related to rail and water shipments of crude oil from the Bakken oil fields in North Dakota, Montana and Alberta, Canada
- Departments of Environmental Conservation, Health, Transportation and the Division of Homeland Security and Emergency Services issue letter to federal partners regarding concerns related to the transportation, storage, and transfer of crude oil

Feb 21, 2014

- United States Department of Transportation and nation's major freight railroads announce agreement to institute voluntary operating practices: increased track inspections; braking systems; use of rail traffic routing technology; lower speeds; community relations; increased trackside safety technology; increased emergency response training and tuition assistance; and emergency response planning

Feb 25, 2014

- Federal regulators issue emergency rules requiring extensive tests on crude oil moving by rail, concluding the system had become "an imminent hazard to public health, safety and the environment.

Feb 28, 2014

- Governor Andrew M. Cuomo announces rail inspection blitzes in Albany and Buffalo.

Mar 4, 2014

- Governor Andrew M. Cuomo issues letter to USDOT and USDHS Secretaries urging federal officials to expediting and strengthening rail safety standards, requiring reporting of by rail companies of derailments, increasing inspections, and more clearly identifying and tracking of rail cars carrying crude oil.

Mar 5, 2014

- NYSDOT announces $10,000 fine to CSX Rail for failing to make timely notification of two derailments that occurred in February in Albany and Ulster counties.

Mar 6, 2014

- USDOT issues an emergency order requiring all shippers to test product from the Bakken region to ensure the proper classification of crude oil before it is transported by rail, while also prohibiting the transportation of crude oil in the lowest-strength packing group.

Mar 12, 2014

- DEC Commissioner Joe Martens meets with Albany community groups.

Mar 24, 2014

- DEC Commissioner Joe Martens issues letter to U.S.USEPA urging the agency to update its spill contingency plans.
- DEC issues Notice of Incomplete Application to Global Partners for their application at their new Windsor facility
- DEC Regional Director issues letter to Global Partners indicating that the “Negative Declaration” for its Port of Albany facility is an interim decision and a final permit decision will not be made until a list of questions are addressed and when the community has had a reasonable opportunity to comment. Public comment period is extended.

Mar 26, 2014

- NYSDOT completes second rail inspection blitz in Albany and Buffalo.

Apr 10, 2014

- DEC, the U.S. Coast Guard and the Environmental Protection Agency agree to partnership to update environmental and contingency response plans.

Apr 29, 2014

- DEC Commissioner Joe Martens issues letter to USCG urging:
  1) the completion of the development of best practices for responding to crude oil spills,
  2) the completion of updates to Area Contingency Plans and Geographic Response Plans,
  3) that Vessel Response Plans fully address the hazards presented by the transportation of crude oil, and
  4) that a civilian planner be positioned in Sector NY in order to provide organizational continuity.
- DEC and DOT Commissioners Martens and McDonald issues letter to AAR and API urging:
  1) additional clarity to communities along crude oil corridors regarding public safety and impacts; and
  2) additional resources for response training and resources.
- DOT Commissioner McDonald issues letter to USDOT and AAR urging that voluntary operating practices for moving crude oil by rail be codified into regulations and strengthened.
- DHSES and DOT Commissioners Hauer and McDonald issues letter to API urging that petroleum companies mitigate dissolved gases at the site of shipment to reduce risk in the transportation of crude oil.
- DHSES and DOT Commissioners Hauer and McDonald issues letter to USDOT urging nine actions to safeguard the transportation of crude oil by rail.
- DHSES Commissioner Hauer issues letter to TSA urging additional collaboration to protect crude oil by rail shipments.
- DHSES Commissioner Hauer issues letter USDHS urging that they update the list of funding eligibility for equipment and materials needed to respond to crude oil incidents

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Apr 30, 2014

- Executive Order 125 Crude Oil Report submitted to Governor Andrew M. Cuomo
- NYSDOT completes third rail inspection blitz in Albany and Buffalo.

Overview of Report Development

This report has been developed by the agencies identified in Executive Order 125: the Departments of Environmental Conservation, Transportation, and Health, the Division of Homeland Security and Emergency Services, and the New York State Energy Research and Development Authority. In addition, New York State's discussions with local governments, the federal government and private carriers and associations have also provided invaluable insight into the issues confronting the New York State in regards to transporting crude oil. New York State appreciates the willingness of the U.S. Department of Transportation, the U.S. Environmental Protection Agency, the U.S. Coast Guard, the American Association of Railroads, CSX Transportation, and Canadian Pacific to partner with New York State in the development of this report.

The principal method for the development of this report has been to engage the expertise that resides within state agencies. Two working groups, one on incident prevention and the other on incident response, were organized with subject matter experts from each agency to examine the capacity for the safe regulation of crude oil transportation. Both working groups identified the jurisdictional roles, assisted in the identification of challenges, and proposed recommendations to solve those challenges.

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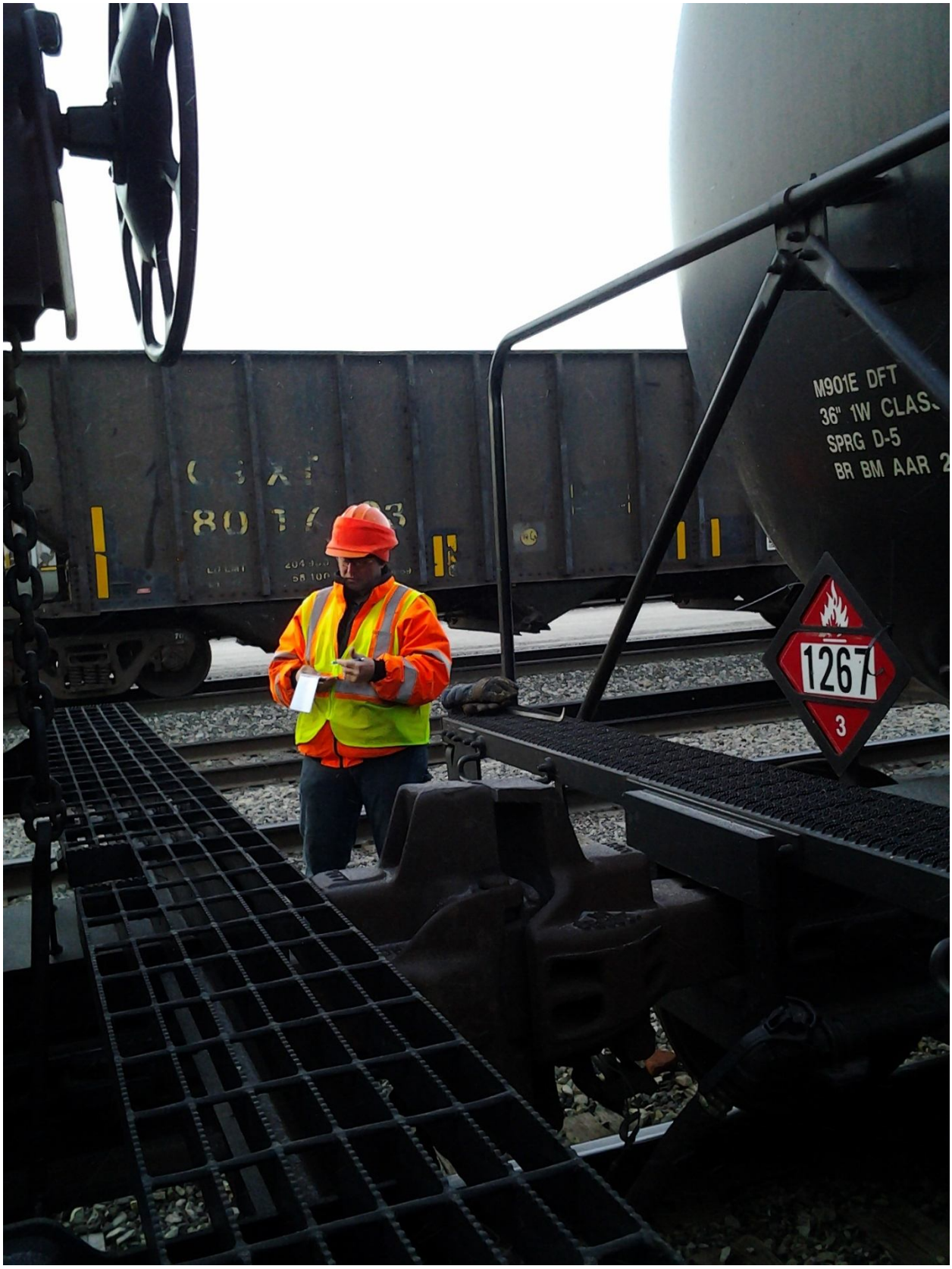
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List of Terms

Advanced Notice of Proposed Rule Making (ANPRM)

American Association of Railroads (AAR)

American Petroleum Institute (API)

Area Contingency Plan (ACP)

Authorized Equipment List (AEL)

Burlington Northern Santa Fe (BNSF)

Canadian Pacific (CP)

Clean Water Act (CWA)

Comprehensive Emergency Management Plan (CEMP)

CSX Corporation (CSX)

Disaster Preparedness Commission (DPC)

Environmental Sensitivity Index (ESI)

Executive Order 125 (EO 125)

Facility Response Plan (FRP)

Federal Railroad Administration (FRA)

Geographic Response Plan (GRP)

Hazardous Materials Emergency Preparedness Grant Program (HMEP)

High Threat Urban Areas (HTUA)

Inland Area Contingency Plan (IACP)

Interagency Coordinating Committee on Oil Pollution Research (ICCOPR)

Local Emergency Planning Committee (LEPC)

Major Oil Storage Facilities (MOSF)

National Oceanographic and Atmospheric Administration (NOAA)

National Transportation Safety Board (NTSB)

New York State Department of Environmental Conservation (DEC)

New York State Department of Health (DOH)

New York State Department of Transportation (NYSDOT)

New York State Division of Homeland Security and Emergency Services (DHSES)

New York State Energy Research and Development Authority (NYSERDA)

Office of Counter Terrorism (OCT)

Office of Cyber Security (OCS)

Office of Fire Prevention and Control (OFPC)

Office of Interoperable Emergency Communications (OIEC)

Office of the State Comptroller (OSC)

Oil Pollution Act of 1990 (OPA 90)

Oil Spill Response Organization (OSRO)

Pipeline and Hazardous Material Safety Administration (PHMSA)

Positive Train Control (PTC)

Rail Corridor Risk Management System (RCRMS)

Risk Reduction Programs (RRP)

State Emergency Operations Center (SEOC)

State Emergency Response Commission (SERC)

Transportation Technology Center, Inc (TTCI)

Transportation Security Administration (TSA)

United States Coast Guard (USCG)

United States Department of Defense (DOD)

United States Department of Homeland Security (USDHS)

United States Department of Transportation (USDOT)

United States Energy Information Agency (EIA)

United States Environmental Protection Agency (USEPA)

Vessel Response Plan (VRP)

1. The Current Situation

Rising Concerns about the Transportation of Crude Oil

Growth in North American Crude Oil Production Transforming Global Petroleum Picture

North America has witnessed a boom in crude oil extraction (see Figure 1), primarily because of shale oil extraction in Texas and the Bakken formation in North Dakota and Montana as well as Manitoba and Saskatchewan, Canada (see Figure 4).[25] Texas extraction rose from approximately 1.1 million barrels to 2.6 million barrels between 2003 and 2013, while North Dakota crude extraction rose from approximately 81,000 barrels per day to approximately 900,000.[26] Additionally, tar sands oil from Alberta and Saskatchewan, Canada has increased by approximately 250 percent (see Figure 2).

Figure 1 - Domestic Oil Production Growth 2003-13 (mbbl per year)[27]

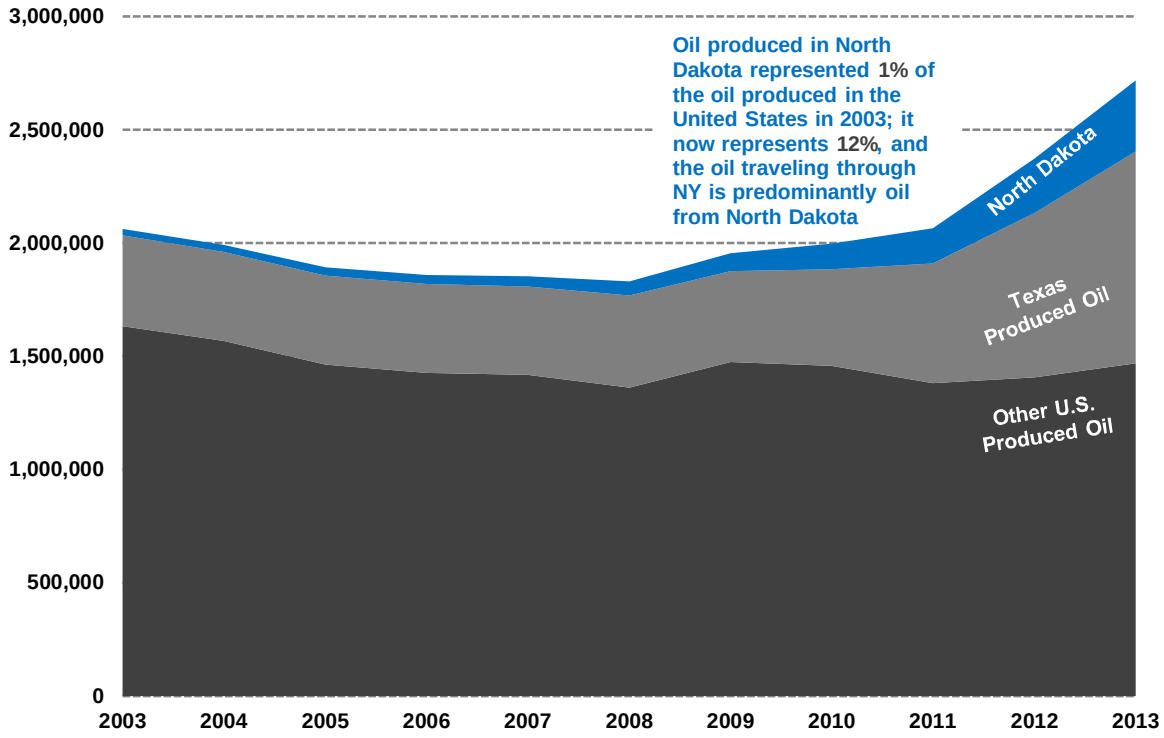
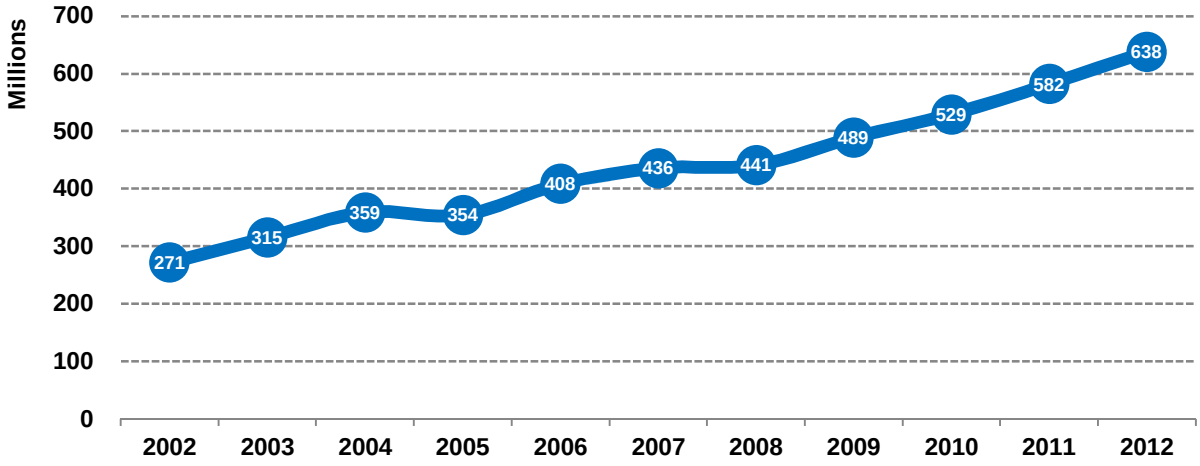
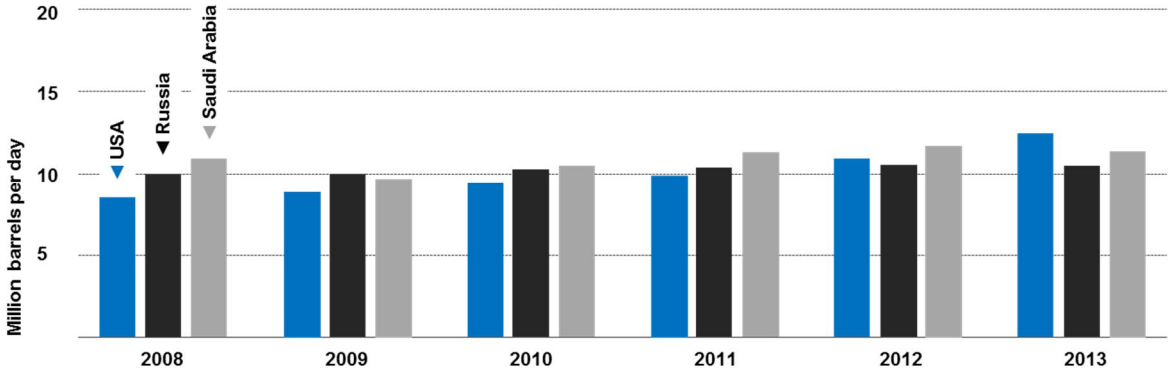


Figure 2 - Canadian Tar Sands Oil Production 2002-12 (mbbl per year) [28]



As a result of increased extraction in these areas, the U.S. has surpassed Saudi Arabia as the number one producer of crude oil in the world, according to U.S. Energy Information Administration estimates.[29] Figure 3 depicts the change in production levels for the three largest crude oil producers, the United States, Russia, and Saudi Arabia.

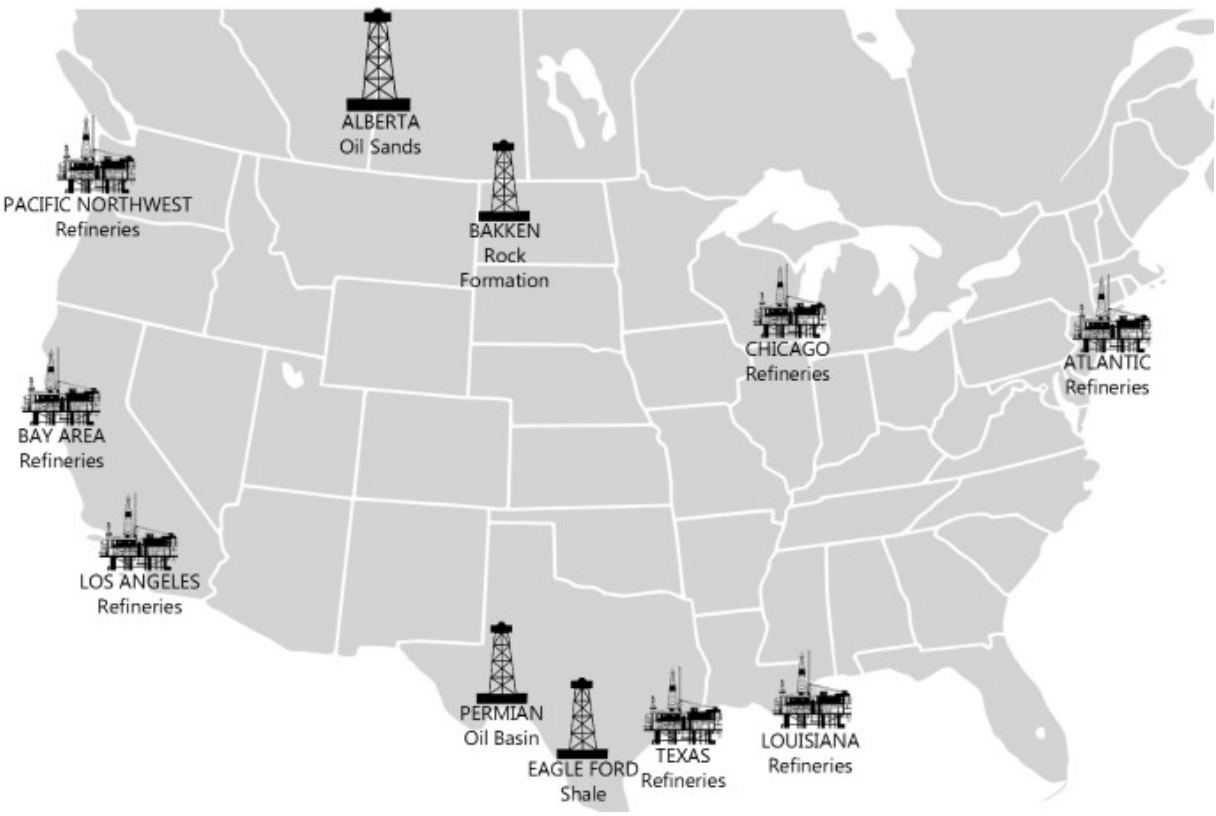
Figure 3 - Global Crude Oil Production Leaders[30]



The rise in global oil prices, combined with technological advancements, has made the shale oil extraction in North America economically feasible. However, these crude formations require more capital investment and, thus, have tighter profit margins than conventional crude oil production. Additionally, this formation typically produces for less time than traditional crude oil wells. A significant drop in global oil prices would likely cause petroleum companies to pursue more profitable ventures elsewhere.[31] That uncertainty about the future of the Bakken formation's production has precluded substantial capital investment in permanent transportation infrastructure, such as pipelines, forcing the oil companies to find alternative methods, such as rail, to bring the product to market.[32] It is difficult to accurately forecast the length of time crude oil will flow from the Bakken because of how quickly price dynamics can change.

Canadian tar sands oil has followed a similar trajectory to Bakken shale oil. Long understood to contain technically recoverable oil, tar sands, of which there are major deposits in Canada, Russia, and Kazakhstan, have only recently been considered economically viable. Higher global prices and technological advances, again, have made the tar sands oil production profitable. Sand and rock mined in Alberta and Saskatchewan has the consistency of cold molasses and will not flow unless heated and/or mixed with lighter hydrocarbons.

Figure 4 - North American Oil Production[33]



The Volume of Crude Oil has changed the Transportation Dynamics

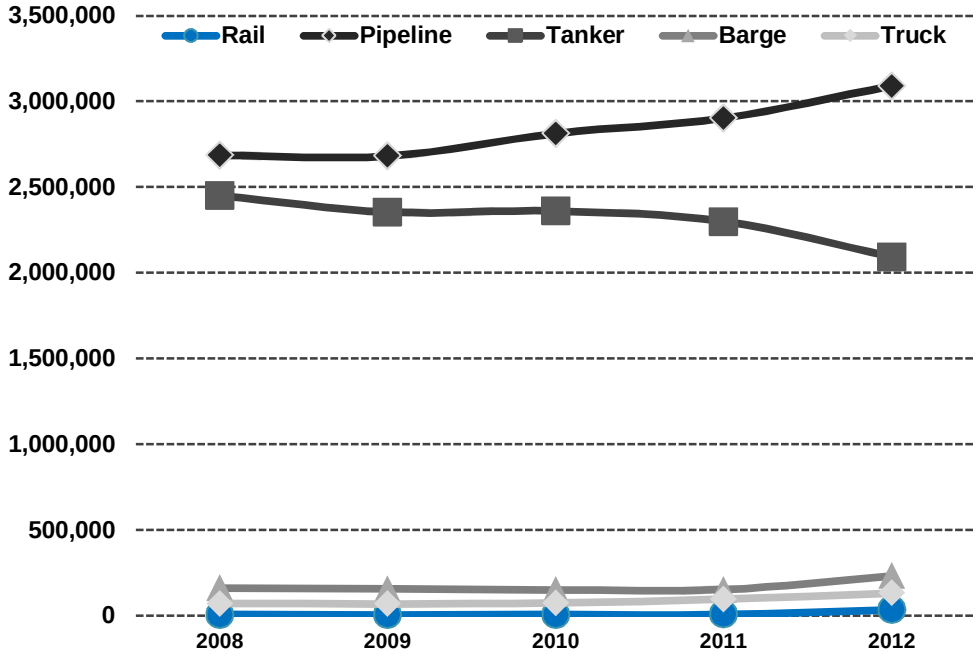
From extraction sites, crude oil is transported to refineries where it undergoes a process known as fractional distillation to isolate its different energy components.[34] While the number of U.S. refineries has been in decline since the last new refinery opened in 1976, refining capacity has increased over the past decade from 16.5 million to 18.7 million barrels per day due to individual refinery capacity increases.[35] Each refinery, however, is capable of processing only certain types of crude based upon the type of equipment utilized. Bakken crude oil is transported by rail, barge, or tanker to refineries on both coasts, and Canadian tar sands oil is primarily transported by rail to refineries on the U.S. Gulf Coast.

The global oil market drives contracts from U.S. and Canadian refineries on the Atlantic coast. North American refineries sell the refined products to both local and global markets, so crude oil passing through New York State can end up as finished products in Canada, Europe, China, or Australia, for example.

Crude oil is primarily transported to North American refineries via pipeline or ocean tanker vessels from around the globe. In 2008, only 4.5 percent of all crude was transported via truck, rail, or barge. By 2012, that number has increased to approximately 7 percent.[36,37] Of the increase in rail, truck, and barge transport, the largest proportional increase has occurred in rail transport, which rose by over 400 percent in just one year, from 2011 to 2012.[38] The alternative to increasing shipments by rail would have likely been by truck which is a less desirable method to ship crude oil, since the rate of incidents by truck is higher than rail (see Figure 8).

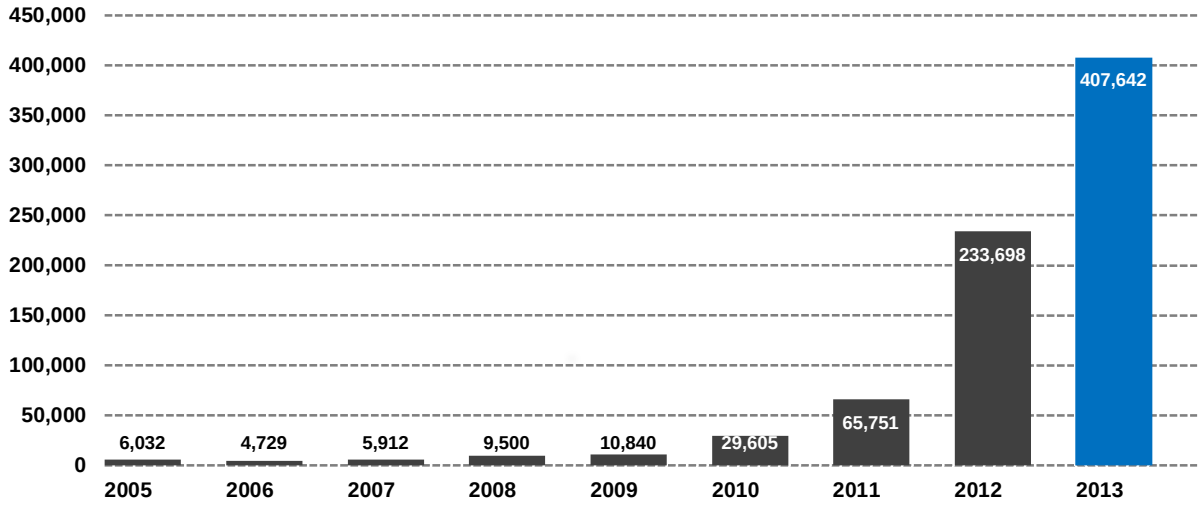
Figure 5 details the changing crude oil dynamics. EIA has not finalized its 2014 report that will include 2013 data, but based upon the trends noted by the American Association of Railroads (AAR) in Figure 6, the proportion of crude-by-rail will likely increase. AAR estimates railroads account for 11 percent of all U.S. crude transportation. The AAR totals do not line up completely with the EIA data as the latter only accounts for the final mode of transportation, which likely undercounts rail transportation significantly given the amount that is transshipped to barges, tankers, and trucks for the final journey to the refinery.

Figure 5 - Refinery Receipts of Crude Oil by Final Method of Transportation (Mbbl)[39]



As a result of the spike in production, U.S. rail companies have seen an enormous increase in the transportation of crude oil in the last few years. Figure 6 graphically displays this increase. As mentioned above, for 2013, the AAR estimates that railroads transported 11 percent of all crude transported in the U.S., which is a massive increase from the estimated 0.07 percent in 2008. This comes despite the fact that the cost of crude-by-rail is $5 to $10 higher per barrel than via pipeline.[40] The advantage of crude-by-rail is geographic flexibility to transport product to refineries that existing pipelines do not serve. There is roughly 57,000 miles of crude oil pipeline in the U.S. in comparison to 140,000 miles of railroad.[41,42]

Figure 6 - Originated Carloads of Crude Oil on U.S. Class I Railroads[43]



Recent Crude Oil Transportation Incidents have Revealed Significant Risks within the Industry

The boom in crude oil production and sheer volume of shipments by rail pose an emerging challenge for states on this rail and water network. As this report details, the volume and inherent volatility of Bakken crude oil, plus the outdated tank cars contribute to unique hazards.

In February 2014, two minor derailments of trains with crude oil tank cars occurred. One incident was in Ulster County and the other was in Albany County. Those derailments were relatively minor in character and resulted in no oil spilled, damage to the environment, or human health issues.

While New York State has not experienced any major incidents involving crude oil transport, the increased volume and frequency of shipments of crude oil by rail has increased New York State's vulnerability to an incident. However, the recent incidents both in the U.S. and Canada show the potential impact of an accidental crude oil release during transfer or shipment by rail or water:

- **Lac-Mégantic, Québec:** On July 6, 2013, a train consisting of 5 head-end locomotives, a special purpose caboose, 1 box car, and 72 DOT-111 tank cars with crude oil was secured on a main track with a descending grade. The unattended cars began rolling, uncontrolled, down the descending grade and into the town center of Lac-Mégantic (see Figure 7). The runaway train was traveling at nearly 80 mph on a stretch of track only rated for 10 mph. Approximately 1.58 million gallons of crude oil were released. The spilled oil ignited, resulting in a large fire that burned for more than a day. Oil that did not burn contaminated soil, two rivers, and Lac-Mégantic. The box car and 63 of the tanker cars derailed and spilled their contents. Forty-seven people died, and buildings, vehicles, roads, and railway tracks were destroyed. About 2,000 people were evacuated from the area.[44] According to court documents, the responsible party estimated pollutant clean-up costs alone will exceed $200 million.[45] This severe incident was the result of a sequence of human errors. Understanding this fact is important in preventing future incidents.
- **Casselton, North Dakota:** On December 30, 2013, a westbound grain train derailed near Casselton, North Dakota, and fouled the eastbound rail line. An eastbound petroleum crude oil unit train with 2 head-end locomotives, 1 rear distributed power locomotive, and 106 cars collided

with a derailed car from the grain train. The collision caused the head locomotive and 21 cars of the petroleum crude oil unit train to derail. Twenty of the derailed cars were carrying crude oil, and 18 of those were punctured. More than 400,000 gallons of crude oil was released, some of which ignited. No injuries were reported, though approximately 1,400 people from nearby Casselton voluntarily evacuated. The damage was estimated at $6.1 million.[46]

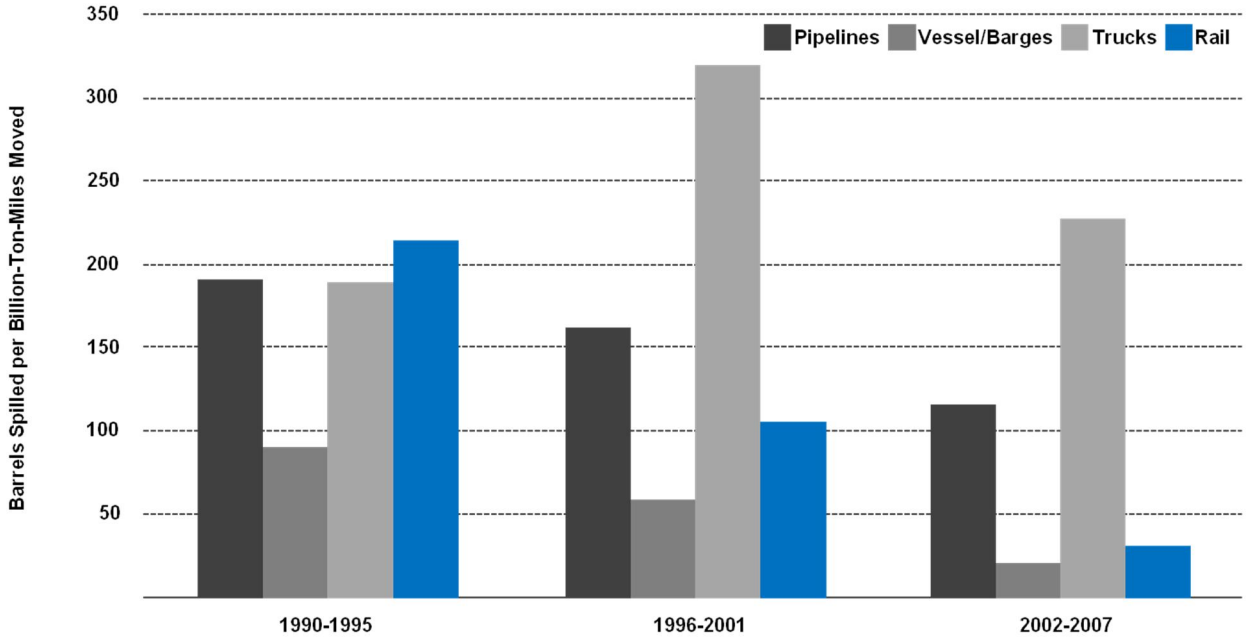
- **Mississippi River, Louisiana:** On February 23, 2014, the United States Coast Guard closed a 65-mile stretch of the Mississippi River to all traffic. A barge carrying crude oil ran into a towboat between Baton Rouge and New Orleans. The barge ruptured and spilled 30,000 gallons of light crude into the Mississippi. The spill forced the closure of public drinking water intakes along the river. No public health issues were noted, but a larger spill or longer term cleanup may have negatively affected drinking water reserves and supply. Further, over 30 vessels were delayed due to the spill and resulting cleanup.

Figure 7 – Lac-Mégantic, Quebec Tragedy[47]

Several other incidents have occurred, most notably in Alabama, where up to 750,000 gallons of crude oil was spilled. The DOT-111 tank car used to transport crude oil via rail has come under increased scrutiny due to the incidents described above.

The majority of crude oil is transported around the U.S. without incident. However, the increased volume being transported has increased the likelihood of an incident. In 2013, more crude oil was spilled from rail incidents than the previous four decades according to United States Department of Transportation (USDOT) data[48]. Figure 8 shows the incident rate between crude oil transported via pipeline, rail, and truck for relative comparison before the boom in crude oil by rail.

Figure 8 - Incidents per Billion Ton-Miles of Crude Oil Transported by Transportation Mode[49]



Crude Oil's Characteristics Challenge a Safe Transportation Network

The safe transportation of crude oil is complicated by the varied nature of the product itself. For Bakken crude oil, the challenge is the flammability of the crude in addition to the amount of dissolved natural gas within the crude, which affects its vapor pressure. The vapor pressure of a liquid, which varies with temperature, is a measure of how much the vapor the liquid releases during evaporation. Materials with high vapor pressures tend to burn more violently because the liquid can change into vapor more readily, feeding a fire. The classification and packaging of crude oil does not currently account for vapor pressure.

USDOT has made efforts to properly classify the contents of Bakken crude oil, but the oil producers have been slow to share vital information necessary to ensure public and environmental safety. Without a clear understanding of the flammability, vapor pressure, and non-crude content of Bakken crude oil, USDOT cannot properly regulate its transport.

While the spike in Bakken crude oil has focused attention on the transportation of crude oil in New York State, there is also a concern over the possibility of transporting Canadian Tar Sands crude oil through the state. Canadian Tar Sands oil presents a different set of challenges to effective prevention and response. Tar Sand oil is less volatile than Bakken crude oil, but is so heavy that it will sink if released over water. Given that much of the crude oil transported through New York State travels along or on major waterways, that is a significant concern and one that must be addressed if Canadian Tar Sands crude oil begins to be transported through New York State.

Figure 9 - U.S. Environmental Protection Agency Crude Oil Classifications[50]

Class A: Light, Volatile Oils	The oils are highly fluid, often clear, spread rapidly on solid or water surfaces, have a strong odor, have a high evaporation rate, and are usually flammable.
Class B: Non-Sticky Oils	These oils have a waxy feel. Class B oils are less toxic and adhere more firmly to surfaces than Class A oils.
Class C: Heavy, Sticky Oils	Class C oils are characteristically viscous, sticky or tarry, and brown or black.
Class D: Non-Fluid Oils	Class D oils are relatively non-toxic, do not penetrate porous substrates, and are usually black or dark brown in color. When heated, Class D oils may melt and coat surfaces making cleanup very difficult.

Crude oil poses environmental and safety risks and can cause significant immediate and long-term damage to people, property, the environment, and commerce. At the same time, as part of the energy mix, New York State relies upon petroleum products to heat homes, businesses, and to power our transportation system. The term "crude oil" covers a spectrum of substances with varying properties. Crude oils are commonly named for the location from which they were extracted and are classified by their density and sulfur content. Crude oil can be thin, lightweight, and volatile, or it can be thick, semi-solid, and heavy—ranging in color from a light, golden yellow to deep black.

Figure 10 - Relative Fire Hazards[51]

Petroleum Product	Flash Point	Vapor Pressure
Gasoline	- 50° F	7-15 PSI
Ethanol	62° F	2.3 PSI
#2 Fuel oil/Diesel	100° F	0.2 PSI
Bakken Crude	-31° F	5.94-13 PSI
#4/6 Fuel Oil	142 - 240° F	Insignificant
Tar Sands Oil	331° F	3.7 PSI

Light crude oils typically are more flammable than heavy crude oils. Flammability is a measure of how easily something will burn or ignite, causing fire or combustion. Several factors influence the flammability of a material including its flash point, vapor pressure, and flammability limits.

The lower the flash point the more easily a substance ignites. For vapor pressure, the higher the number the more volatile a compound is, reflecting a greater risk for explosion

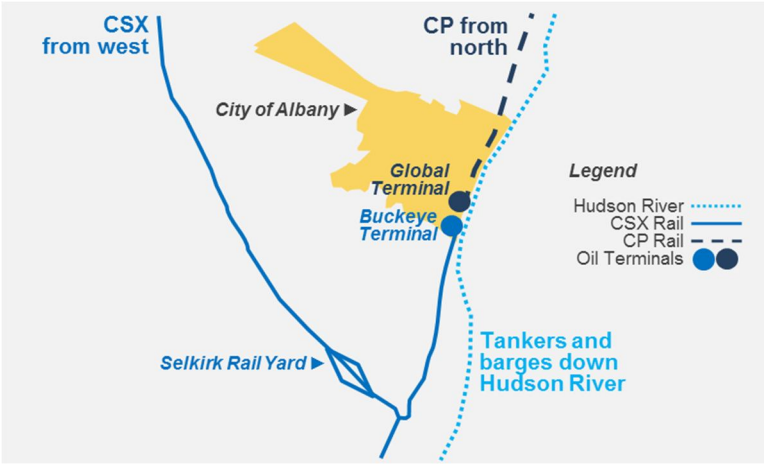
Bakken Crude Oil Began to Move through New York State in in 2011

Despite having no refineries located within New York State, the state has become a major rail conduit for the transport of crude oil from the Bakken formation in North Dakota and Canada to refineries in the Mid-Atlantic States and eastern Canadian provinces. Geographically and logistically, New York State has become a transit route because of routes through Appalachian Mountains to East Coast refineries, access to the navigable Hudson River through Albany, and its link to the Midwest and Canada by rail.

Figure 11 - Crude Oil Transportation Corridors in New York State, Rail and Water

Two major rail lines, CSX and Canadian Pacific, transport crude oil through New York State and converge in Albany. The east-west CSX rail line delivers the crude oil to Albany from Chicago after BNSF has brought it from North Dakota to Chicago transfer points. The rail line carries crude oil through Buffalo, Rochester, Syracuse, and Utica, to terminals in Albany. Some of the crude oil bypasses Albany and continues down the north-south CSX rail line, which runs follows the western shore of the Hudson River south, passing Newark and New York City on its way to New Jersey and Pennsylvania refineries. The Canadian Pacific rail line delivers crude oil from the north through Montreal to Albany. The rail line carries crude oil from Rouses Point through Plattsburgh, along Lake Champlain, and then through Saratoga to terminals in Albany.

Figure 12 - Port of Albany Terminals



Global Partner's Albany Terminal includes petroleum product tanks and truck and marine loading positions. GP receives its oil shipments from CP Rail. Global is headquartered in Massachusetts.

Buckeye Partners Albany Terminal provides crude oil services including off-loading unit trains, storage, and throughput. Buckeye Partners receives its shipments from CSX Rail. Buckeye is headquartered in Texas.

Once the crude oil arrives at terminals in Albany (see Figure 12), it is transferred to and stored in large storage tanks before being loaded onto barges and tankers for further transport for those refineries not equipped to receive crude by rail. Tankers regularly move crude oil from the Port of Albany south on the Hudson, through the New York Harbor, and via the Atlantic Ocean to refineries in St. John, New Brunswick. Tugs and barges also move down the Hudson to refineries along the Arthur Kill in northern New Jersey and to other facilities along the East Coast.

In 2011, after public notice and a comment period, the Department of Environmental Conservation (DEC) issued a permit modification allowing Global Partners ("Global") to begin storing crude oil and transferring it to tankers and barges at their existing Port of Albany facility. In 2012, Global asked for and was granted, following notice and public comment, a permit modification expanding the amount of crude oil throughput authorized. In 2012, DEC granted a permit modification for Buckeye Partners to allow the storage and transfer of crude oil at their Port of Albany facility.

In 2013, Global Partners submitted two permit applications to DEC to expand or alter operations at its facilities at the Port of Albany and in New Windsor. Both of these are pending. DEC has jurisdiction over air emissions from and petroleum storage at such facilities. For the Port of Albany facility, Global seeks to install boilers to produce heat that could be applied to storage tanks and tank cars fitted with coiled piping. The applicant claims that air emissions from the proposed boilers would be minimal. The applicant further claims that the amount of crude oil allowed to pass through the facility would actually be reduced by 50 million gallons per year if Global's application is approved. DEC has required Global to provide additional information and conduct an enhanced public outreach effort in accordance with the Department's environmental justice policy—prior to any issuance of a permit. Global's permit to expand its New Windsor terminal to accept crude by rail for transfer to tanker and barge has thus far been deemed incomplete, but DEC will hold the applicant to the same standards that have been applied on the pending permit at the Port of Albany.

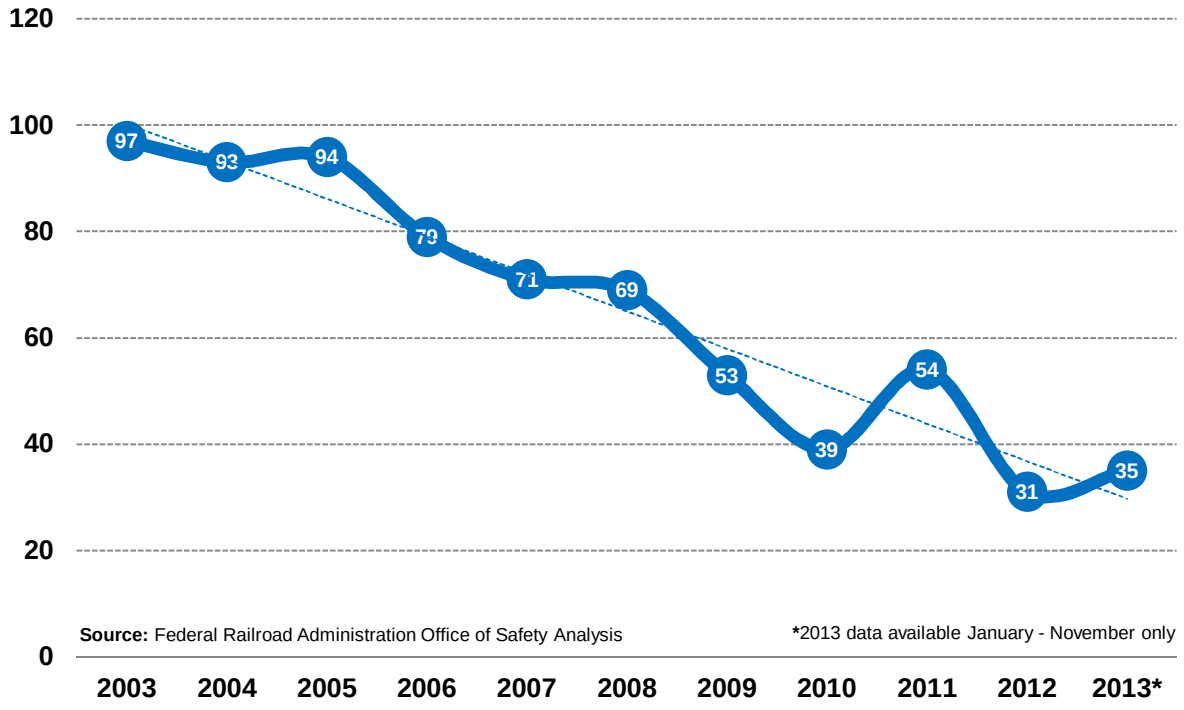
New York's Rail Safety Record is Strong and Improving

New York State has not experienced a crude oil spill, fire, or explosion since Bakken crude oil began to be transported through New York State in 2011. However, while that is a small sample size, the longer term historical experience suggests it is not an aberration. New York's rail transportation record has been steadily improving over the last decade. As shown in the figure below, joint federal and state track inspection has helped to decrease rail incidents by 64 percent over the last 10 years. Figure 13 shows the number incidents that have occurred per year on main line track annually for the past decade, and

Figure 14 shows the number of hazardous material incidents and the number of tank cars compromised in those incidents. In both cases, New York State's rail safety record has been steadily improving.

Figure 13 - Rail Incidents in New York 2003-13

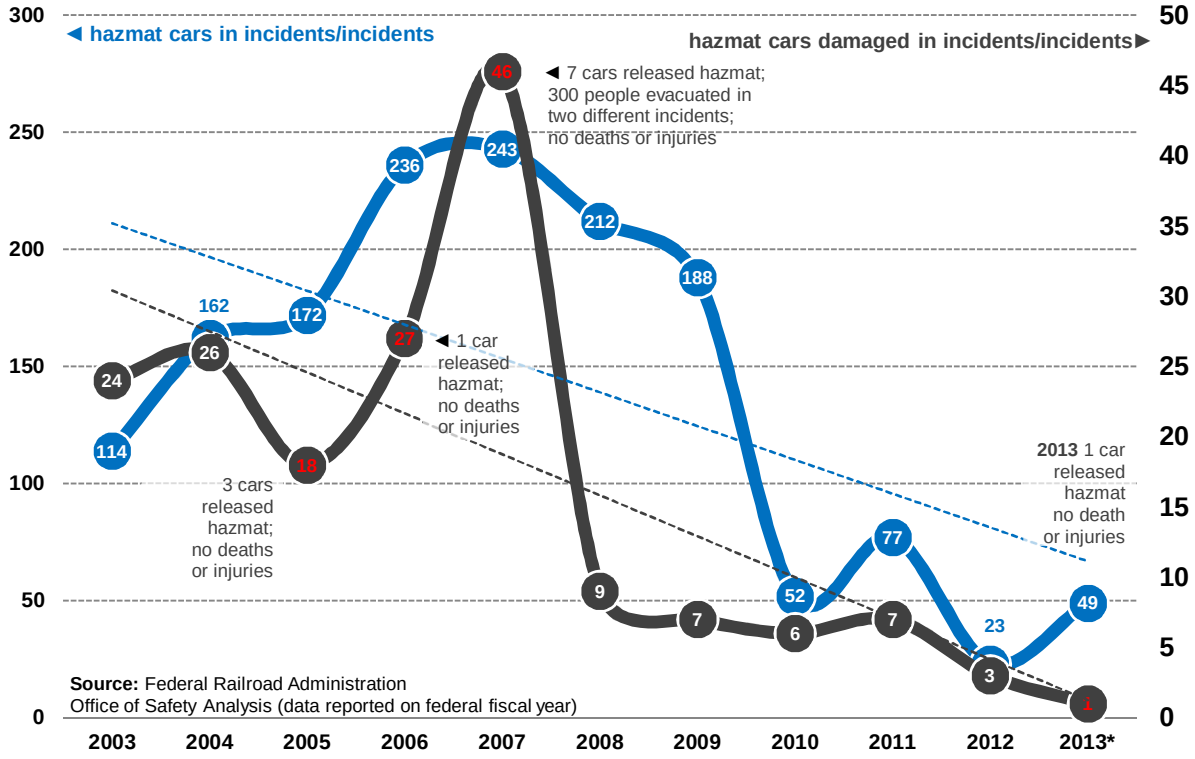
(excludes highway/rail crossing incidents)



Source: Federal Railroad Administration Office of Safety Analysis

*2013 data available January - November only

Figure 14 - Hazmat Cars in Incidents in New York 2003-13



Source: Federal Railroad Administration Office of Safety Analysis (data reported on federal fiscal year)

Improving Water Transport Record Marred by Stena Primorsk

New York's water-borne hazardous materials transportation record since 2003 is similarly impressive. The changes brought about at the federal level by the Oil Pollution Act of 1990 (OPA 90) have increased the safety of transporting crude oil and other petroleum products via water. Among several important requirements, OPA 90 forced the shipping industry to adopt double hulls for all new tankers. For example, there have only been four significant vessel incidents on the Hudson River since the law was passed. Most barges and tankers operating on the state's waterways right now are post-OPA 90 double-hulled vessels. A recent incident is cause for concern. On December 20, 2012, the Stena Primorsk (see Figure 15), loaded with crude oil transloaded from rail tanker cars at the Port of Albany, ran aground seven miles south of Albany due to a steering system malfunction. The OPA-required double-hull in the tanker helped to avert an environmental disaster.

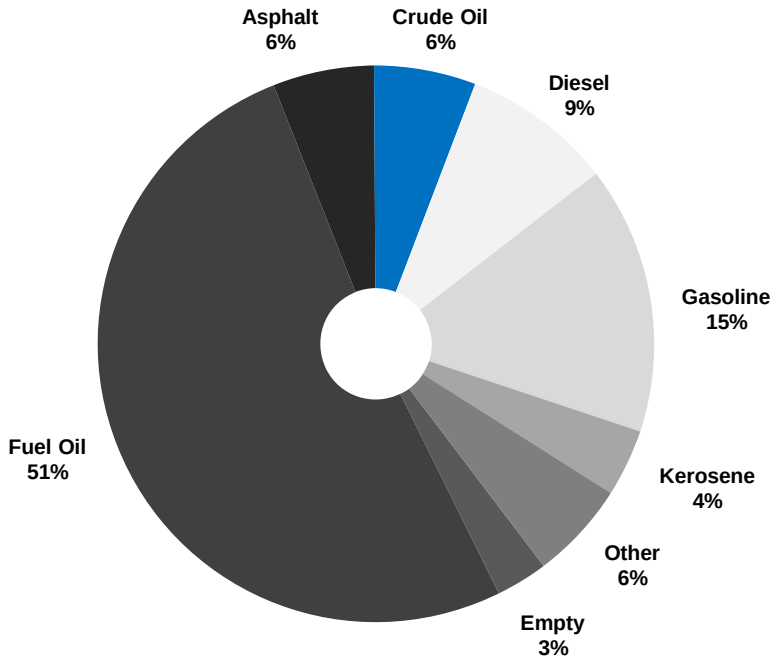
Figure 15 – Stena Primorsk[52]

On December 20, 2012, the 597-foot-long tanker Stena Primorsk was carrying approximately 286,000 barrels of crude oil (about 12 million gallons) when the tanker ran aground seven miles south of Albany. This was the Stena Primorsk's first transit of the Hudson River while loaded with oil. Fortunately, this is a double-hulled vessel and although the outer hull was breached creating a hole reported to be thirteen feet by six feet, the inner hull holding oil was not compromised and no oil was spilled to the river. Had the inner hull been breached, a large spill would have ensued depending upon the size of the breach, how many of the 12 internal compartments would have been damaged, and river conditions. Reportedly, the incident occurred due to a problem with the ship steering system.

New York State's Oil Spill Program has an Excellent Recent Safety Record

In order to move from railcars to vessels, crude oil must be unloaded, stored temporarily and then loaded onto the vessels. This occurs at and adjacent to what are known as major oil storage facilities (MOSF) – a site where 400,000 gallons or more of petroleum is stored. There are 29 categories of products stored in MOSFs, and Figure 16 depicts the breakdown among the major products currently stored in MOSFs in New York State.

Figure 16 - Products Stored at Major Oil Storage Facilities[53]



At major oil storage facilities (MOSF) over the last 10 years, there were an average of 14 spills per year (at facilities with a capacity of greater than 400,000 gallons of oil), with a median spill of 50 gallons. The majority of these are prevented from escaping to the environment by secondary containment measures. To put this into context, the Department of Environmental Conservation receives approximately 14,000 non-MOSF spill notifications per year. In 2013, there were 17 MOSF spills with only four affecting the environment – all were considered minor and cleaned up by the responsible party. Small spills will continue to be a challenge, but the required secondary containment mechanisms at MOSFs generally ensure that spills do not reach the surrounding environment.

New York has Responded Effectively to Recent Natural Disasters

Lastly, New York's recent experiences with disaster response in the wake of seven federally-declared disasters since 2010, including three significant hurricanes and tropical storms, has strengthened the State's multi-jurisdictional prevention and response capabilities. The Division of Homeland Security and Emergency Services (DHSES) coordinated the State's response and recovery efforts for these major events.

During Irene and Lee, the State Emergency Operations Center (SEOC) coordinated the response of over 40 state and federal agencies and the SEOC operated for 31 consecutive days. The New York State

Incident Management Team deployed to Schoharie County and established a Command Post at the Schoharie County Fair Grounds, which enabled quick and efficient coordination between federal, state and local officials. Over 1,700 State Police, 3,200 National Guard members, and 600 fire related resources were deployed to assist in that effort. New York received addition Emergency Management Assistance Compact support from 17 states across the nation, and shelters from around the state provided emergency housing for 18,000 displaced New Yorkers. During Superstorm Sandy, the SEOC operated for 67 consecutive days, responding to over 2,500 requests for assistance and ensuring aid to at risk New Yorkers.

Following the spate of recent disasters, Governor Cuomo convened the Ready to Respond and 2100 Commissions. These Commissions addressed the state on how to sustainably rebuild and better prepare and respond to disasters and other incidents that impact the state. Since the Commissions convened, Governor Cuomo has continued to aggressively pursue measures to ensure New York State's resiliency and capacity to recover. He established innovative programs such as Office of Storm Recovery to coordinate New York's recovery and the Citizens Preparedness Corps.

In the event of a crude oil incident New York State will be better positioned to respond as a result of this work. While natural disasters are dissimilar from oil spill incidents, the natural disasters have helped to improve front-line communications and response.

2. Findings and Recommendations:

Federal and state government and industry can enhance protections

New York State's recent record of safe hazardous material transport highlights how effective federal, state, local, and industry partnerships have been at preventing a serious incident from occurring. Additionally, New York State's effective responses to recent natural disasters shows the State and its federal and local partners have developed a dynamic partnership to help the state recover from disasters and adapt to the impacts of severe storms. The recent boom in crude oil transportation by rail through New York could test the readiness of federal, state, and local governments. One thousand miles of New York's 4,100 mile rail system has become a virtual pipeline of crude oil.

This chapter identifies key findings along with key recommendations to address gaps in current practices, regulations, or standards. These findings and solutions were identified by subject matter experts from within New York State agencies in consultation with local and federal counterparts as well as industry representatives. This chapter is broken down by the level at which the necessary action is required: federal, state, or industry.

The federal government has almost exclusive jurisdiction over the interstate rail and water shipment of hazardous materials, including crude oil. The United States Department of Transportation regulates railroads and hazardous materials transportation, the U.S. Coast Guard (USCG) regulates shipments by water, and the Environmental Protection Agency (USEPA) regulates petroleum storage. Therefore, the federal government is chiefly responsible for protecting New Yorkers from incidents involving railroads, tankers, and barges.

New York State agencies play a supplementary but important regulatory role. The New York State Department of Transportation partners with the FRA to conduct rail inspections. The Department of Environmental Conservation, in partnership with the U.S. Environmental Protection Agency and Coast Guard, regulates bulk petroleum storage. The Division of Homeland Security and Emergency Services, in partnership with federal and local agencies, ensure appropriate emergency response plans are in place. The Department of Health administers oil spill recovery programs. The New York State Energy Research and Development Authority ensure the state's critical fuel stocks are monitored. Local governments are chiefly responsible for first response to incidents.

Individual businesses and industry associations are response for the day-to-day safe handling and transport of crude oil as well as adhering to and adapting to the standards, best practices, and rules that help them do so. Comprehensive information outlining the activities and functions of the diverse range of government and private sector organizations is located in Appendix 4.

Federal Agencies Must Act to Reduce the Risk

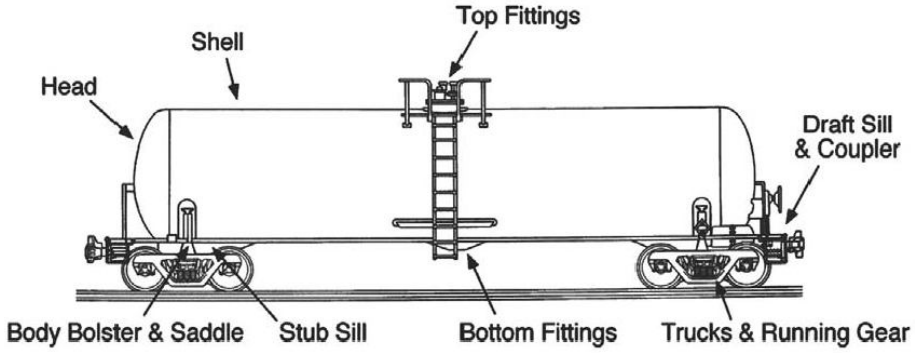
1. Federal / International

Finding

The DOT-111 tank car that oil companies use to transport Bakken crude oil on U.S. and Canadian railroads is inadequate to protect public safety and the environment.

Twenty three years ago, the U.S. National Transportation and Safety Board (NTSB) revealed several safety issues concerning the transport of hazardous materials in DOT-111 tank cars.[54] During that year, the NTSB conducted a safety study concerning the transport of hazardous materials by rail. This study investigated rail incidents from March 1988 through February 1989.[55] The results of this study established that DOT-111 tank cars had a high incidence of failure during crashes – more than double that of pressure tank cars, such as the DOT-105 or DOT-112, which have thicker shells and heads.[56] DOT-111 tank cars were more likely to experience head or shell punctures as well as release hazardous materials product during an incident.[57] The initial investigations into the Lac-Mégantic and North Dakota incidents further highlight the DOT-111's susceptibility to damage and subsequent loss of hazardous material during derailment.[58]

Figure 17 - DOT-111 Tank Car[59]



DOT-111 Specifications:

- **60 feet long**
- **11 feet wide**
- **16 feet high**
- **80,000 lb. empty**
- **286,000 lb. full**
- **30,000 gal capacity**

By 2011, following the Cherry Valley, Illinois ethanol derailment and fire investigation (see discussion in call out box below), the railroad industry was willing to act on its own without USDOT regulatory action. The Association of American Railroads (AAR) Tank Committee set technical standards for new tank car design and construction, and the AAR Tank Committee then challenged USDOT to mandate the following in relation to tank car safety:[60] However, manufacturers and purchasers of rail cars are waiting for USDOT to determine tank car designs.

In March 2011, the AAR petitioned USDOT to adopt the new standards a thicker, more puncture-resistant shell or jacket; extra protective head shields at both ends of tank car; and additional protection for top fittings[61] (See Figure 18), and in July 2011, these higher standards were adopted by the AAR despite inaction by USDOT. These voluntary standards apply to new tank cars transporting crude oil ordered after October 1, 2011.[62]

Figure 18 – Post-2011 Tank Car[63]

In July 2009, a Cherry Valley, Illinois, derailment of 15 DOT-111 rail tank cars led to a release of ethanol and a subsequent fire. The NTSB investigation of that incident found that DOT-111 tank cars have a high failure rate in derailments that involve car-to-car impacts or pileups (68 percent in that incident). The NTSB concluded that tank design contributed to the severity of the incident and issued the following recommendations:

- **R-12-05: Require that all newly manufactured and existing general service tank cars authorized for transportation of denatured fuel ethanol and crude oil in packing groups I and II have enhanced tank head and shell puncture resistance systems and top fittings protection that exceeds existing design requirements for DOT-111 tank cars.**
- **R-12-06: Require that all bottom outlet valves used on newly manufactured and existing non-pressure tank cars are designed to remain closed during incidents in which the valve and operating handle are subjected to impact forces.**

Figure 19 – Close up of DOT-111 Tanks Cars after Cherry Valley, Illinois Derailment and Fire[64]

Following the July, 2013 Lac-Mégantic disaster, in September 2013, USDOT published an advance notice of proposed rulemaking that addresses the issue of DOT-111 tank cars. Publication of the proposed rulemaking in the Federal Register indicates consideration and information gathering to create revised or additional regulation in this area but does not create new requirements.[65]

In November 2013, freight railroads – including CSX and CP which currently transport crude oil in New York State – urged USDOT go beyond the self-imposed 2011 standards by requiring all tank cars used to transport certain types of hazardous materials, including crude oil, be built to a higher standard and all existing cars be retrofitted to this higher standard or phased out of flammable service. AAR offered the following specific recommendations to USDOT (which are reflected in Figure 20):[66]

- Increase federal tank car design standards for new cars or retrofit existing cars to include:
    - An outer steel jacket around the tank car and thermal protection
    - Full-height head shields
    - High-flow capacity pressure relief valves
- Require additional safety upgrades to those tank cars built since 2011, including:
    - Installation of high-flow-capacity relief valves, and
    - Design modifications to prevent bottom outlets from opening in case of an incident
- Aggressively phase out older-model tank cars used to move flammable liquids that cannot be retrofitted to meet new federal requirements.
- Eliminate the option for rail shippers to classify a flammable liquid with a flash point between 100 and 140 degrees Fahrenheit as a combustible liquid.

In January 2014, USDOT issued a safety alert declaring that Bakken crude oil may be more flammable than traditional crude oil.[67] USDOT also advised in the safety alert that crude oil should be properly characterized to identify properties that could affect the integrity of the packaging including corrosiveness, sulfur content, and dissolved gas content.[68]

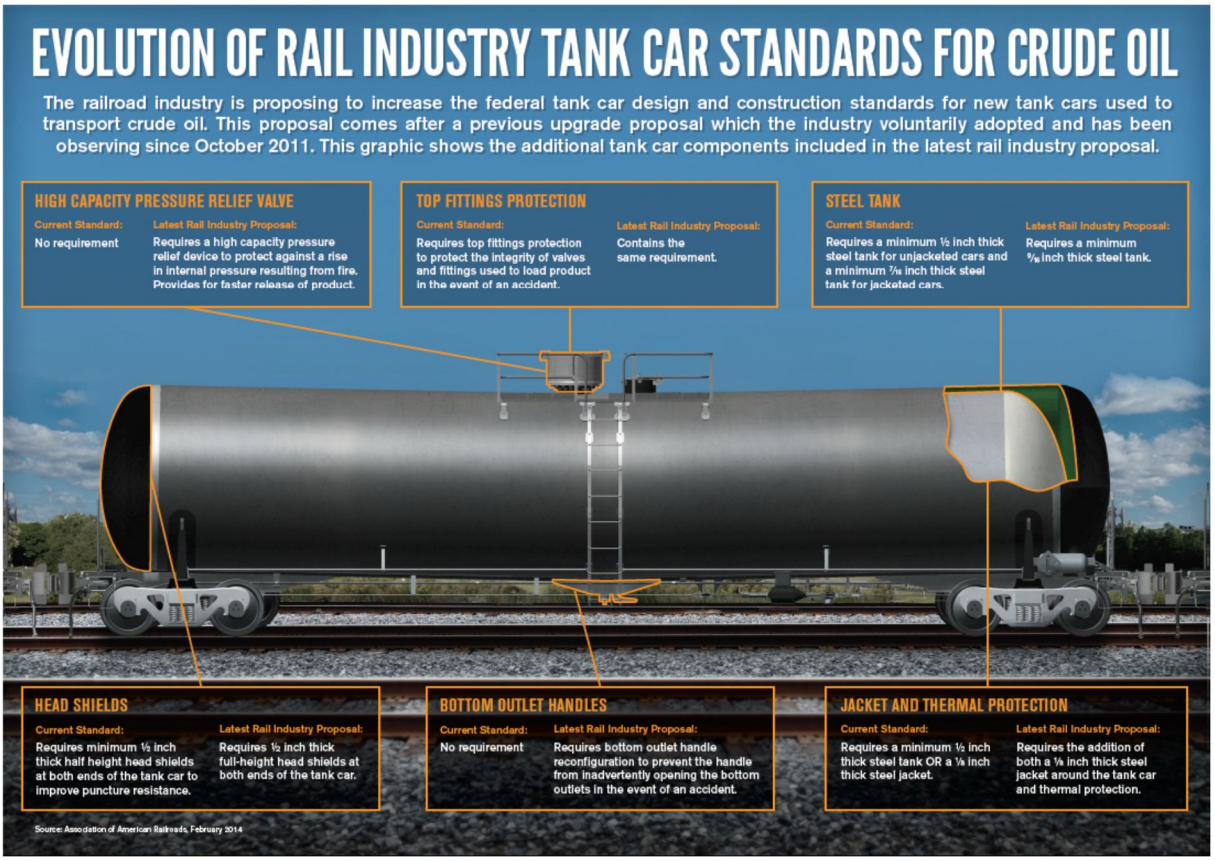
Some companies have announced that they are moving to proactively phase out the DOT-111 tank cars this year. Several railroads have also begun to enact policies with regard to the perceived risks associated with continued use by shippers of the older tankers. For example, Canadian Pacific Railroad announced in February of this year that, effective March 14, 2014, it would begin assessing a $325 "general service tank car safety surcharge" on each tank car of crude oil that is shipped in any container other than the newer, hardened models. BNSF, which operates primarily west of the Mississippi River, in fact, has taken the unprecedented step of buying 5,000 safer DOT-111 tank cars that it will lease to shippers on its lines.

Recommendation

The US Department of Transportation should finalize new and retrofitted tank car regulations immediately.

The USDOT should finalize immediately and expeditiously adopt new tank car regulations for the transport of crude oil that the AAR has proposed. The new standard does not have the support of all crude oil producers due to economic concerns, but the safety of New Yorkers and others in the U.S. must be paramount. Figure 20 shows the AAR's graphic depiction of the new tank car and its attributes. Expedited action is necessary as well to send a clear signal to manufacturers and tank car owners about when and how to invest in equipment. Waiting years, or even months is unacceptable given the documented issues with the DOT-111, and the increased risks presented by the transportation of crude oil.

Figure 20 - Proposed New Tank Car for Crude Oil[69]



On January 28, 2014, as part of NYSDOT, DEC, DOH, and DHSES' letter to their federal counterparts, New York State demanded that USDOT expeditiously phase out the DOT-111 tank car for crude oil and set an aggressive timetable for its replacement.

On March 3, 2014, as part of his letter to USDOT and the U.S. Department of Homeland Security (USDHS), Governor Cuomo again called on federal counterparts to phase out the use of the pre-2011 or un-retrofitted DOT-111 tank cars.

Figure 21 – DOT-111 Tank Car Use[70]

Freight	Number of Cars	Percentage of Fleet
Total DOT-111	272,119	100%
Non-Hazmat	101,360	37.2%
Hazmat	170,759	62.8%
Non-flammable Hazmat	76,769	28.2%
Flammable Hazmat	94,178	34.6%
Post-2011 Model or retrofitted	14,160	5.2%
Older Model	65,341	24.0%

New York State recognizes the costs and logistical hurdles associated with retrofitting existing cars and building new ones. The data shown in Figure 21 shows the number of pre-2011 DOT-111 tank cars that remain in service, and Figure 22 shows the associated costs of retrofitting the existing fleet. Retrofits to the existing fleet would likely face a significant backlog as tank car manufacturers are not positioned to meet such a demand. However, according to the Rail Supply Institute's Committee on Tank Cars, less than a quarter of the DOT-111s on the rails today would need to be retrofitted.[71] Given that almost two thirds of DOT-111s currently transport non-flammable cargo (both hazardous and non-hazardous materials),[72] the existing DOT-111 fleet could be repurposed to carry non-flammable cargo at little cost. However, while a protective new standard will come at significant cost to industry, states and local entities cannot continue to bear the risk to life and property due to inadequate technology. Public safety dictates that the most protective action should be taken.

Figure 22 – DOT-111 Retrofitting Cost[73]

Modification	Cost per Car	Out-of-Service Time
Option 1: High Capacity Pressure Relieve Valve		
• **If done during requalification**	$2,100	No additional time
• **Not during requalification**	$3,400	5 weeks
Option 2: Bottom Outlet Valve Handle Removal	$600-$3000	Under review
Option 3: Trapezoidal/Conforming Head Shield	$17,500	5 weeks
Option 4: Top Fittings Protection		
• **Assuming existing nozzle**	$6,000	7 weeks
• **New Nozzle**	$17,500	
Option 5: Top Fittings Protection, New Nozzle, Jack, Full Head Shield	$63,500	12 weeks
• **Thermal Insulation**	+$3,700	
• **Cost of trucks, if upgradable**	+$16,500	

2. Federal / International

Finding

The railroad industry's voluntary efforts are incomplete and lack the permanence and protection of government regulations.

Subsequent to the recent catastrophic derailment incidents the Association of American Railroads (AAR) has put forth several voluntary safety recommendations with regard to crude oil trains. On February 21, 2014, the AAR adopted the following measures, which are voluntary and over which federal and state regulators have no enforcement jurisdiction (unless these are subsequently included in federal regulations):

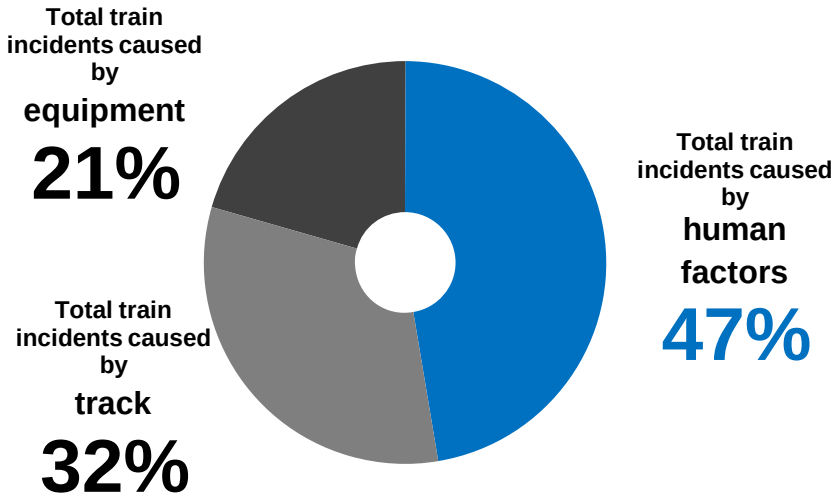
- *Increase track inspections* – Effective March 25, 2014, railroads will perform at least one additional internal-rail inspection each year above those required by new FRA regulations on main line routes over which trains moving 20 or more carloads of crude oil travel. Railroads will also conduct at least two automated track geometry inspections each year on main line routes

over which trains with 20 or more loaded cars of crude oil are moving. Current federal regulations do not require comprehensive track geometry inspections.

- *Braking systems* **–** No later than April 1, 2014, railroads will equip all trains with 20 or more carloads of crude oil with either distributed power or two-way telemetry end-of-train devices. These technologies allow train crews to apply emergency brakes from both ends of the train in order to stop the train more quickly.
- *Use of rail traffic routing technology* **–** No later than July 1, 2014, railroads will begin using the Rail Corridor Risk Management System (RCRMS) to aid in the determination of the safest and most secure rail routes for trains with 20 or more cars of crude oil. RCRMS is a sophisticated analytical tool, developed in coordination with the federal government, including the USDHS, PHMSA and FRA. Railroads currently use RCRMS in the routing of security sensitive materials. This tool takes into account 27 risk factors – including volume of commodity, trip length, population density along the route, local emergency response capability, track quality and signal systems – to assess the safety and security of rail routes.
- *Lower speeds* **–** No later than July 1, 2014, railroads will operate trains with 20 or more tank cars carrying crude oil that include at least one older DOT-111 car no faster than 40 miles-per-hour in the federally designated 46 high-threat-urban areas (HTUA) as established by Department of Homeland Security regulations. In the meantime, railroads will continue to operate trains with 20 or more carloads of hazardous materials, including crude oil, at the industry self-imposed speed limit of 50 miles per hour.
- *Community relations* **-** Railroads will continue to work with communities through which crude oil trains move to address location-specific concerns that communities may have.
- *Increased trackside safety technology* **–** No later than July 1, 2014, railroads will begin installing additional wayside wheel bearing detectors if they are not already in place every 40 miles along tracks with trains carrying 20 or more crude oil cars, as other safety factors allow.
- *Increased emergency response training and tuition assistance* **–** Railroads have committed by July 1, 2014 to provide $5 million to develop specialized crude by rail training and tuition assistance program for local first responders. One part of the curriculum will be designed to be provided to local emergency responders in the field, as well as comprehensive training designed to be conducted at the Transportation Technology Center, Inc. (TTCI) facility in Pueblo, Colo. The funding will provide program development as well as tuition assistance for an estimated 1500 first responders in 2014.
- *Emergency Response Capability Planning* **–** Railroads will by July 1, 2014 develop an inventory of emergency response resources for responding to the release of large amounts of crude oil along routes over which trains with 20 or more cars of crude oil operate. This inventory will include locations for the staging of emergency response equipment and, where appropriate, contacts for the notification of communities. When the inventory is completed, railroads will provide USDOT with information on the deployment of the resources and make the information available upon request to appropriate emergency responders.

These measures are an important first step. However, they do not account for human factors as causes of incidents, do not sufficiently address speed concerns, do not provide adequate training and resources for local first responders, and are limited due to their voluntary nature. FRA collects and analyzes incident information to determine the root cause to eliminate risk and take appropriate enforcement action. This ensures the rail industry a process for continuous safety improvement. FRA's incident reporting data for New York State in the period from 2003 through 2013 shows that human factors were found to be the cause of 47 percent of train incidents (see Figure 23). The recent voluntary measures do not address human factors with any additional precautions or actions to be implemented by railroads. Human factors in the packaging of petroleum for rail transport is not addressed either.

Figure 23 - Rail Incident Causes in New York State, Average 2003-13



FRA has allocated resources and is working with the industry to make improvements to decrease human factor-related incidents. The final rule to advance nationwide implementation of positive train control (PTC) systems (which prevent over-speed derailments, train-to-train collisions, and other types of incidents often caused by human error) is critical. FRA also issued two other rules designed to reduce some of the costs of PTC implementation. PTC systems are a technology that promotes safety improvement through the reduction of certain human-factor-related incidents and will complement FRA's other safety efforts, such as implementation of safety Risk Reduction Programs (RRP) and crash energy management.

Half of human errors are attributed to:

- **Leaving switch in wrong position**
- **Failing to latch and or lock a track switch**
- **Moving cars without assessing track conditions**
- **Moving cars without controlling the movement**
- **Moving cars without ensuring track ahead is clear**
- **Leaving cars in an obstructing position**
- **Operating over a damaged or broken switch**
- **Failing to apply or remove a precautionary safety device**

Additionally, the FRA has taken the following actions: a proposed rule that would enhance safety by mandating that certain railroads (each Class I railroad, intercity passenger railroad, and commuter railroad) have a Critical Incident Stress Plan, an FRA-led industry-wide initiative to combat the dangers of electronic device distraction, and a proposed rule that would establish minimum training standards for each class or craft of safety-related employee and contractor.[74]

The $5 million dollars committed by the AAR's membership to training for 1,500 first responders is an important first step, but spread around the country that amount of money does little to improve readiness. The industry could make a bolder commitment to train and equip state and local first responders around the country who are confronting this boom in crude oil transportation.

The voluntary measure to limit speeds in the 46 USDHS-designated High-Threat-Urban Areas (HTUA) is inadequate to protect New Yorkers. New York City and Buffalo are the only cities in New York State formally designated by USDHS as high threat urban areas. This threat-based approach is focused on terrorist incidents and fails to account for the vulnerability created by high speed crude oil transportation

through other populated areas of New York State. As it currently stands, crude oil trains will continue to operate at speeds up to 50 miles per hour throughout the state with the exception of Buffalo, unless specifically limited by the individual railroads, such as Canadian Pacific (CP) and (CSX) have done in Albany with 10 and 25 mile per hour limits, respectively.

Recommendation

The United States Department of Transportation should strengthen the voluntary measures put forward by the AAR and codify them in regulations.

FRA should codify the voluntary measures put forward by the AAR and make them permanent and mandatory. This must happen swiftly as the measures contain many important elements that will improve the safety of the transportation of crude oil by rail. FRA has issued several emergency orders since the beginning of the year addressing several concerns, but they need to be made permanent.

On January 28, 2014, as part of NYSDOT, DEC, DOH, DHSES, and NYSERDA's letter to their federal counterparts, New York State urged USDOT to conduct rulemaking expeditiously. On March 3, 2014, as part of his letter to USDOT Secretary Anthony Foxx and USDHS Secretary Jeh Johnson, Governor Cuomo also urged USDOT to codify these measures.

Additionally, on April 29, NYSDOT Commissioner, Joan McDonald, issued a letter to Secretary Foxx, urging USDOT to amend its regulations to require proper securing of unattended trains, including specific criteria for determining the appropriate number of hand brakes to be set based upon the total number of cars, weight of cars, and the applicable track gradient. This letter addressed the timely implementation of positive train control. Implementing positive train control may take considerable industry effort and resources, but the benefit to public safety cannot be understated, and USDOT needs to continue to hold the railroads to the timetable set out in federal legislation that required Positive Train Control.

Commissioner McDonald addressed concerns in correspondence on April 29, 2014 to AAR and USDOT about the lack of attention to human factors in incidents and the manner in which speed restrictions were identified in the voluntary agreement between AAR and USDOT. The voluntary agreement does not consider actions to address human factors in the causes of incidents. This is important given the high propensity of incidents attributable to human factors and the impact a crude oil-related incident could have on New York State. As well, the HTUA designation process is inadequate as the only measure for dictating rail speed limits. The AAR and the FRA should develop a more appropriate measure for assigning speed limits. NYSDOT recommended that the population threshold should be the same threshold USDOT uses to identify urbanized areas: areas with 50,000 persons or greater. These areas would trigger a review of potential track corridors where speed should be evaluated based on the vulnerability of the transited community to a crude oil incident.

Additionally, the rail and oil industries should provide significantly more response training, equipment and resources to New York and other states and localities affected by the dramatic increase in oil being transported by rail around the country. New Yorkers and residents of other state bear the risk while those industries profit. In her April 29th letter to the AAR and the American Petroleum industry, Commissioners McDonald and Martens urged those two organizations to work with their membership to help New York and other states address the vulnerability the boom in crude-by-rail has created.

3. Federal / International

Finding

Bakken crude oil is significantly different from other forms of crude, but international transportation classification criteria do not distinguish the difference.

In the event of a catastrophic derailment or train collision, first responders need to know the hazardous materials with which they will have to contend. This information is required so that in the event of a spill, first responders can determine what materials and equipment will be needed to contain the identified hazmat; and in the event of a fire, they will have as much information as possible to protect the public and to quickly identify the appropriate methods and materials required to extinguish the fire.

All hazardous material tank cars must be marked with an identification number. The United Nations Committee of Experts on the Transport of Dangerous Goods publishes the *Recommendations on the Transport of Dangerous Goods*, which recommends unique identifiers appropriate to certain hazardous materials. Those recommendations are then adopted by individual member countries. The current identification number for crude oil is UN1267.

Given the recent catastrophic incidents associated with the transport of crude oil from North Dakota, it has become clear that the volatility of Bakken crude dictates that it must be treated differently. A recent analysis of the crude oil from the Lac Mégantic derailment revealed that the flash point of crude oil samples retrieved from intact tankers at the crash site had a flash point similar to unleaded gasoline (which has a different identifier, UN1203).

Transporters are responsible for maintaining an accurate record of the materials on their trains, vessels, and barges, although the terms used differ (manifest in a maritime context, and a waybill in rail). In transporting crude by rail, trains carry different commodities, and the makeup and car sequence of a train can change from its initial point of departure to destinations in New York State. Thus, proper classification and marking is critical for first responders to understand the extent of response assets needed. Placarding of hazardous substances, including crude oil, is the responsibility of the company offering the material for shipment. The carrier is responsible for ensuring that the shipment does not appear to have been tampered with prior to departing.[75]

Recommendation

The United Nations, which assigns unique hazardous materials identifiers, should recommend new classifications based on crude oil characteristics to enable appropriate packaging and to inform response personnel as to the qualities of the crude oil.

Bakken crude oil's volatility and chemical composition makes it significantly dissimilar from other crude oils, yet the current classification system does not allow for a distinction. A separate placard for Bakken does not make sense, but one that accounts for its characteristics would be sufficient as it would enable the placard to cover similar crude oil types. At the same time, a placard for extremely heavy oil such as tar sands would be helpful to responders who need to know that it sinks in water.

On March 3, 2014, Governor Cuomo urged USDOT Secretary Anthony Foxx and USDHS Secretary Jeh Johnson to require the railroads to add additional identifiers so that local first responders understand the response needs. Subsequent to Governor Cuomo's letter, U.S. and Canadian governments have requested that the United Nations Committee of Experts on the Transport of Dangerous Goods review the classification of Bakken crude oil and provide a new unique identifier code if deemed appropriate.

4. Federal / International

Finding

Railroads do not have the same emergency response plan requirements as tanker and barge operators.

As authorized by the federal Clean Water Act, U.S. Department of Transportation's (USDOT) Pipeline and Hazardous Material Administration (PHMSA) has promulgated regulations which require railroads to formulate comprehensive response plans to be implemented in the event of an oil spill. However, the volume threshold of 42,000 gallons is applied per car, so railroads pulling DOT-111 tank cars carrying crude oil are exempt from submitting a comprehensive response plan, even though crude oil often is transported in unit trains that consist of many tank cars. These required response plan elements are essentially similar to the Vessel Response Plan requirements stipulated by the USCG under the provisions of Oil Pollution Act of 1990.

Concurrently, the U.S. National Transportation Safety Board (NTSB) also issued Safety Recommendation R-14-5 recommending that PHMSA revise the threshold that dictates the requirement for comprehensive response plans to account for the fact that crude oil is typically transported in 50-100 car trains and more than one car is often compromised.[76]

Recommendation

US Department of Transportation should update its regulations governing the requirement for railroads to develop route-specific contingency plans as trains carrying crude oil in DOT-111 tank cars do not currently meet the volume threshold, which is done by container, rather than the total volume of the train.

FRA regulations should be amended to bring the railroads into the same type of regulatory oversight that is currently in place under OPA 90 for vessels and facilities. The 42,000 gallon threshold should either be eliminated or apply to the entire train. On April 29, 2014, NYSDOT Commissioner Joan McDonald issued a letter to USDOT Secretary Anthony Foxx urging USDOT to promptly amend the regulations highlighted by the NTSB to require railroads to develop emergency response plans for derailments and other incidents likely to result in crude oil spills or fires, file those plans with designated state and federal agencies, have contractual relationships with Oil Spill Response Organizations and other organizations necessary to meet their roles and responsibilities identified in those response plans, and conduct or participate in response drills and exercises with local, state and federal agencies. The railroad response plans should identify their response capabilities, any gaps in those response capabilities, and how those capabilities will be integrated into the overall response to a crude oil incident.

5. Federal / International

Finding

Federal transportation-related hazardous material grant funding is inadequate to address the increased risk posed by the volumes of crude oil now being shipped through New York State.

Implementation of the increased planning, preparedness and response efforts necessary to address the increased risks posed by the boom in the transportation of crude oil across New York State requires additional funding support. New York State's efforts to support these preparedness actions, including providing for effective emergency planning and training of emergency responders currently relies upon funding provided by the Hazardous Materials Emergency Preparedness (HMEP) Grant Program administered by the USDOT, which is designed to increase non-federal effectiveness in safely and efficiently transporting hazardous material.

For the federal fiscal year 2013 – 2014 grant period HMEP funds provided by USDOT to DHSES totaled $853,599 which was combined with the State funding share of $209,650 for a total of $1,048,249. This combined funding was used to support hazardous materials training program ($742,839 for personnel and equipment costs) and planning activities in support of Local Emergency Planning Committee (LEPC) efforts (approximately $305,410 for personnel costs). For 2014-2015 the funding was reduced to a federal share of $779,897.07 with the State contribution of $194,974.50 for a combined total of $974,871.57, of which $690,840 will be available to support hazardous materials training and $284,031 dedicated for planning efforts. Additional federal funding is needed to address the additional training and planning efforts required to address the increase in transportation of crude oil across New York State.

Annual local requests for hazardous materials training consistently exceed DHSES' capacity to meet those requests. New or expanded requests typically focus on new and expanded risks, such as that created by the current increase in crude oil transportation and the recent increase in ethanol transportation, storage, and use. In addition to taking available steps to meet increasing training needs, DHSES must constantly update training to current and evolving risk. Staffing levels supported by this grant do not allow OFPC to effectively address the crude oil risk without significant negative impact upon other core missions. Additional funding is required to support the staffing and equipment necessary to develop and provide the training needs created by the crude oil risk.

State and local planning efforts must also respond to address the crude oil risk. The effectiveness of those efforts is directly impacted by the funding available for those activities. Seventy five percent of the HMEP planning portion supports the activities of the LEPCs and this has not proven sufficient to support the core planning and preparedness functions of those committees statewide.

Recommendation

US Department of Transportation should restore cuts and increase the amount of matched funding available through the Hazardous Materials Emergency Preparedness Grant Program to account for the increased risk to New York State from crude oil transiting federally-regulated travel corridors.

On April 29, 2014, DHSES Commissioner Jerome Hauer sent a request to USDOT Secretary Anthony Foxx urging that the current HMEP grant funding for New York State be increased in response the risk posed by the dramatic increase in crude oil transportation and that future funding for that program be

increased to better address this risk within New York State and across the nation. In addition to the amount already requested in the current HMEP application for FFY 2014-2015, New York State is requesting an additional $1.2 million for this fiscal year to support the staff necessary for OFPC to develop, maintain and administer the tiered response equipment network recommended in State Finding / Recommendation 5 and an additional $500,000 to provide for increased planning staff to coordinate and integrate statewide and local planning efforts necessitated by the crude oil risk as detailed in State Finding / Recommendation 11.

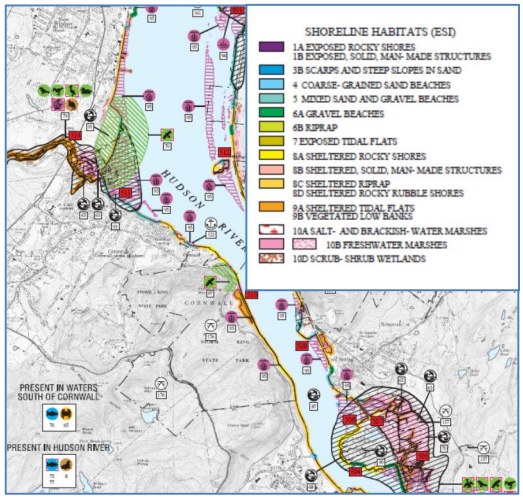
6. Federal / International

Finding

Federal environmental planning documents need to be updated.

Following the Oil Pollution Act of 1990, federal agencies are required to maintain response plans to guide incident response and a catalogue of coastal environmental resources to understand the sensitivity of certain natural resources. Both of these are designed to help the federal government better prepare for and respond to potential petroleum and other chemical spills. States are important partners and play important roles with environmental and contingency plans.

Figure 25 – Example Environmental Sensitivity Index Map



The contingency response plan for coastal waterways in New York, such as the Hudson River, is known as the Area Contingency Plan (ACP) and is administered by the U.S. Coast Guard (USCG). The ACP also provides guidance on issues such as identifying sensitive areas and the size of the response organization that may be required. Content of the ACP is identified in the CWA. The ACP is developed with input from stakeholders ranging from local officials to wildlife experts. ACPs are generally reviewed annually, are updated as needed, and may undergo extensive review every few years. The ACP covering the Hudson River needs to be updated to account for the increased dangers of crude oil transportation by barge or railroad.

The catalogue of coastal environmental resources covering the Hudson River is known as an Environmental Sensitivity Index (ESI) and is administered by the National Oceanographic and Atmospheric Administration (NOAA). As with the ACP, the ESI covering the Hudson River needs to be updated to account for the increased dangers of crude oil transportation by barge or railroad.

The response plans for inland waterways in New York, such as the Mohawk River, are known as Inland Area Contingency Plans (IACP) and are administered by the U.S. Environmental Protection Agency (USEPA). The New York IACP assists in identifying available resources (i.e., equipment and trained personnel) and coordinating the activities of the different government agencies and private organizations that need to be notified and involved in the response. The IACP covering the Mohawk River and Lake Champlain has not been updated in decades and does not account for the increased dangers of crude oil transportation by railroad. Additionally, there is no equivalent planning protection to the ESI for inland waters.

Recommendation

The U.S. Coast Guard, U.S. Environmental Protection Agency, and the National Oceanographic and Atmospheric Administration should expedite the update of environmental and contingency response plans.

The federal Government is required to maintain certain environmental planning tools to mitigate the long-term effects of petroleum and other chemical spills. Those updates should be performed by NOAA and USEPA as soon as possible.

On March 24, 2014, DEC Commissioner Joseph Martens sent a letter to Gina McCarthy the USEPA Administrator urging USEPA to update the Region 2 IACP and initiate Geographic Response Plans (GRP) for environmentally sensitive areas. In this letter, Commissioner Martens indicated that the Environmental Sensitivity Indexes produced by NOAA need to be updated as well to highlight the broad spectrum of concerns the State has about the federal government's deficiencies in maintaining key environmental planning documents.

On March 28, 2014, the USEPA Region 2 Administrator Judith Enck responded to DEC and indicated that the USEPA would expeditiously work to update the IACP and initiate GRPs for identified regions in New York State. Further, Regional Administrator Enck indicated that NOAA will update New York State ESIs by the end of 2015.

On April 10, 2014, New York State, the USCG, and USEPA released a joint statement announcing an agreement to expeditiously develop a plan to complete the following actions:

- Review and update the NY/NJ ACP in 2014
- Review and update the NY IACP in 2014
- Work with the NOAA to prioritize updating of the New York State–Hudson River Area ESI maps sooner than currently scheduled for 2015
- Develop GRPs in partnership with all applicable federal, state, and local partners
- Increase the coordination between the USEPA and DEC regarding spill prevention and storage facility inspections
- Complete unannounced preparedness exercises by USEPA with DEC in high priority areas

7. Federal / International

Finding

Industrial facility railroad track is not regulated or inspected to the same level as main line and rail yard track.

The FRA has jurisdiction over the "general railroad system of transportation" as the FRA refers to the network of standard gage track over which goods and passengers travel throughout the nation. Much of this network is interconnected so that a train car can travel across the nation without leaving the system.

However, spur tracks into industrial installations connected to the network to initiate or receive shipments are not part of the "general railroad system" and, thus, does not require the same level of inspection that would occur in the broader network. A railroad that is part of the general system that enters an off-network system, is still held to the same FRA standards, but there is no guarantee that the track meets

FRA standards due to differing level of inspection requirements. Crude oil transfers at the port of Albany occur along such spur tracks.

The owner of the track is responsible for the conditions of the track over which another railroad operates, but there are currently no requirements for industrial plants to perform periodic track inspections or to keep track inspection records as is required for general system railroads.

Recommendation

The United States Department of Transportation should expeditiously amend its regulations to make industrial facility railroads subject to the same standards and inspection protocols as general system railroads.

On April 29, 2014, NYSDOT Commissioner Joan McDonald issued a letter to USDOT Secretary Anthony Foxx urging that the FRA expeditiously amend its regulations to require that industrial plant railroads (i.e. outside of "the general railroad system of transportation") perform periodic track inspections and to maintain inspection records subject to review and audit by federal and state rail inspection staff.

8. Federal / International

Finding

The federal government's oil spill response Research and Technology Plan, which informs technology decisions and best practices, is twenty-two years overdue.

The Oil Pollution Act of 1990 (OPA 90) established a federal Interagency Coordinating Committee on Oil Pollution Research (ICCOPR) to coordinate oil pollution research and technology development and demonstration among the federal agencies, in cooperation with industry, research institutions, state governments, and other nations. It fosters cost-effective research mechanisms and the joint funding of research in the following areas:

- Vessel and facility design (including technologies to contain, recover, remove, and dispose of spilled oil)
- Mechanical, chemical (including dispersants & solvents), and biological systems (bioremediation) for oil spill response
- Information systems for decision making (i.e. GIS)
- Technologies to protect public health & the environment

The development of these best practices and technologies has not been fully implemented by the U.S. Coast Guard (USCG) and the U.S. Environmental Protection Agency (USEPA), which are given joint responsibility under OPA 90. That Act requires USCG and USEPA to lead the creation of an Oil Pollution Research and Technology Plan every five years. The most recent Research & Technology Plan is dated 1997 and currently remains in draft format under its third revision – it has never been finalized. The current revision in progress incorporates suggested improvements to the first Research & Technology Plan of 1992 and documents the role that oil pollution research plays in reducing the environmental and economic threats posed by oil production and transport. The five-year plan update required by OPA 90 is 22 years overdue.

Recommendation

The U.S. Coast Guard and the U.S. Environmental Protection Agency should update the delayed Oil Spill Research and Technology Plan as soon as feasible.

On April 29, 2014, DEC Commissioner, Joseph Martens, issued a letter to U.S. Coast Guard Commandant Admiral Robert Papp, Jr. and USEPA Administrator Gina McCarthy urging that the ICCOPR be completed and issue the Research and Technology Plan, which the ICCOPR planned for the end of 2013. Additionally, Commissioner Martens requested updates on response technologies and best practices involving both floating and sinking crude oils and a compilation of comprehensive best practices manual. The New York State Congressional delegation is encouraged to advance this recommendation as there is pending legislation in both the U.S. House and Senate to require updates of these components of OPA 90. These bills would strengthen the research and development components of oil spill response research and best practices development.

9. Federal / International

Finding

The U.S. Coast Guard personnel rotate to new assignments after three years, taking with them all resident experience and relationships.

U.S. Coast Guard (Sector New York), headquartered at Fort Wadsworth on Staten Island, leads the Area Committee (the regional consultative body) in developing Area Contingency Planning as required by the Oil Pollution Act of 1990. The Port of New York and New Jersey is a very complex political and geographic area, with several overlapping state and local jurisdictions, and is an economic engine for the region. During an emergency, the effectiveness of the response is increased when those involved have experience working with each other and have participated together in planning and drills. This takes time to develop and is hindered by the regular shifting of personnel to other areas.

Sector New York has, for many years, tasked junior USCG officers as the primary contact with the Area Committee. While these officers have performed well, their normal career progression find them rotated to a new position elsewhere on a regular basis, taking with them all of the local knowledge and contacts they have made during their tour. Although the sector has long been a major port for the movement of petroleum, the addition of crude oil transportation has increased the frequency of shipments, and the attending risk.

Recommendation

The U.S. Coast Guard should establish a civilian planning position in Sector NY in order to provide organizational continuity to better support New York State-centric preparedness and response.

On April 29, 2014, DEC Commissioner, Joseph Martens, issued a letter to the USCG Commandant Admiral Robert Papp, Jr., requesting a civilian position be established for Contingency Planning in Sector New York. In several of the other USCG jurisdictions, civilian employees of the USCG are hired, trained, and used to perform the duties of planning and coordination related to the Area Contingency Plan. The long-term status of these employees allows them to build the local knowledge and connections necessary to perform well. This is especially important in a port of the size and complexity of Sector New York.

10. Federal / International

Finding

Vessel Response Plans may not be sufficient given the boom in the transportation of crude oil.

The boom in the transportation of crude oil country has increased the risk to New York's vulnerability to a spill on New York's waterways. The February 23, 2014 spill on the Mississippi River, which like the Hudson River has seen an increase in crude oil traffic due to North American production increases, highlights the increased potential risk. Additionally, the two primary crude oils that are or may be shipped on New York waterways, Bakken crude and Canadian tar sands oil, will require different response equipment and capacity based upon their inherent characteristics.

Under the Oil Pollution Act of 1990, the U.S. Coast Guard (USCG) has jurisdiction for planning and response in the coastal zone including the review of Vessel Response Plans (VRPs). Vessels owners are required to prepare a VRP to ensure adequate plans and resources are available to respond to incidents involving spills and fires. A VRP has several elements, including identification of the vessel's designated Oil Spill Response Organization (OSRO), listing qualified individuals who can make technical and financial decisions for the ship operators during an incident, and identifying the organizations that have knowledge and responsibility for operations related to salvaging (i.e., structural stability, emergency towing, external emergency transfer operations, etc.).

The USCG also tracks and maintains an inventory of spill response assets available for use in designated areas and that can be moved for a spill of national significance such as the Deepwater Horizon spill in the Gulf of Mexico.

Recommendation

The U.S. Coast Guard should review the Vessel Response Plans of the tanker and tugs carrying crude oil in New York State to ensure their response protocols account for the unique risks posed by Bakken and Canadian tar sands crude oil.

On April 29, 2014, DEC Commissioner, Joseph Martens, issued a letter to USCG Commandant Admiral Robert Papp, Jr. urging him to complete a comprehensive review of the current state of preparedness to respond to spills of crude oil in areas of USCG jurisdiction in New York State. This should include the availability of response equipment, trained personnel, and treatment and disposal options for recovered product from a range of spill types and sizes. It should also define the limits of moving OSRO personnel and equipment from one area to another during spills of national significance such as the Deepwater Horizon spill in the Gulf of Mexico. In addition, the USCG should ensure that vessel owners in New York waters are up to date in reviewing containment and cleanup methods and carrying out periodic response drills for reasonable worst-case scenarios to ensure the VRPs are adequate and effective.

11. Federal / International

Finding

Critical firefighting assets are not available via existing U.S. Department of Homeland Security grant programs.

The U.S. Department of Homeland Security (USDHS) publishes an authorized equipment list (AEL) that is eligible for grant funding, but the list does not include foam concentrate, appliances and equipment that are critical for responding to incidents involving crude oil.

Figure 26 – Firefighting Foam Trailer

Recommendation

The U.S. Department of Homeland Security should update the authorized equipment list eligible for grant funding to include crude oil firefighting equipment.

April 29, 2014, DHSES Commissioner Jerome Hauer issued a letter to USDHS Secretary Jeh Johnson, urging him to update the AEL to include materials and equipment necessary for the response to a crude oil incident.

New York State Agencies are an Integrating Force in Incident Prevention and Response

While federal agencies have almost exclusive authority over the transportation of crude oil, New York State agencies have some permitting, oversight, and compliance responsibilities to ensure that crude oil can be safely stored and transferred, have some involvement in transport oversight, and would be on the front line of an incident response. The findings below and associated recommendations reflect the efforts of New York State agencies to identify challenges and develop actions designed to overcome them.

1. State

Finding

New York State participates in the Federal Railroad Administration and Pipelines and Hazardous Materials Administration Inspection program on a limited basis.

While safety oversight of the railroads falls within Federal Railroad Administration (FRA) jurisdiction, an individual state may elect to participate in FRA's rail safety inspection program. In accordance with a signed participation agreement with the FRA, New York State Department of Transportation (NYSDOT) currently employs track and structures as well as motive power and equipment inspectors. FRA trains and certifies NYSDOT rail inspectors at no cost to New York State, but all remaining costs associated with the

rail safety inspection program in New York State are funded by a rail safety fee which is assessed to railroads that operate within the state.

Historically, the NYSDOT rail safety inspection section has been staffed by three track structures inspectors and three motive power and equipment inspectors located in the Eastern, Central and Western areas of the state, respectively. There are about 15 to 20 rail inspectors from FRA that routinely cover New York's railways.

NYSDOT and FRA have partnered to step up inspections of rail yards, track and equipment at locations where crude oil and other hazardous materials are handled, including the following recent activities:

- A targeted inspection at the Frontier (Buffalo) and Kenwood (Albany) rail yards on February 27, 2014 that included inspectors from the FRA and NYSDOT.
- A second targeted inspection at the Frontier and Kenwood rail yards on March 26, 2014 with additional focused inspections at the West Albany, Selkirk and Niagara yards. These inspection teams included inspectors from NYSDOT, FRA, and PHMSA.

Recommendation

New York State should hire additional railroad inspectors and train new and existing staff in other inspection program components.

In the 2014-2015 Executive Budget, Governor Cuomo proposed an increase of five additional inspectors. The legislature enacted this request and the 2014-2015 New York State Enacted Budget includes appropriations for five additional NYSDOT employees. Additionally, NYSDOT will explore the feasibility of funding expanded use of automated flaw detection equipment to be operated on designated crude oil rail routes.[77]

2. State

Finding

There are opportunities to leverage additional preparedness training and drill scenarios.

When a major event occurs, various local, state, and federal agencies are involved in containment and cleanup efforts. Without proper training and practice, responses are less effective, delayed, and more expensive. Lack of training and practice creates a lack of coordination when the roles and responsibilities of the various agencies are not well understood. Practice also allows for the coordinating agencies to become experienced with working with key personnel from each group.

The State conducts many training events for its own staff as well as local personnel as well as its own exercises with different partners, but there are opportunities to create additional state opportunities as well as leverage federal and industry training and drill opportunities to expand the capacity of state and local personnel to respond.

For example, in its voluntary measures, the American Association of Railroads (AAR) offered $5 million in additional local responder training. Consistent with Federal Finding / Recommendation 2, which calls upon the AAR and the American Petroleum Institute (API) to work through its membership to enhance training and equipment available to New York localities.

Additionally, the New York National Guard has been selected to serve as a disaster response group for the Department of Defense, which will involve a significant amount of federally organized drills and training to which state agencies have been invited to participate.

Recommendation

The State should partner with federal, local, and industry partners to increase the number, frequency, and variety of preparedness training opportunities and drills.

The State should identify opportunities to increase state and local participation in additional federal and industry-led training and rehearsal drill exercises. Participation in federal and industry activities will also allow the State to focus on different response scenarios. In that regard, the State will then be able to increase and vary the frequency of its own sponsored drills and training. The State could compile all of this information onto the one-stop web portal discussed in State Finding / Recommendation 6.

3. State

Finding

New York State has no mechanism for collecting information on the transportation of crude oil through the state.

Maintaining an adequate data collection system and knowledge base surrounding the petroleum products moving through New York State has become an essential need. This critical information gap limits the ability to adequately prepare for and respond to emergencies. Such a data collection system should be created and be cognizant of the varied crude oil and petroleum products that move into and through the state, whether for transit outside or for ultimate use in New York State that support the state's residents and economy.

Currently, no governmental agency, at either the state or federal level, collects this information for tracking data involving crude oil and petroleum products. Enhanced engagement on information sharing with federal government agencies, including the U.S. Energy Information Administration (EIA) and USDOT, as potential partners may be appropriate and advisable. As noted, a comprehensive approach to data collection and to building an understanding of these factors would be an important step to allow regulating agencies and first responders to adequately prepare for and respond to emergency events involving crude oil transportation activities.

Recommendation

New York State should establish a mechanism to obtain more complete information on the volume and characteristics of crude oil being transported and stored in the state.

New York should continue to work with industry participants, federal partners, and others appropriate sources to determine the most effective means of obtaining information it currently lacks about the quantity as well as the physical properties of crude oil varieties and other hazardous materials being transported and stored in the state. Such efforts may involve enacting legislation or pursuing other measures.

4. State

Finding

Access to federal, state, and industry training and readiness information is often difficult to find.

Many federal, state, and industry preparedness and response resources are available to local emergency planners. However, much of that information is scattered through multiple sources or not well publicized, which often prevents emergency planners from availing themselves of grants, training, and planning support that is readily accessible and typically of no cost to local governments. Given the fiscal constraints that many local governments face, every opportunity should be made to maximize existing opportunities.

Recommendation

The State should develop a one-stop web portal that provides access to emergency points of contact, training, grants, and other preparedness and response resources.

New York State should develop a one stop web portal for training, preparedness and response. The website would be maintained by the Division of Homeland Security and Emergency Services (DHSES) and provide training, funding, planning support, points of contact, and other relevant information. DHSES would partner with federal, local, and industry partners to integrate their opportunities as well.

Figure 27 - Firefighters Practice on a Training Tank Car[78]

5. State

Finding

Response assets are not efficiently spaced around the state.

Responses to a crude oil spill or fire will involve local, state and federal agencies as well as response assets from the industry and its supporting organizations. Coordination of these efforts to provide for an integrated and effective response can be challenging, particularly during the critical, initial phases where the ultimate outcome and impact of an incident are often decided.

Most local emergency response organizations do not have necessary equipment required either to fight a crude oil fire, such as fire suppressant foam trucks or trailers, or respond to a large oil spill on water, such as skimmers, containment boom, and work boats. Equipment purchases can be cost prohibitive for local response organizations.

Federal, state, local and industry responders have a patchwork array of response assets. For example, key firefighting foam equipment and stores are often located at larger municipal fire departments as well as military bases and airports that are required by the Federal Aviation Administration for airplane firefighting, leaving large stretches of the predominantly rural rail network uncovered. State and federal equipment augmentation could delay the response due to transport times.

Recommendation

New York State should partner with federal, industry, and local response organizations to develop and deploy a comprehensive, geographically-tiered equipment network to ensure timely and effective response in underserved areas.

By December 31, 2014, DHSES, on behalf of the Disaster Preparedness Commission, should develop an action plan to establish a tiered, integrated response system, utilizing standardized equipment and training to better prepare and equip local, county and regional responders for crude oil incidents. The action plan would detail the current status of local equipment and training, critical support facilities such as trauma centers, access to water and other supplies, and travel times to potential incidents from storage locations. The plan would be developed in coordination with State Finding / Recommendation 6 – the building of a database of response assets.

6. State

Finding

New York State does not have a comprehensive database of crude oil-specific response assets.

Responses to a crude oil spill or fire in New York State would involve local, county, state, and federal agencies as well as response assets from the railroad and its supporting organizations. Coordination of these efforts to provide for an integrated and effective response can be challenging, particularly during the critical, initial phases where the ultimate outcome and impact of an incident are often decided. One challenge to an effective response is clear understanding of available firefighting and other resources. For example, the first responders to an incident involving a train derailment, spill, and fire might be unaware of another industry's assets staged nearby or federal assets that could be requested, such as the

Department of Defense's significant firefighting equipment and resources. Having knowledge of what those capabilities are and where they are located is critical to an effective, timely response.

Figure 28 - Liquid Petroleum Gas Train Derailment and Fire in Oneida, NY - March 12, 2007[79]

Recommendation

New York State should develop a comprehensive database of available crude oil-specific response equipment to support timely and effective response.

In coordination with State Finding / Recommendation 5, the Division of Homeland Security and Emergency Services should create and maintain a database identifying the roles, responsibilities, assets and capabilities of the response agencies and organizations, both public and private, by Dec 31, 2014. This would improve the ability to identify any gaps in planning, preparedness and response capabilities and, through the routine interaction necessary to maintain this data, provide for improved communication and coordination between government agencies at all levels and the railroads and their supporting response organizations.

7. State

Finding

New York State does not have detailed Geographic Response Plans to guide crude oil spill response.

The USCG develops and maintains Area Contingency Plans to enhance preparedness for oil spills in all coastal areas, which includes the Estuary of the Hudson River. In order to protect specific areas, state, local, and federal governments can develop Geographic Response Plans (GRPs). GRPs are developed for resources which may be especially sensitive to the risk of oil spills. In these identified areas, specific action plans and strategies are developed to protect these resources. A GRP is both a planning document and a spill response tool that can be used to guide initial efforts in response to a major oil spill.

GRPs for specific prioritized locations throughout New York State's crude oil transportation corridors would enhance the State's ability to protect sensitive natural areas and infrastructure

GRPs are used to identify specific locations where response equipment is stored, where it should be deployed, and what personnel and vessels are required for deployment. This information, along with descriptive text on deployment strategies, access points, contact phone numbers, and other special considerations, comprise a "how-to" manual for first responders to conduct a more effective and coordinated initial response.

Recommendation

The New York State should partner with the U.S. Environmental Protection Agency and Coast Guard to expand upon existing environmental and contingency plans and develop Geographic Response Plans for all areas of the state.

On April 10, 2014, New York State, the USEPA, and the USCG agreed to develop GRPs for all areas of the state. The GRPs will also inform Division of Homeland Security and Emergency Services' development of a tiered system of response assets (State Finding / Recommendation 5) and of a response asset database (State Finding / Recommendation 6).

8. State

Finding

Waterborne transfer of crude oil incidents can often be quickly mitigated by pre-staging booms prior to transfer.

Booming has long been a key mitigation strategy for lessening the impact of over-water oil spills. Other states have promulgated similar regulations similar that require pre-transfer booming around vessels for water-borne transfer operations. These regulations also specify high-risk conditions where transfers would be restricted or prohibited (i.e., extreme tides, high winds, ice, or particular types of petroleum that do not float).

Figure 29 - Example of Booming to Prevent the Spread of Oil on Water[80]

Recommendation

New York State should promulgate regulations that require placing oil containment booms around waterborne transfers and only allow transfer operations in locations that meet state regulatory requirements or have U.S. Coast Guard approval.

DEC should promulgate regulations requiring pre-transfer booming; taking into account possible exemptions when pre-transfer booming would not be required and booming would not be effective. Canadian Tar Sands crude oil, for instance, is heavier than water, so booming would not provide any spill mitigation value. DEC should only allow transfer operations in locations that meet state regulatory requirements or have been approved by the USCG. This would

prevent spills from vessels at facilities insufficiently equipped to manage spills. In some cases, this may include the requirement to have a pre-designated Oil Spill Response Organization present during a transfer.

9. State

Finding

Railroad incident reporting has been inconsistent.

Coordination between the private railroads and federal, state, and local government agencies is essential when responding to a significant rail incident. Under current state law, railroads are required by regulation to provide notification of certain types of rail incidents to New York State Department of Transportation (NYSDOT) within one hour of occurrence.

Railroads have been inconsistent in complying with the State's existing incident reporting requirements. This was the case with the two minor derailments of trains recently experienced in Ulster and Albany counties that contained crude oil tank cars. Late notification of incidents involving hazardous materials such as crude oil could delay and complicate response operations. Currently, NYSDOT is authorized to impose penalties of up to $5,000 per occurrence. This is insufficient to encourage compliance.

Recommendation

New York State should enact legislation and amend existing regulations to improve rail incident reporting and ensure railroad reporting compliance.

New York State should consider legislation to authorize NYSDOT to impose a fine of up to $25,000 for railroads that fail to notify New York State within one hour of a rail incident. Such an amount is substantial enough to help ensure compliance. NYSDOT would then promulgate regulations specifying the information required from railroads, such as a local point of contact serving as lead for the incident.

10. State

Finding

New York State toxic plume modeling capabilities are limited.

A large-scale emergency often exhausts resources at the municipal and county levels of government and warrants support from the State to effectively respond to the event. Further, many emergencies can occur that result in the release of toxic materials that can have long-term effects that need to be assessed before an event to ensure the appropriate planning and preparations are taken. The Lac-Mégantic incident demonstrated that a crude oil release would have site contamination concerns and that a fire or explosion could create a toxic cloud of smoke that could trigger an environmental health emergency.

DHSES, DEC, and DOH possess some capability to support or conduct plume hazard prediction modeling, and environmental assessments. Typically, these assessments are restricted in scope and application, and are aimed at supporting the agency's statutory role. These capabilities are employed as part of the agency's day to day function and activities. The State's Plume Modeling Working Group

recently began cataloguing those agency resources and found that agencies have access to modeling platforms but certain deficiencies were identified related to standardized training, use, and responsibilities.[81]

Emergency plume modeling poses a variety of challenges, and the capability to conduct any modeling for other releases is dependent on the overall mission or focus of an agency. When agencies interpret modeling results, they focus on the needs and requirements of the areas they represent (i.e., health, environment, public safety, transportation, etc.). It is important for agencies and decision-makers to also assess and consider the overall picture, impact or footprint of an event when deciding what actions to take in response to modeling results.

Recommendation

New York State should develop more effective plume modeling capability to assist first responders.

The Disaster Preparedness Commission will establish a Plume Modeling Working Group to identify by December 31, 2014, current capabilities; the most appropriate modeling tools available; and mechanisms to raise awareness and advance training to assist public and private partners in their planning. Moreover, this review will identify recommendations to bridge various agency jurisdictions and gaps.

11. State

Finding

Many federal, state, local, industry, and local emergency response plans overlap.

There are many requirements for all levels of government and private companies to plan for crude oil and other incidents. However, because those requirements are derived from different statutes and regulations at the federal and state level, effective integration and coordination of these efforts is hindered. Additionally, these activities now need to be coordinated with rail companies to leverage the safety training and assistance they provide to local partners.

Recommendation

DHSES, on behalf of the Disaster Preparedness Commission, should review current federal, state, local, and industry response plans to ensure efficient planning, coordination and application.

The State's central and common role in each of these planning and preparedness mechanisms positions it to promote sharing of information, best practices, and cooperation between the various levels of governments, its own agencies and private industry. Additional steps should be taken to ensure the existing emergency response plans and procedures are current, comprehensive and maintained.

By December 31, 2014, the DHSES will conduct an evaluation of where multiple planning efforts overlap. Their recommendations will address opportunities to enhance public safety while improving efficient resource allocation. DHSES will recommend changes to federal, state, and local statutes, regulations, policies, or planning tools necessary to facilitate its findings. Those findings will then be integrated into planning-related recommendations included in this report.

To Prevent and Mitigate Incidents New York State Needs Action from Industry Partners

Industry companies and associations must adopt an aggressive posture and support the recommendations discussed in this report. By adopting best practices as standard operation procedure and supporting government efforts to strengthen regulations, industry leaders can help to prevent, mitigate, prepare for, and respond to crude oil incidents. Preparedness starts with a corporate culture dedicated to safety, and as the first line of defense, producers and transporters are vital to protecting New York State's public safety, health, and environment. The findings on the following pages reflect industry-specific recommendations where industry officials must commit to making vital improvements.

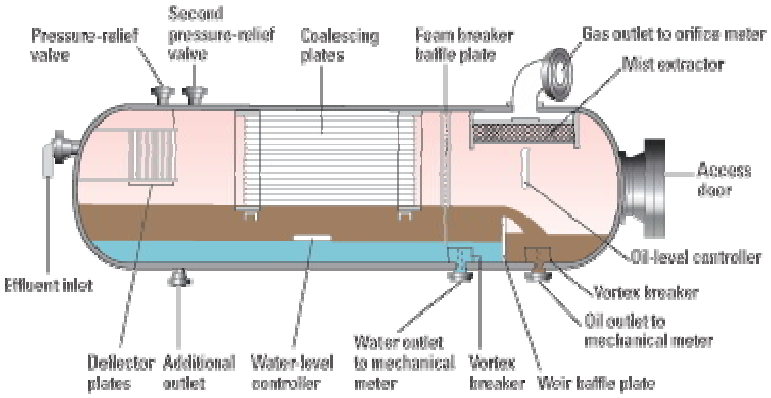
1. Industry

Finding

The volatility of Bakken crude oil could be significantly reduced if dissolved gas was separated from the crude at the source.

As mentioned in the previous chapter, Bakken crude's vapor pressure and its volatility are significantly higher than other crude oils and refined products. In fact, it is similar in volatility to gasoline (see Figure 10). Bakken crude's vapor pressure is high likely due to the presence of gases dissolved in to the liquid when it is extracted from the well. When Bakken crude oil is disturbed or subject to heat, the gases are released creating gas bubbles, such as when a soda can is shaken. The United States Department of Transportation recognized the volatility of Bakken crude oil when they issued an advisory to ensure that all precautions were being taken to ensure the safe transport of Bakken crude oil, including the separation of dissolved gases.[82]

Figure 30 – Three Phase – Oil, Gas, and Water – Separator Example



According to railroad industry officials, some oil companies are actively separating dissolved gases from the liquid crude oil before packaging for rail shipment through use of separation technology (see Figure 30).[83] While not all gas will be removed, the vapor pressure and according volatility can be significantly attenuated. The separated gas fetches lower prices than crude, but it can still be sold for its constituent parts.

Recommendation

The API along with its member oil companies should commit to reducing the volatility of Bakken crude before submitting a tank car for shipment.

On April 29, 2014, New York State Department of Transportation Commissioner Joan McDonald sent a letter to American Petroleum Institute President Jack Gerrard urging him to work with his membership to

address this critical need. All oil companies working in the Bakken region should actively mitigate dissolved gases so as to lessen the risk in transportation.

2. Industry

Finding

Emergency responders' access to crude oil by rail shipment information is uneven.

Through a Memorandum of Understanding with CSX Transportation, DHSES and the New York State Police (NYSP) personnel at the New York State Intelligence Center currently have access to the CSX NOW application which provides information regarding the location and type of materials transported through New York State. CSX is currently the only railroad to offer this level of access, making this sort of information available for other major railroads such as Canadian Pacific (CP) and Norfolk Southern (NS) only through directly contacting those organizations at the time of an incident. At present, often, the only complete record of a train's contents is the one copy of the paper waybill kept in the engine car. If a fire or explosion were to consume the engine car, that information would be completely lost.

Recommendation

The Class I railroads should implement a web-based information access system to provide real-time information on hazardous materials

On April 10, 2014, Cuomo Administration officials confirmed with American Association of Railroads (AAR) that all Class I railroads are adopting a CSX NOW-like model for web-based emergency response personnel access to shipment information in the event of an incident. This system is currently in development by AAR and is estimated to be operational by the end of 2014.

3. Industry

Finding

Communities affected by the transportation of crude oil have a limited ability to affect public health and safety outcomes.

The voluntary measures adopted by the AAR outline the following action:

- *Community relations* **-** Railroads will continue to work with communities through which crude oil trains move to address location-specific concerns that communities may have.

New York State, especially those communities heavily affected by the transport and storage of crude oil, needs clarity from USDOT, AAR, and, moreover, the petroleum industry, as represented by the American Petroleum Institute (API), with regards to what specific actions will be taken by railroads, terminal facilities, and other entities involved in the crude oil industry to address community concerns.

Recommendation

AAR in conjunction with API should clarify and expand community engagement requirements outlined but not explained in the voluntary measures undertaken by the railroads.

The AAR and API, through their member companies, should engage New York State communities to reduce overall public safety concerns and environmental impacts, specifically air quality, water quality, congestion, and noise pollution impacts on affected communities. That engagement should address both steady state and incident response scenarios. Their engagement should identify and mitigate the disproportionate impacts to environmental justice communities.

Additionally, the rail and oil industries should provide additional response training and resources to New York and other states affected by the drastic increase in oil being transported by rail around the country. New Yorkers and residents of other state bear the risk while those industries profit.

On April 29, 2014, New York State Department of Transportation Commissioner, Joan McDonald, and Department of Environmental Conservation Commissioner, Joseph Martens, issued a letter to AAR President, Edward Hamberger, and API President, Jack Gerard urging them to engage New York State communities and specify their plans outline in the voluntary agreement, and urged those two organizations to work with their membership to help New York and other states address the vulnerability the boom in crude-by-rail has created.

4. Industry

Finding

Crude oil train route risk analysis has yet to be completed.

Detailed risk analysis, which has been required for other volatile hazardous materials, such as those carrying approximately 75,000 carloads of toxic inhalation hazards (TIH) per year, as well as those carrying certain radioactive and explosive materials,[84] has not been completed by the railroads transporting crude oil through New York State. That analysis is vital for capital improvement prioritization and incident preparedness.

According to the Association of American Railroads (AAR), no later than July 1, 2014 railroads will be conducting a "lanes of risk" analysis utilizing the Rail Corridor Risk Management System (RCRMS), a web-based tool developed through the Railroad Research Foundation, to aid in the determination of the safest and most secure rail routes for trains with 20 or more cars of crude oil. RCRMS is a sophisticated analytical tool, developed in coordination with the U.S. Department of Homeland Security (USDHS), and the United States Department of Transportation (USDOT).

RCRMS takes into account 27 risk factors – such as volume of commodity, trip length, population density along the route, local emergency response capability, track quality and signal systems – in order to assess the safety and security of proposed rail routes. Railroads currently restrict the use of RCRMS to security sensitive material routing.

Recommendation

Class I railroads should conclude their computer model-based route risk analysis, which accounts for 27 factors affecting the transportation of hazardous material by rail, as soon as practical and update it regularly.

The AAR and its member railroads should commit to concluding the RCRMS analysis as soon as possible, making some subset of the analysis transparent, and updating the analysis annually. The results of the “lanes of risk” analysis will provide NYSDOT with additional information which can be factored into the prioritization of railroad capital improvement decisions for projects utilizing state/federal fund sources. This analysis may also present an opportunity to initiate requests for additional federal rail safety funding, including expanding the highway/rail grade crossing program, which has been funded at a nominal $6 million per year for public grade crossing safety improvements statewide.

3. New York State will continue to aggressively protect public safety, health, and the environment

As demonstrated in this report, since Governor Cuomo issued Executive Order 125, New York State has been aggressively acting to ensure that the expanding crude oil industry impacting the state is being operated as safely as possible. The timeline below details the state's actions taken to date.

Given the federal government's primacy over the interstate transportation of crude oil, the federal government must also demonstrate the same aggressive commitment to protect New York State and the many other states that are subject to this industry.

The crude oil transportation industry must also embrace the seriousness, aggressiveness, and commitment to safety that the State is demanding of itself and its federal partners. Crude oil producers, railroads, shippers, storage and trans-loading facilities, and, ultimately, out-of-state refineries—each of whom are profiting from this boom-- must commit to the highest possible standards in order to ensure that this industry can be operated safely. No state can afford another crude oil incident like those that occurred in Quebec and North Dakota.

Safe practices of private partners and effective federal and state regulation and oversight will greatly assist in preventing, mitigating, preparing for, and responding to incidents. New York State will continue to work with private and federal partners on the recommendations where partnerships are required.

Timeline of Events

The below timeline shows the actions taken to date by state, federal and private partners related to the safe transportation, storage and transfer of crude oil.

Jan 28, 2014

- Governor Andrew M. Cuomo issues Executive Order 125 directing several state agencies to do a top-to-bottom review of accident prevention and response capacity related to rail and water shipments of crude oil from the Bakken oil fields in North Dakota, Montana and Alberta, Canada
- Departments of Environmental Conservation, Health, Transportation and the Division of Homeland Security and Emergency Services issue letter to federal partners regarding concerns related to the transportation, storage, and transfer of crude oil

Feb 21, 2014

- United States Department of Transportation and nation's major freight railroads announce agreement to institute voluntary operating practices: increased track inspections; braking systems; use of rail traffic routing technology; lower speeds; community relations; increased trackside safety technology; increased emergency response training and tuition assistance; and emergency response planning

Feb 25, 2014

- Federal regulators issue emergency rules requiring extensive tests on crude oil moving by rail, concluding the system had become “an imminent hazard to public health, safety and the environment.

Feb 28, 2014

- Governor Andrew M. Cuomo announces rail inspection blitzes in Albany and Buffalo.

Mar 4, 2014

- Governor Andrew M. Cuomo issues letter to USDOT and USDHS Secretaries urging federal officials to expediting and strengthening rail safety standards, requiring reporting of by rail companies of derailments, increasing inspections, and more clearly identifying and tracking of rail cars carrying crude oil.

Mar 5, 2014

- NYSDOT announces $10,000 fine to CSX Rail for failing to make timely notification of two derailments that occurred in February in Albany and Ulster counties.

Mar 6, 2014

- USDOT issues an emergency order requiring all shippers to test product from the Bakken region to ensure the proper classification of crude oil before it is transported by rail, while also prohibiting the transportation of crude oil in the lowest-strength packing group.

Mar 12, 2014

- DEC Commissioner Joe Martens meets with Albany community groups.

Mar 24, 2014

- DEC Commissioner Joe Martens issues letter to U.S.USEPA urging the agency to update its spill contingency plans.
- DEC issues Notice of Incomplete Application to Global Partners for their application at their new Windsor facility
- DEC Regional Director issues letter to Global Partners indicating that the “Negative Declaration” for its Port of Albany facility is an interim decision and a final permit decision will not be made until a list of questions are addressed and when the community has had a reasonable opportunity to comment. Public comment period is extended.

Mar 26, 2014

- NYSDOT completes second rail inspection blitz in Albany and Buffalo.

Apr 10, 2014

- DEC, the U.S. Coast Guard and the Environmental Protection Agency agree to partnership to update environmental and contingency response plans.

Apr 29, 2014

- DEC Commissioner Joe Martens issues letter to USCG urging:
  1) the completion of the development of best practices for responding to crude oil spills,
  2) the completion of updates to Area Contingency Plans and Geographic Response Plans,
  3) that Vessel Response Plans fully address the hazards presented by the transportation of crude oil, and
  4) that a civilian planner be positioned in Sector NY in order to provide organizational continuity.
- DEC and DOT Commissioners Martens and McDonald issues letter to AAR and API urging:
  1) additional clarity to communities along crude oil corridors regarding public safety and impacts; and
  2) additional resources for response training and resources.
- DOT Commissioner McDonald issues letter to USDOT and AAR urging that voluntary operating practices for moving crude oil by rail be codified into regulations and strengthened.
- DHSES and DOT Commissioners Hauer and McDonald issues letter to API urging that petroleum companies mitigate dissolved gases at the site of shipment to reduce risk in the transportation of crude oil.
- DHSES and DOT Commissioners Hauer and McDonald issues letter to USDOT urging nine actions to safeguard the transportation of crude oil by rail.
- DHSES Commissioner Hauer issues letter to TSA urging additional collaboration to protect crude oil by rail shipments.
- DHSES Commissioner Hauer issues letter USDHS urging that they update the list of funding eligibility for equipment and materials needed to respond to crude oil incidents

Apr 30, 2014

- Executive Order 125 Crude Oil Report submitted to Governor Andrew M. Cuomo

Appendices

Appendix One Executive Order 125
Appendix Two Letters to Federal Agency Partners
Appendix Three Rail Incident and Incident Data for New York State (2003-2013)
Appendix Four Jurisdictional Role Descriptions

Appendix 1 – Executive Order 125

Directing The Department of Environmental Conservation, The Department of Transportation, The Division of Homeland Security and Emergency Services, The Department of Health, and The New York State Energy Research and Development Authority to Take Action to Strengthen the State's Oversight of Shipments of Petroleum Products

WHEREAS, on July 6, 2013, a train derailment in Lac-Mégantic, Québec involving tank cars carrying crude oil caused the devastation of an entire community, the deaths of 47 persons, and the evacuation of thousands; and

WHEREAS, on December 30, 2013, a train derailment in Casselton, North Dakota caused 18 tank cars carrying crude oil to be punctured, spilling more than 400,000 gallons of crude oil into the environment, and causing a fire which resulted in the evacuation of more than one thousand Casselton residents; and

WHEREAS, rail cars transporting crude oil traverse 1,000 miles of New York State's 3,500-mile freight rail network, from Western New York State along the Mohawk River and its communities to the Port of Albany, and from Canada across the border at Rouse's Point along Lake Champlain and through communities to the Port of Albany, where it is then transported south by rail, ship, and barge on or along the Hudson River and along or through New York State communities to refineries in mid-Atlantic states; and

WHEREAS, much of the increase in the volume of crude oil transported is due to increased production from the Bakken formation in North Dakota, Montana, and Canada, which, due to lack of pipeline capacity, must be transported by rail; and

WHEREAS, historically, rail transport of crude oil is safer and more environmentally protective than truck transport; and

WHEREAS, there has been a significant expansion in the use of the Port of Albany in the distribution and transportation of crude oil and other petroleum products by rail, ship, and barge for shipment on and along the Hudson River and along or through our communities to out-of-state refineries and storage facilities; and

WHEREAS, the increase in frequency and numbers of rail cars, ships, and barges carrying crude oil and other petroleum products through hundreds of New York State communities increases the public's vulnerability to a serious incident; and

WHEREAS, New York State's waterways, including the Hudson River, Mohawk River, and Lake Champlain, on or along which rail cars, ships, and barges travel, are unique ecological, cultural, economic, natural, and recreational resources upon which millions of New Yorkers rely, which makes these waterways especially vulnerable to spills of crude oil and other petroleum products; and

WHEREAS, Bakken crude oil has a lower flashpoint and is therefore more prone to ignite during a rail incident; and

WHEREAS, the U.S. Department of Transportation (USDOT) is in the process of designating new safety standards and requirements for rail tank cars and evaluating potential new rules for the transportation of flammable liquids; and

WHEREAS, recognizing the value of these efforts, New York State nevertheless cannot await the final outcome of these federal assessments before taking action; and

WHEREAS, New York State is preempted by federal law from regulating rail freight transportation and rail car safety standards, and the navigation of vessels operating on the State's navigable waterways; and

WHEREAS, the New York State Department of Environmental Conservation (DEC) has jurisdiction over air permitting, oil spill response, and storage of petroleum products in bulk tanks; and

WHEREAS, the New York State Department of Transportation (DOT) has jurisdiction to inspect freight rail track and equipment; and

WHEREAS, the New York State Division of Homeland Security and Emergency Services (DHSES) provides assistance and support to local entities relating to emergency planning, training, and response to incidents, including petroleum spills and fires; and

WHEREAS, the New York State Department of Health (DOH) assesses and monitors the human exposure and public health impact of petroleum spills and fires, advises on the safe handling of hazardous materials and the cleanup of such materials, and provides public information on health impacts and protective measures; and

WHEREAS, the New York State Energy Research and Development Authority (NYSERDA) acts as a central clearinghouse for energy resource information, monitors and regularly reports on liquid fuel supply and market trends, and maintains data on major liquid fuel storage terminals;

NOW, THEREFORE, I, Andrew M. Cuomo, Governor of the State of New York, by virtue of the authority vested in me by the Constitution and the Laws of the State of New York, do hereby direct that:

1. DEC, DHSES, DOT, and DOH shall promptly petition USDOT, the U.S. Department of Energy (USDOE), the U.S. Department of Homeland Security (USDHS), and the U.S. Coast Guard (USCG) to upgrade tanker car and rail line safety, assess federal agency needs and risks, and pre-deploy appropriate spill response equipment and resources to protect New York State's communities, residents, land, and waterways from incidents involving the transportation of crude oil and other petroleum products by rail, ship, and barge; and

2. DEC and DHSES, working with DOT, DOH, and NYSERDA, shall, in consultation with USDOT, USDOE, USCG, and USDHS, conduct an assessment of the State's spill prevention and response rules and inspection programs governing the transportation of crude oil and other petroleum products by rail, ship, and barge; and

3. On or about April 30, 2014, DEC and DHSES, with DOT, DOH, and NYSERDA, shall submit to me a consolidated report summarizing the State's existing capacity to prevent and respond to incidents involving the transportation of crude oil and other petroleum products by rail, ship, and barge; and

4. This consolidated report shall include but shall not be limited to: (i) a summary of the State's readiness to prevent and respond to rail and water incidents involving petroleum products; (ii) recommendations concerning statutory, regulatory, or administrative changes needed at the State level to better prevent and respond to incidents involving the transportation of crude oil and other petroleum products by rail, ship, and barge; (iii) recommendations concerning the role that local governments across the State have in protecting their communities and their residents from spills of petroleum products shipped by rail and water; and (iv) recommendations concerning enhanced coordination between the State and federal agencies in order to improve the State's capacity to prevent and respond to incidents involving the transportation of crude oil and other petroleum products by rail, ship, and barge.

G I V E N under my hand and the Privy Seal of the

State in the City of Albany this twenty-eighth day of January in the year two thousand fourteen.

BY THE GOVERNOR

Secretary to the Governor

Appendix 2 – Letters to Federal and Industry Partners

STATE OF NEW YORK

January 28, 2014

The Honorable Anthony Foxx
Secretary
U.S. Department of Transportation
1200 New Jersey Avenue S.E.
Washington, D.C. 20590

The Honorable Jeh Johnson
Secretary
U. S. Department of Homeland Security
12th & C Street S.W.
Washington, D.C. 20024

The Honorable Ernest Moniz
Secretary
U.S. Department of Energy
1000 Independence Avenue S.W.
Washington, D.C. 20585

Admiral Robert J. Papp, Jr.
Commandant
U.S. Coast Guard
2100 2nd Street S.W.
Washington, D.C. 20593

Dear Secretaries Foxx, Moniz and Johnson and Admiral Papp:

In response to the considerable increase in crude oil shipments by rail, ship, and barge and an increase in serious derailments involving the transportation of crude oil, Governor Andrew M. Cuomo has issued Executive Order 125, directing our agencies to immediately conduct a comprehensive review of New York State's crude oil transportation accident prevention and response programs. It is incumbent that the federal government, having jurisdiction over the movement of crude oil by rail and water, take immediate action to assist New York in minimizing the risk to our State's communities and critical natural resources.

Crude oil rail shipments have grown from next to nothing four years ago to 800,000 barrels per day now in the U.S. In the past six months alone, there have been four severe accidents in North America involving DOT-111 tank cars resulting in damage and catastrophic loss, including the deaths of 47 people in Québec, the evacuation of thousands of people and the needless devastation of entire communities. In the most recent North Dakota derailment, of the 20 tank cars that derailed, 18 were punctured, spilling more than 400,000 gallons of crude oil into the environment.

The Port of Albany has become a major distribution center for the transportation of crude oil, receiving and sending shipments by rail and transferring them to ships and barges down the Hudson River and other waterways to refineries in the Mid-Atlantic States and Canada. The increased volume and frequency of shipments of crude oil by rail has only increased the State's vulnerability to a serious incident.

However, federal law preempts New York from regulating rail freight transportation or freight car safety. It is therefore incumbent on the federal government to act in order to protect our people and communities.

The recent agreement between the U. S. Department of Transportation and the rail and petroleum industries on voluntary measures is a necessary interim step, but we urge you to collectively utilize the powers of your respective Departments to ensure permanent regulations are adopted expeditiously. New operations and safety regulations as well as new crude oil transportation design standards must be informed by the Departments of Transportation, Energy and Homeland Security to adequately protect the public, prevent spills and safeguard our natural resources.

As far back as 1991, the National Transportation Safety Board (NTSB) called into question the structural integrity of tank cars used to transport crude oil. Today, only 15 percent of the current DOT-111 tank cars meet industry safety standards. Voluntary efforts are insufficient to tackle this growing problem. A comprehensive strategy developed by the U.S. Departments of Transportation, Energy and Homeland Security that addresses the safe transport of crude oil is required. The residents of New York cannot wait for the federal government to address these issues in an unsynchronized manner. Government must work for and protect the public.

With respect to rail infrastructure, railroads are required to keep both their equipment and track in a safe condition. New York works in partnership with the Federal Railroad Administration (FRA) to verify industry requirements. In response to the increase in crude oil transport, both State and FRA track inspectors have focused efforts on the most impacted rail sections. Additionally, based upon the recent Cheektowaga, New York derailment investigation, State rail inspectors have refined their inspection strategy to highlight areas of similar design. New York will also be increasing rail yard inspections in those yards that most frequently handle crude oil. Furthermore, while the aforementioned agreement signals intent to develop safer transportation routes, it makes no mention of increased federal track and equipment inspections, increased federal support for critical route track maintenance, improved oversight of railcar-to-vessel and vessel-to-vessel crude oil transfers, or other measures that would be necessary components of a comprehensive system-wide safety approach. We cannot afford to pursue piecemeal solutions. We need to do more to protect the public.

In order to reduce the risks associated with the transport of crude oil to our State's communities, it is essential that your departments work with New York State to:

- Revise the design specifications for DOT-111 tank cars to minimize crude oil release and/or explosion in the event of a derailment or accident.
- Aggressively phase out DOT-111 tank cars that cannot be retrofitted to meet new federal requirements or repurpose the tank cars for non-hazardous product transportation.
- Require new standards to test the properties of crude oil being shipped by rail and implement more stringent handling requirements.
- Amend the federal standards for flammable liquids to include new combustible liquids such as Bakken crude oil that have a lower flashpoint temperature.
- Review the routing of trains transporting crude oil and other petroleum products to ensure the routes are the most appropriate, safest and most secure.

3

To a great extent, crude oil transportation in New York State is occurring on and alongside the Hudson River, one of the nation's most treasured waterways. The State has made substantial progress in restoring this vital natural resource. We must take all reasonable measures to protect this river and the other water bodies upon, over, and along which crude oil shipments occur. We ask the U.S. Coast Guard to help New York State ensure that facilities and vessels involved in crude oil transfer and transportation on and along New York's waterways are operated safely by imposing the following requirements:

- Transfers from vessel to vessel and from railcars to vessels must have all necessary equipment in place to prevent and respond to spills.
- Transfers from vessel to vessel must occur only in locations and under conditions that have been approved by the Coast Guard.
- Vessels receiving crude oil must have agreements in place with entities capable of quick and effective response to spills.
- Booming must be required before any transfer.
- The protections and response assets positioned along the River must be evaluated to ensure that the Coast Guard's pre-deployed assets are readily available to all stretches of the Hudson River including those between our towns and cities in order to ensure that emergency responders can immediately initiate cleanup operations.

We urge you to work quickly with New York to resolve issues arising from the transportation of crude oil in order to protect our communities from future disasters.

Sincerely,

Joan M. McDonald, Commissioner
New York State Department of Transportation

Joseph J. Martens, Commissioner
New York State Department of Environmental Conservation

Jerome M. Hauer, Ph.D, MHS, Commissioner
Division of Homeland Security and Emergency Services

Dr. Nirav Shah, Commissioner
New York State Department of Health

STATE OF NEW YORK
EXECUTIVE CHAMBER
ALBANY 12224

ANDREW M. CUOMO
GOVERNOR

March 3, 2014

The Honorable Anthony Foxx
Secretary
U.S. Department of Transportation
1200 New Jersey Avenue S.E.
Washington, D.C. 20590

The Honorable Jeh Johnson
Secretary
U.S. Department of Homeland Security
12th & C Street S. W.
Washington, D.C. 20024

Dear Secretaries Foxx and Johnson:

I am deeply troubled by the pattern of incidents involving the rail transportation of crude oil, from major accidents in 2013 to two minor derailments in New York this week. As you know, New York State is a key corridor for the transport of high volumes of crude oil from North Dakota and Canada, which is destined for refineries in the Mid-Atlantic and New Brunswick, Canada. I am not convinced that federal regulations and oversight sufficiently protect New York's communities and natural resources from safety hazards in transporting this material. Therefore, I request that you move swiftly to strengthen regulations on tank car safety, require reporting of derailments when crude oil is involved, and increase inspections along the network in which crude oil is shipped.

In the past week, two derailments have occurred in New York involving trains engaged in the transport of crude oil, the first in Ulster County and the second in Albany County. The Ulster County derailment on February 25th involved empty rail cars that had recently off-loaded crude oil and occurred after the conductor missed a red signal and reversed the train through a switch. The Albany County derailment at the Selkirk Rail Yards on February 28th involved the derailment of thirteen train cars fully-loaded with crude oil. Although neither incident resulted in spills or injuries, they reinforced our concerns in a time of heightened awareness.

In response to the considerable increase in crude oil shipments by rail through New York, I issued Executive Order 125, ordering a comprehensive review of the State's crude oil accident prevention and response programs. As the federal government has nearly exclusive authority over railroad regulation, our effort has also included a coordinated approach with federal partners at the Federal Railroad Administration to focus inspections on crude oil trains. This past week, State and Federal transportation officials performed joint inspections of rail yards in Albany and Buffalo. I am grateful for this continuing inspection partnership with the FRA and ask that you commit to expanding inspections along the portion of New York's rail network in which crude oil is transported.

Current regulations are insufficient to maximize accident prevention or to assist state and local responders adequately in the event of an accident. Inspections and enforcement are critical, but stronger, mandatory regulations and more federal assistance are needed to prevent accidents and to respond to any that may occur. I ask that you prioritize the following actions:

1. Swiftly move to incorporate the voluntary agreement between the FRA and railroad companies into the mandatory regulations governing the shipment of crude oil;
2. Require that the railroads report within one-hour to FRA and NYSDOT any incident in which crude oil is transported;
3. Require railroads to add additional identifiers to tank car placards so that local first responders understand the type of crude oil being transported. If there were to be an accident, first responders currently would have to physically locate the waybill on a damaged train before they could identify its content; and
4. Add crude oil to the list of hazardous materials that the U.S. Department of Homeland Security tracks and provides to the New York State Department of Homeland Security and Emergency Services. Secure real-time shipping notification about the movement of crude oil in New York State would make responses to derailments, spills and other accidents more expeditious and effective.

We look forward to continuing this important work with the U.S. Department of Transportation and the U.S. Department of Homeland Security on the issues arising from the transportation of crude oil in order to ensure safety of New Yorkers and our environment.

Sincerely,

ANDREW M. CUOMO

STATE OF NEW YORK
EXECUTIVE CHAMBER
ALBANY 12224

ANDREW M. CUOMO
GOVERNOR

RECEIVED MAR 19 2014

March 14, 2014

Edward R. Hamberger, President and CEO
Association of American Railroads
425 Third Street, SW
Washington, DC 20024

Dear Mr. Hamberger:

Pursuant to Governor Cuomo's Executive Order 125, New York State is undertaking a thorough review of its readiness to prevent and respond to incidents involving the transportation, storage, and trans-shipment of crude oil. To ensure the effectiveness of this review and to more fully protect New York's communities and natural resources, it is important that the State has the opportunity to directly engage with the Association of American Railroads (AAR) and the private rail companies that your organization represents. We request to discuss this with you and industry representatives as soon as possible.

New York has quickly become a major national hub in the rail transport of crude oil. This concerns us as the State is largely preempted by the federal government on railroad regulation. Two high-profile accidents last year in Quebec and North Dakota resulted in the loss of human lives and damage to the environment. Last month, New York experienced two minor derailments involving crude oil tankers in Albany and Ulster Counties. Although these incidents did not involve any spills or injuries, the incidents have only sustained our serious concerns. We have been urging the federal government to strengthen regulations and oversight, but have thus far not meaningfully engaged with the private sector.

Therefore, we would appreciate the opportunity to meet with AAR in early April to discuss the industry's support for stronger regulations, to learn more about the range of best practices amongst AAR member entities, and to better coordinate with the private sector in order to better prevent and respond to accidents. Given the logistical difficulties of convening a single, large meeting with industry representatives, we would welcome the opportunity to organize several smaller meetings.

Please respond to us at your earliest convenience. We can be reached at 518-408-2555. We look forward to hearing from you about this important matter confronting New York State.

Sincerely,

Karen J. Rae
Deputy Secretary for Transportation

Basil Seggos
Deputy Secretary for Environment

Cc: USDOT Secretary Anthony Foxx
Federal Railroad Administration Joseph Szabo
Pipelines and Hazardous Materials Administration Cynthia Quarterman

ANDREW M. CUOMO
GOVERNOR

JOE MARTENS
COMMISSIONER

STATE OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ALBANY, NEW YORK 12233-1010

March 24, 2014

Gina McCarthy, Administrator
United States Environmental Protection Agency
1200 Pennsylvania Ave., NW
Washington, DC 20460

Dear Ms. McCarthy:

I write to ask that the Environmental Protection Agency ("EPA") partner with the State of New York to protect public safety, public health and the environment from the risks posed by the transport of crude oil in New York. This would expand upon our existing successful partnerships with other federal agencies in this area of growing concern. While the State licenses Major Oil Storage Facilities handling crude oil in New York, EPA also has extensive and specific responsibilities under federal law.

Under Governor Cuomo's Executive Order 125, the State is reviewing efforts at all levels of government to prevent and respond to crude oil spills. In that review, we have determined that immediate action by EPA is needed to (1) update and expand the existing Inland Area Contingency Plan (IACP) for New York to reflect current conditions in sensitive environmental areas and (2) assist in the development of General Response Plans (GRPs) in critical locations across the State.

Under the Oil Pollution Act of 1990 and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300, EPA is responsible for creating and maintaining IACPs to enhance preparedness for oil spills in inland areas throughout the United States. EPA is also required to take the lead in developing GRPs for resources which may be especially sensitive to the risk of oil spills. In these identified areas, GRPs expand upon IACPs by outlining specific action plans and strategies to protect these resources.

EPA needs to expedite its efforts to update the comprehensive New York IACP, which is long overdue. The most recent version is decades old. Likewise, Area Contingency Plans that exist for the coastal areas of New York need to be revised to account for the increased risks associated with the rise in crude oil transported through the State. Environmental Sensitivity Index (ESI) maps need to be updated for the Hudson River Estuary as well as the areas of the Eastern Great Lakes potentially affected by the transportation of crude oil. EPA should also partner with New York to create GRPs throughout the state to address risks to specific critical areas.

2.

In addition, we call upon EPA to work to obtain the maximum effort from its sister federal agencies with responsibility over the transport of crude oil, including the U.S. Department of Transportation, the Federal Railway Administration, the National Oceanographic and Atmospheric Administration, the U.S. Coast Guard, and all other federal agencies that can assist in this endeavor.

DEC looks forward to working cooperatively with EPA on these important issues and addressing these vital areas.

Sincerely,

Joseph J. Martens

State of New York
Department of Transportation
Albany, N.Y. 12232
www.dot.ny.gov

Joan McDonald
Commissioner

Andrew M. Cuomo
Governor

April 29, 2014

The Honorable Anthony Foxx
Secretary
U.S. Department of Transportation
1200 New Jersey Avenue S.E.
Washington, D.C. 20590

Edward R. Hamberger, President and CEO
Association of American Railroads
425 Third Street, S.W.
Washington, D.C. 20024

Dear Secretary Foxx and President Hamberger:

I am writing to request that the U.S. Department of Transportation (DOT) and American Association of Railroads (AAR) partner with the State of New York (NYS) to protect public safety and security, public health and the environment from the risks posed by the rail transport of crude oil in New York. This would expand upon our existing successful partnerships with other federal agencies in this area of growing concern. At the New York State Department of Transportation (NYSDOT), we are continuing to strengthen our rail safety inspection capabilities through our state participation agreement with the Federal Railroad Administration (FRA). However, New York is generally preempted from engaging in regulatory activity with respect to rail freight transportation.

In the wake of the devastating Lac-Mégantic, Quebec derailment, and given the tremendous increase in crude oil transport by U.S. Class I railroads over the last five years from only 9,500 to 400,000 tank carloads, Governor Cuomo issued Executive Order 125 (EO125) on January 28, 2014. Under EO125, NYS is reviewing efforts at all levels of government to prevent and respond to incidents involving the release of crude oil including spill response planning.

We appreciate the voluntary operating practices for moving crude oil by rail announced on February 21, 2014 by Secretary Foxx and the nation's major freight railroads. However, these must be codified into regulations and strengthened, and timeline for those actions should be provided. The agreement falls short in two areas: a lack of actions recommended by DOT and the AAR to reduce incidents caused by human factors, and the use of the high-threat-urban-areas (HTUA) designation to reduce speeds of crude oil trains transiting population centers.

-2-

With regard to human factors in railroad incidents, the voluntary operating practices agreed to by DOT and AAR fail to account for human factors as causes of incidents with any additional precautions or actions to be implemented by the railroads. DOT collects and analyzes incident information to determine the root cause to eliminate risk and take appropriate enforcement action. This ensures the rail industry a process for continuous safety improvement. DOT's incident reporting data for New York State in the period from 2003 through 2013 shows that human factors were found to be the cause of 47 percent of train incidents. Human factors in the packaging of petroleum for rail transport are also not addressed either. Given the high propensity of incidents attributable to human factors and the impact a crude oil-related incident would have on New York State, these issue must be addressed fully.

Further, the actions taken to reduce speeds in urban areas are important to reducing the likelihood of a severe incident. However, the voluntary agreement stipulates that, "No later than July 1, railroads will operate trains with 20 or more tank cars carrying crude oil that include at least one older DOT-111 car no faster than 40 miles-per-hour in the federally designated 46 high-threat-urban areas (HTUA) as established by DHS regulations." Unfortunately, only Buffalo and the New York City metropolitan areas have been designated in NYS as a qualifying HTUA. There are additional major urban areas in NYS that have therefore been excluded from this reduced speed limit including Rochester, Syracuse, Utica, Schenectady, Albany, Kingston and Newburgh, all with metropolitan populations above 50,000 and all located along a primary corridor for crude oil transport. Accordingly, we respectfully request that consideration be given by DOT and AAR to expanding the designation of HTUA's to include urban areas with a minimum population of 50,000 for the purpose of lowering crude oil train speeds. This threshold is similar to the population threshold utilized by DOT for the designation of an urbanized area.

We greatly appreciate your consideration of these requests as well as your continued efforts to work with NYS and our other federal partners, including the Federal Railroad Administration and the Pipeline and Hazardous Materials Safety Administration.

NYSDOT looks forward to working cooperatively with DOT and AAR in addressing these vital areas.

Sincerely,

Joan McDonald

Joan McDonald
Commissioner

STATE OF NEW YORK

April 29, 2014

Jack N. Gerard
President and CEO
American Petroleum Institute
1220 L Street, N.W.
Washington, D.C. 20005

Dear Mr. Gerard:

In the wake of the devastating Lac-Mégantic derailment in Quebec last July, and given the dramatic growth in crude oil transport by U.S. Class I railroads over the last five years from just 9,500 to 400,000 tank carloads, Governor Cuomo issued Executive Order 125 (EO125) on January 28, 2014. EO125 requires that the State review efforts at all levels of government to prevent and respond to incidents which result in the release of crude oil, including spill response planning. We urge you to work with your membership to require all oil companies working in the Bakken region to actively mitigate dissolved gases so as to lessen the risk in the transportation of the crude oil across the United States and New York State.

As a result of this review process, we understand that a solution to reduce the risk in transporting crude oil is present at the point of shipment when the crude oil is loaded into tank cars. The crude oil transiting through New York is from the Bakken region of North Dakota. Bakken crude oil's vapor pressure, thus its volatility, is significantly higher than other crude oils and refined products. We understand that the vapor pressure is elevated due to the presence of dissolved gases within the liquid during the extraction process. When Bakken crude oil is disturbed or subject to heat, these gases are released creating gas bubbles.

The Pipeline and Hazardous Materials Safety Administration and the Federal Railroad Administration recognized the volatility of Bakken crude oil when they issued a joint advisory to ensure that all precautions were being taken to ensure the safe transport of Bakken crude oil. According to railroad industry officials, some oil companies are actively separating dissolved gases from the liquid crude oil before packaging for rail shipment. While not all gas will be removed, the vapor pressure and according volatility can be significantly attenuated. The separated gas fetches lower prices than crude, but it can still be sold for its constituent parts, most notably natural gas. Thank you in advance for your cooperation in this important initiative.

Sincerely,

Joan McDonald

Joan M. McDonald, Commissioner
New York State Department of Transportation

Jerome M. Hauer

Jerome M. Hauer, Ph.D, MHS, Commissioner
New York State Division of Homeland Security and Emergency Services

STATE OF NEW YORK

April 29, 2014

Jack N. Gerard
President and CEO
American Petroleum Institute
1220 L Street, N.W.
Washington, D.C. 20005

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Sincerely,

Joan McDonald

Joan M. McDonald, Commissioner
New York State Department of Transportation

Jerome M. Hauer

Jerome M. Hauer, Ph.D, MHS, Commissioner
New York State Division of Homeland Security and Emergency Services

STATE OF NEW YORK

April 29, 2014

The Honorable Anthony Foxx
Secretary
U.S. Department of Transportation
1200 New Jersey Ave., SE
Washington, D.C. 20590

Dear Secretary Foxx:

We are writing to request that the U.S. Department of Transportation (DOT) continue to partner with the State of New York (NYS) to protect public safety, public health and the environment from the potential risks posed by the transport of crude oil throughout New York. This will provide an opportunity to further expand our longstanding and productive partnerships with the Federal Railroad Administration (FRA), the Pipelines and Hazardous Materials Safety Administration (PHMSA) and other federal agencies in this area of growing concern. As you know, NYS is largely preempted from engaging in regulatory activity with respect to rail transportation.

In the wake of the devastating Lac-Mégantic derailment in Quebec last July, and given the dramatic growth in crude oil transport by U.S. Class I railroads over the last five years from just 9,500 to 400,000 tank carloads, Governor Cuomo issued Executive Order 125 (EO125) on January 28, 2014. EO125 requires that the State review efforts at all levels of government to prevent and respond to incidents which result in the release of crude oil, including spill response planning.

As a result of this review process, we recommend the following for your consideration which will further strengthen our joint rail safety enforcement capabilities going forward:

(1) We appreciate the collective efforts of the U.S. Department of Transportation (USDOT), including FRA and PHMSA, along with the American Association of Railroads (AAR) in establishing voluntary operating practices aimed at improving the safe transport of crude oil by rail. This "Crude by Rail" safety initiative, announced jointly by AAR and DOT on February 21, 2014, represents an initial step in addressing the identified safety concerns. FRA should aggressively move to codify these voluntary actions in regulation as soon as practicable in order that appropriate enforcement actions can be undertaken. Additionally, we also recommend that applicable regulations be amended to require proper securement of unattended trains, including specific criteria for determining the appropriate number of hand brakes to be set based upon the total number of cars in the consist, the aggregate weight of the cars and the applicable track gradient.

(2) In accordance with the provisions of the Rail Safety Improvement Act of 2008, implementation of Positive Train Control (PTC) technology was to be completed by December 15, 2015. We are aware that consideration is being given to granting an extension of this 2015 deadline. Given that PTC systems address the human factors which are often found causal to rail accidents/incidents, we recommend DOT should make every effort to maintain the current implementation schedule for those routes which frequently carry hazardous materials per 49 CFR Part 172.

(3) In conducting our rail safety inspection activities through our state participation agreement with FRA and PHMSA, we have enforcement jurisdiction over the "general railroad system of transportation." Much of the

network comprising that system is interconnected so that a rail vehicle can travel across the nation without leaving the system. However, industrial railroads which may be connected to the network only by a switch for receipt of shipments are not part of the system. There are currently no requirements for industrial plants to perform periodic track inspections or to keep track inspection records as required for railroads operating within the "general railroad system of transportation." Therefore, FRA should move expeditiously to amend its regulations to require owners of industrial plant rail systems to perform and document periodic track inspections subject to review/audit by federal/state rail inspection staff.

(4) State participation agreements with FRA provide for all requisite classroom training, including ongoing inspector training, at no cost to the participating states, throughout the life of the agreement. Rail Safety Program managers from the participating states are members of the Association of State Rail Safety Managers (ASRM) which has provided a valued and relevant network for sharing ideas, effective practices, emerging trends etc. Given the significant operational and regulatory impacts attributed to the dramatic increase in rail transport of crude oil nationwide, we recommend that FRA re-establish the annual meeting of the ASRM in order to provide an active and timely learning forum and to allow the states a voice in national rail safety issues.

(5) Unfortunately, rail accidents and the resulting investigative activities are a challenging, but necessary part of our shared rail safety enforcement efforts. As we have experienced during the past year, there have been a number of notable incidents related to the rail transport of crude oil. After the initial field response and clean-up activities associated with an incident have concluded, many members of the ASRM report that there are extensive delays in FRA providing valuable feedback as to their investigative findings. It would be tremendously beneficial for our NYSDOT rail safety inspectors to have access to relevant and timely information in order to better understand how/why these major incidents occur. Additionally, it would allow us to better focus our inspection priorities as well as to potentially identify opportunities to strengthen local preparedness based upon specific knowledge of accidents with similar causality. Accordingly, we recommend that FRA commit to providing within 45 days following an accident, investigation updates to the secure website portal provided to the states in order to more effectively share incident-related information and interim findings.

(6) Immediate action by PHMSA is needed to (1) finalize revised design standards for the DOT-111 tank cars and (2) update regulations for appropriate classification and labeling of petroleum products and other hazardous materials. With regard to revised tank car standards, we support the recommendations offered by the American Association of Railroads (AAR) in their November 2013 response to the PHMSA notice of proposed rulemaking outlined below:
   a. Increase federal tank car design standards for new tank cars or retrofit existing cars to include:
      i. An outer steel jacket around the tank car and thermal protection
      ii. Full-height head shields
      iii. High-flow capacity pressure relief valves
   b. Require additional safety upgrades to those tank cars built since 2011 including:
      i. Installation of high flow capacity pressure relief valves, and
      ii. Design modifications to prevent bottom outlets from opening in case of an accident
   c. Aggressively phase out older-model tank cars used to move flammable liquids that cannot be retrofitted to meet new federal requirements.
   d. Eliminate the option for rail shippers to classify a flammable liquid with a flash point between 100 and 140 degrees Fahrenheit as a combustible liquid.

(7) In terms of updating regulations for appropriate classification and labeling as outlined in PHMSA's Safety Alert dated January 2, 2014, test samples of crude oil originating from the Bakken formations in western U.S. and Canada have exhibited more volatile properties than conventional crude oil, including a lower flash point similar to unleaded gasoline. Therefore, PHMSA should establish a unique identification number and work with shippers to assign the proper packing group so that first responders are able to more readily anticipate the characteristics and behavior of this specific form of crude oil.

(8) FRA regulations should be amended to bring the railroads into the same type of regulatory oversight that is currently in place under Oil Pollution Act of 1990 for vessels and facilities. The 42,000 gallon threshold

should either be eliminated or apply to the entire train. The NTSB recommended that railroads be required to develop emergency response plans for derailments and other incidents likely to result in crude oil spills or fires, file those plans with designated State and Federal agencies, have contractual relationships with Oil Spill Response Organizations and other organizations necessary to meet their roles and responsibilities identified in those response plans, and conduct or participate in response drills and exercises with local, County, State and Federal agencies. The railroad response plans should identify their response capabilities, any gaps in those response capabilities, and how those capabilities will be integrated into the overall response to a crude oil incident.

(9) The New York State Division of Homeland Security and Emergency Services (DHSES), which includes the Office of Emergency Management (OEM) and the Office of Fire Prevention and Control (OFPC), has been fortunate to have been the recipient of funding provided by the Hazardous Materials Emergency Preparedness (HMEP) Grant Program administered by your agency. This funding has been instrumental in supporting OFPC's hazardous materials training programs and OEM's support of Local Emergency Planning Committee (LEPC) efforts. We request that HMEP funding available to New York State be increased in direct response to the tremendous increase in the amount of crude oil, and specifically crude oil from the Bakken oil fields, being transported across New York State by rail and water routes to refineries located on the East Coast of the United States and Canada. We have identified that the funding and resources necessary and available for local and State agencies to adequately plan, prepare and respond to this increased risk must also be increased. Repurposing the HMEP funding the State currently receives would result in significant negative impacts upon the missions it already supports, therefore additional funding is being sought to better position New York State to provide the increased support for local planning and preparedness efforts, including increased training and exercises, necessary to address the expanding crude oil risk. These objectives are consistent with the stated purpose of the HMEP Grant Program: "to increase State, Territorial, Tribal, and local effectiveness in safely and efficiently handling hazardous materials accidents and incidents, enhance implementation of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), and encourage a comprehensive approach to emergency training and planning by incorporating the unique challenges of responses to transportation situations."

We greatly appreciate your consideration of the enclosed recommendations as well as your continuing efforts to work with NYS and our other federal partners to address concerns arising from the exponential growth in the rail transport of crude oil in NYS.

Sincerely,

Joan McDonald

Joan M. McDonald, Commissioner
New York State Department of Transportation

Jerome M. Hauer

Jerome M. Hauer, Ph.D, MHS, Commissioner
New York State Division of Homeland Security and Emergency Services

NEW YORK STATE
DIVISION OF HOMELAND SECURITY AND EMERGENCY SERVICES

Andrew M. Cuomo, Governor | Jerome M. Hauer, Ph.D., MHS, Commissioner

April 29, 2014

The Honorable Jeh Johnson
Secretary
U.S. Department of Homeland Security
12th & C Street S.W.
Washington D.C. 20024

Dear Secretary Johnson:

In recognition of the increasing vulnerability to New York State from increased volumes and shipment frequencies of crude oil, Governor Andrew M. Cuomo issued Executive Order 125 on January 28, 2014, directing state agencies to immediately conduct a comprehensive review of New York State's crude oil incident prevention and response capacity.

One of the findings of this review is that the USDHS published list of authorized equipment eligible for grant funding (AEL) does not include the purchase of foam concentrate, appliances and equipment which are critical for responding to incidents involving crude oil. We respectfully request that you update the AEL to include the materials and equipment needed to respond to incidents involving crude oil.

Thank you in advance for your cooperation in this important initiative.

Sincerely,

Jerome M. Hauer, Ph.D., MHS
Commissioner

1220 Washington Avenue, State Office Building Campus
Building 7A, Suite 710
Albany, NY 12242

ANDREW M. CUOMO
GOVERNOR

JOE MARTENS
COMMISSIONER

STATE OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ALBANY, NEW YORK 12233-1010

April 29, 2014

Admiral Robert J. Papp, Jr.
Commandant
U.S. Coast Guard
2100 2nd Street S.W.
Washington, D.C. 20593

Dear Admiral Papp:

In recent years, the number of trains and volume of crude oil moving through New York has increased significantly, resulting in increased risks of spills, of damage to the environment, and of threats to public health and safety. These risks have been dramatically demonstrated by derailments, spills, and fires in Lac-Megantic, Canada; North Dakota; Pennsylvania; Alabama and elsewhere. Four crude oil train car derailments have occurred in New York in the last several months, though fortunately with no spills.

Governor Cuomo issued Executive Order 125 (EO125) on January 28, 2014 requiring State agencies to fully evaluate New York's prevention, preparedness, and response capabilities to respond to crude oil accidents. Under the EO125, the New York State Department of Environmental Conservation (DEC) is reviewing all aspects of our environmental readiness. In that review, we have determined that there are four areas where action by the United States Coast Guard (USCG) is needed. The first is to complete the development of best practices for responding to spills of crude oil required under the Oil Spill Prevention Act of 1990 (OPA-90). The second is to complete updates of Area Contingency Plans and Geographic Response Plans in critical locations across the state. Third is to ensure that Vessel Response Plans reviewed by USCG fully address the hazards presented by the transportation of crude oil, particularly on the Hudson River and in New York Harbor. Lastly, a civilian planning position should be established in Sector NY in order to provide organizational continuity to better support preparedness and response in New York.

Best Practices

Subchapter IV of OPA-90 is known as the Oil Pollution Research and Development Program. Section 2761 of the statute established a federal Interagency Coordinating Committee on Oil Pollution Research (ICCOPR) to coordinate oil pollution research and technology development and demonstration among the Federal agencies, in cooperation with industry, research

institutions, state governments, and other nations. It fosters cost-effective research mechanisms and the joint funding of research. The committee is chaired by the USCG.

Section 2761 of OPA-90 also addresses the development of best practices and methods for oil spill prevention and response. Section 2762 specifically addresses submerged (sinking) oil such as tar sands oils and the development of methods to detect, monitor, disperse, and remove submerged oils.

The development of these best practices and technologies, as required by Subchapter IV of OPA-90, has not been fully implemented. OPA-90 requires biennial reporting to Congress on the activities carried out by the ICCOPR and the compilation and updating of an Oil Pollution Research and Technology Plan every five years. The most recent Research and Technology Plan is dated 1997 and currently remains in draft format under its third revision. While there is significant ongoing research into oil spill response best practices, results from this research are largely unavailable. The five-year plan update required by OPA-90 is 22 years overdue. Updates of contingency plans in New York would benefit from the release of this information.

The ICCOPR should complete and issue the Research & Technology Plan, which was planned for the end of 2013. Additionally, updates on response technologies and best practices involving both floating and sinking crude oils and the compilation of a comprehensive best practices manual are needed. The results should be distributed to the state and federal agencies engaged in planning, preparedness, and response programs related to oil spills.

Updates of Area Contingency Plans and Geographic Response Plans

The USCG is responsible for creating and maintaining Area Contingency Plans (ACPs) for coastal areas of the United States. To protect specific areas, state, local, and federal governments may cooperate to develop Geographic Response Plans (GRPs). GRPs are developed for resources which may be especially sensitive to the risk of oil spills. In these identified areas, specific action plans and strategies are developed to protect these resources.

Under OPA-90 and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP, 40 CFR Part 300), ACPs are initiated by a federal agency and developed by an Area Committee of qualified federal, state, and local personnel. The Area Committee provides a forum for agencies to develop constructive working relationships while identifying issues, problems, and solutions in advance of a response action. Although ACPs exist for the coastal areas of New York, they need to be revised to account for the increased risks associated with the rise in crude oil transported through the State. Environmental Sensitivity Index maps need to be updated for the Hudson River Estuary as well as the areas of the Eastern Great Lakes potentially affected by the transportation of crude oil. USCG should partner with New York to create GRPs throughout the coastal areas to address risks to specific critical areas.

Review of Vessel Response Plans

The USCG has jurisdiction for spill planning and response in the coastal zone including the review of Vessel Response Plans (VRPs). Vessels owners are required to prepare a VRP to ensure adequate plans and resources are available to respond to incidents involving spills and

fires. VRPs contain several critical elements needed for responding to a discharge of crude oil. These include procedures to minimize the impact of a spill, the identification of the vessel's designated Oil Spill Response Organization (OSRO), listing qualified individuals who can make technical and financial decisions for the ship operators during an incident, and identifying the organizations that have knowledge and responsibility for operations related to salvaging (including structural stability, emergency towing, and external emergency transfer operations). The USCG also tracks and maintains an inventory of spill response assets available for use in designated areas.

I request that USCG undertake a comprehensive review of the current state of preparedness to respond to spills of crude oil in New York navigable waters. This should include an evaluation of the current frequency and completeness of VRP reviews, the availability of response equipment, trained personnel, and treatment/disposal options for recovered product from a range of spill types and sizes. To ensure that VRPs are effective, USCG should also determine whether increased response drills for reasonable worst-case scenarios are warranted. Additionally, I request that USCG clearly define the limits of moving OSRO personnel and equipment from one area to another during spills of national significance such as the Deepwater Horizon spill in the Gulf of Mexico. Once this comprehensive review is complete, I request that the results of this comprehensive review and planned changes be shared with DEC.

Civilian Planning Position in Sector NY

The Port of New York and New Jersey is a very complex area with several overlapping state and local jurisdictions and is an economic engine for the region. During an emergency, the effectiveness of a response is increased when those involved have experience working together. This takes time to develop and is hindered by the regular shifting of personnel to other areas. The USCG Sector New York State has, for many years, used junior USCG officers to be the primary contact with the Area Committee. While these officers have performed very well, their normal rotations result in the loss of their local knowledge, experience, and contacts. Accordingly, we request that USCG establish a civilian planning position in Sector NY in order to provide organizational continuity to better support New York State-centered preparedness and response.

DEC is looking forward to working cooperatively with USCG on these important issues.

Sincerely,

Joseph J. Martens

ec: B. Seggos

NEW YORK STATE
DIVISION OF HOMELAND SECURITY AND EMERGENCY SERVICES

Andrew M. Cuomo, Governor | Jerome M. Hauer, Ph.D., MHS, Commissioner

April 30, 2014

John S. Pistole
Administrator
Transportation Security Administration
601 South 12th Street
Arlington, VA 22202

Dear Administrator Pistole:

In recognition of the increasing vulnerability to New York State from increased volumes and shipment frequencies of crude oil, Governor Andrew M. Cuomo issued Executive Order 125 on January 28, 2014, directing state agencies to immediately conduct a comprehensive review of New York State's crude oil accident prevention and response capacity. In addition, the Division of Homeland Security and Emergency Services is assessing the threat to these shipments from criminal or terrorist adversaries and whether future outreach activities to the freight rail sector is needed. As such, I am writing to propose collaboration on future rail sector outreach efforts.

In New York State, *Operation Safeguard* is an outreach initiative designed to educate the private sector on how to recognize and report suspicious activity potentially related to acts of crime or terrorism. Since implementation of the program in 2004, the State's law enforcement community has educated approximately 100 professions or fields, and has provided a mechanism to report such activity through the New York State Toll-Free Terrorism Tips Line (1-866-SAFE-NYS). Law enforcement taskings are directed from the New York State Intelligence Center (NYSIC) –the State's fusion center—based on threat or outreach gaps. As Transportation Security Administration (TSA) Surface Transportation Inspectors in New York State have conducted outreach visits in the past, coordination via NYSIC of our state personnel with your local New York State TSA representatives on outreach is vital to eliminating duplication of effort. NYSIC has previously coordinated outreach with TSA aviation elements with success.

Additionally, my staff would like work with appropriate TSA surface inspection personnel to identify critical rail nodes for placement into our Operation Safeguard visit database. This will provide a solid starting point for law enforcement to conduct visits, and will contribute to smarter outreach with the rail sector going forward.

Thank you in advance for your cooperation in this important initiative.

Sincerely,

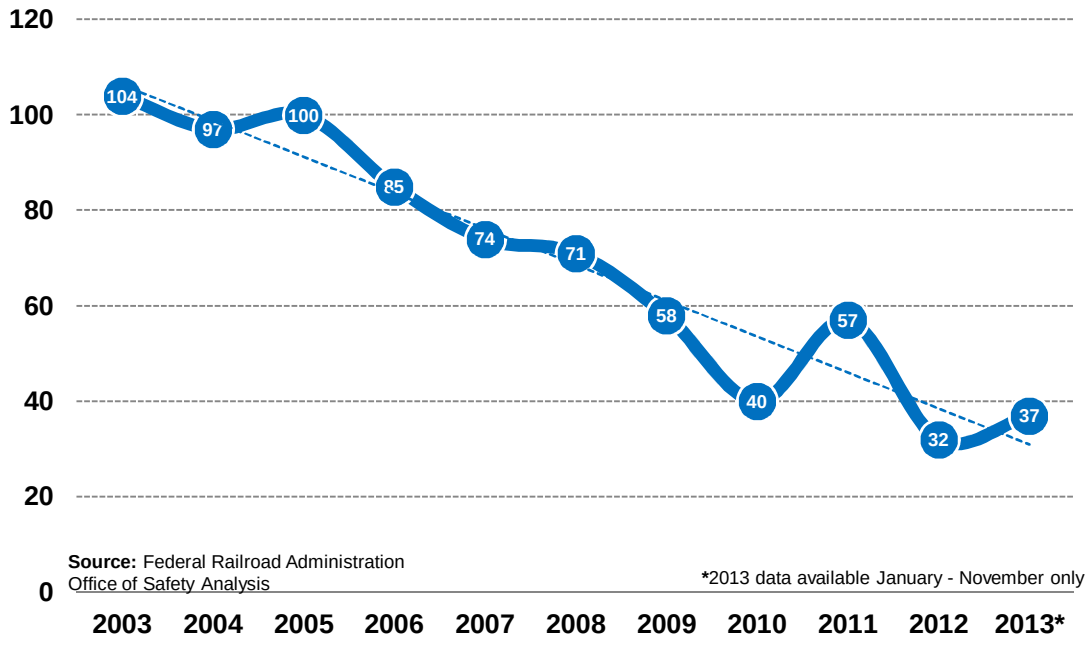
Jerome M. Hauer, Ph.D., MHS
Commissioner

cc: Marisa Maola, TSA Regional Federal Security Director, Northeast Region
Edward Pearce, TSA Regional Surface Inspector, Northeast Region

1220 Washington Avenue, State Office Building Campus
Building 7A, Suite 710
Albany, NY 12242

Appendix 3 – Rail Incident and Incident Data

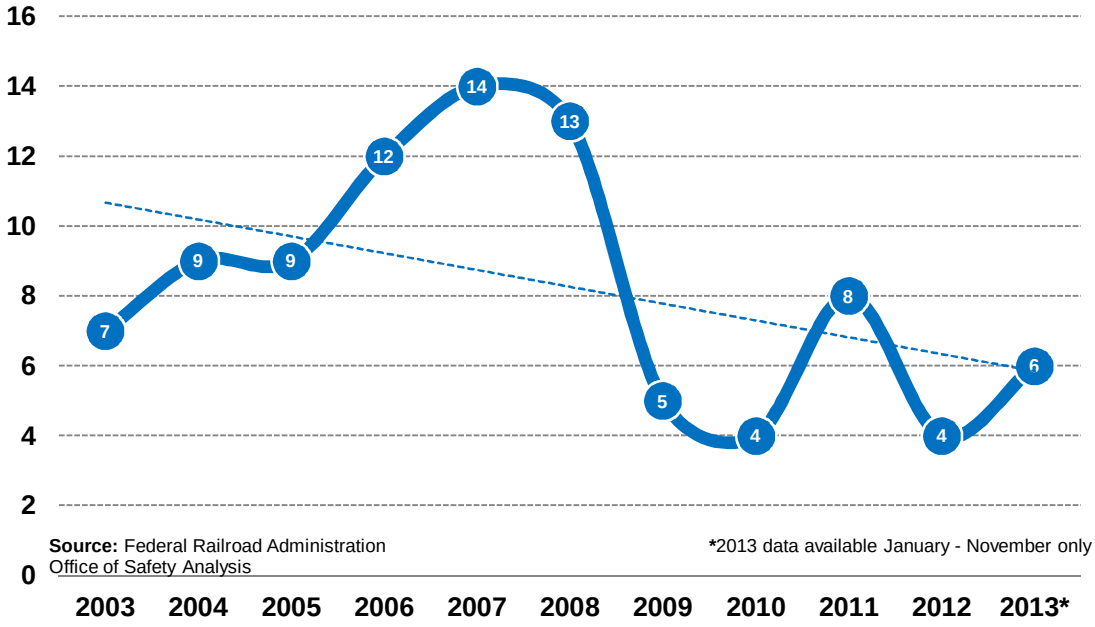
Total train incidents in New York 2003-2013
(excludes highway/rail crossing incidents)



Source: Federal Railroad Administration Office of Safety Analysis

*2013 data available January - November only

Train collisions in New York 2003-2013
(excludes highway/rail crossing incidents)



Source: Federal Railroad Administration Office of Safety Analysis

*2013 data available January - November only

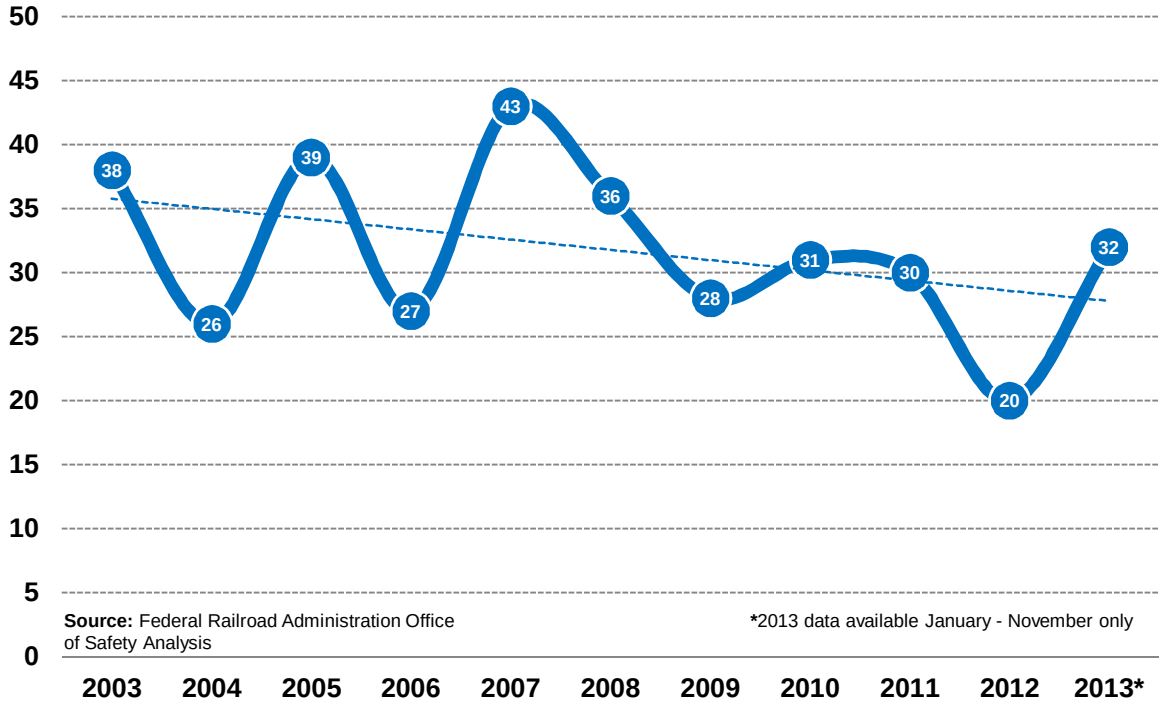
Train derailments in New York 2003-2013

(excludes highway/rail crossing incidents)

Source: Federal Railroad Administration Office of Safety Analysis

*2013 data available January - November only

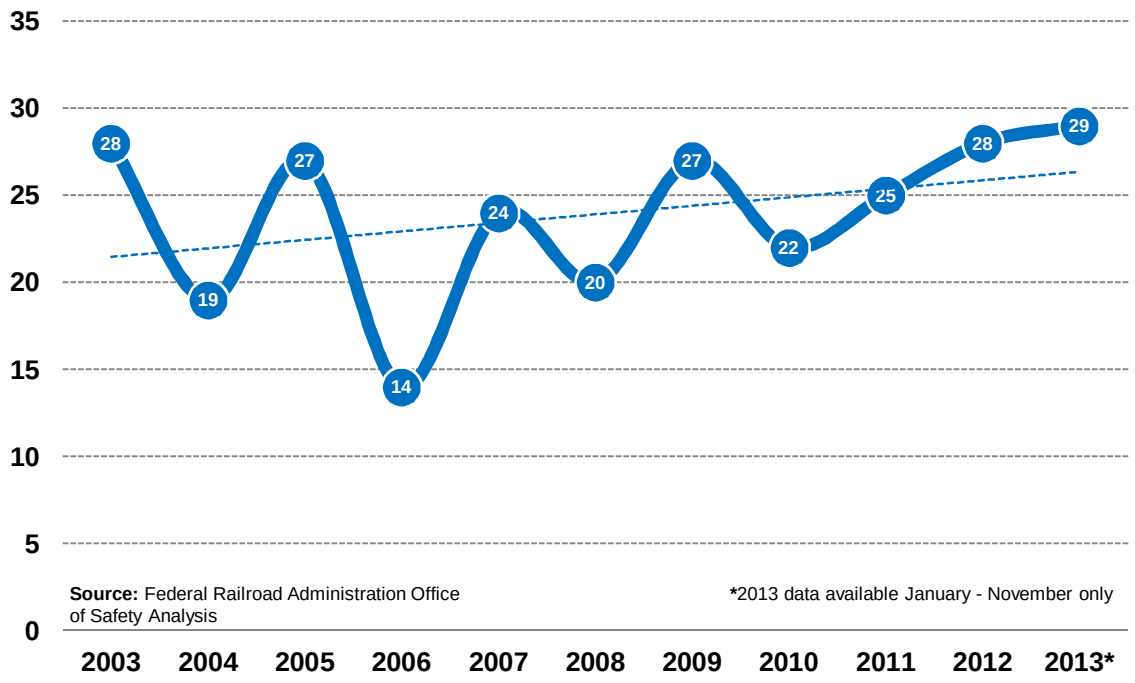
Total highway/rail crossing incidents in New York 2003-2013



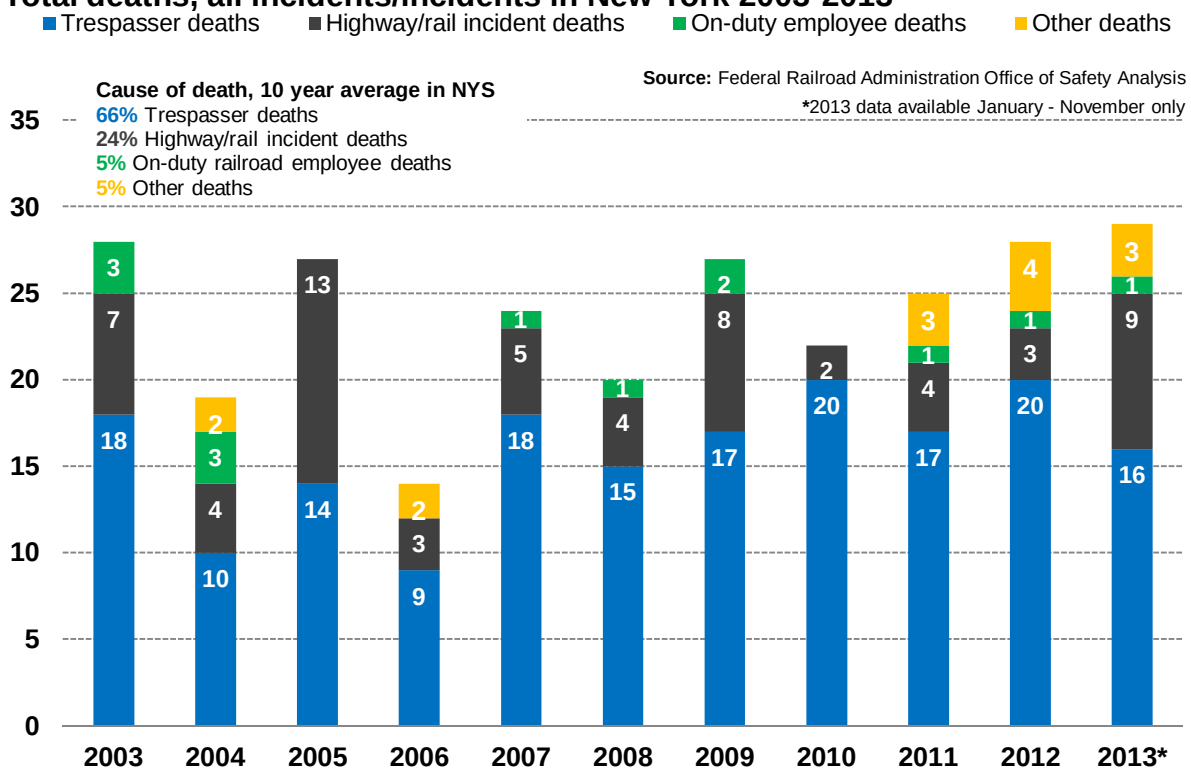
Source: Federal Railroad Administration Office of Safety Analysis

*2013 data available January - November only

Total deaths, all incidents/incidents in New York 2003-2013



Total deaths, all incidents/incidents in New York 2003-2013



Incident/incident data for New York State 2003-2013	03	04	05	06	07	08	09	10	11	12	13*	
Total train incidents	**104**	**97**	**100**	**85**	**74**	**71**	**58**	**40**	**57**	**32**	**37**	
Collisions	7	9	9	12	14	13	5	4	8	4	6	**10-year average percent cause incident or percent source of deaths**
Derailments	53	51	56	41	27	29	34	19	35	18	20	
Total highway/rail incidents	38	26	39	27	43	36	28	31	30	20	32	
Total train incidents on yard track	56	50	67	44	41	43	26	25	35	21	19	
Total train incidents on main track	41	43	27	35	30	26	27	14	19	10	16	
Total train incidents caused by equipment	22	21	8	15	10	13	8	7	10	3	5	21 percent
Total train incidents caused by human factors	39	35	40	28	27	25	23	17	18	11	17	47 percent
Total train incidents caused by track	27	23	25	29	19	14	13	4	15	11	10	32 percent
Total deaths	**28**	**19**	**27**	**14**	**24**	**20**	**27**	**22**	**25**	**28**	**29**	
Trespasser deaths	18	10	14	9	18	15	17	20	17	20	16	66 percent
Highway/rail incident deaths	7	4	13	3	5	4	8	2	4	3	9	24 percent
On-duty employee deaths	3	3	0	0	1	1	2	0	1	1	1	5 percent
Other deaths	0	2	0	2	0	0	0	0	3	4	3	5 percent
Incidents/incidents w/ cars carrying hazmat (FFY)	114	162	172	236	243	212	188	52	77	23	49	On average 11 percent of cars involved in an incident have been damaged and <1 percent have released hazardous materials.
Incidents/incidents w/ damaged hazmat cars (FFY)	24	26	18	27	46	9	7	6	7	3	1	
Incidents/incidents w/ hazmat released (FFY)	0	0	3	1	7	0	0	0	0	0	1	
People evacuated (when hazmat was on train set)	0	0	0	0	300	0	0	0	0	0	0	

Source: Federal Railroad Administration Office of Safety Analysis
http://safetydata.fra.dot.gov/officeofsafety/default.aspx Retrieved 2/19/2014
*****2013 data only available January - November

Appendix 4 – Jurisdictional Role Descriptions

Incident Prevention

U.S. Department of Transportation

USDOT regulates hazardous material transportation under the Hazardous Materials Transportation Act (HMTA), the Federal Rail Safety Act, and through rulemaking. The HMTA provides USDOT with the authority to ensure safe and secure shipments of hazardous materials. Regulations are developed by the Pipeline and Hazardous Materials Safety Administration (PHMSA) within USDOT. PHMSA's regulations cover classification, packaging, emergency communication, security plans, risk assessments, training, and modal-specific requirements for materials. The Federal Rail Safety Act empowers the Federal Railroad Administration (FRA) to ensure secure movement of hazardous freight via railroads. This includes regulations on design, manufacture, and repair of equipment, cars, locomotives, and track used to carry hazardous materials, and information on the movement of these materials.

FRA is an agency within USDOT that carries out a number of safety and security programs for rail transport through their Office of Safety. These functions are critical to the safety of the rail network in New York State, as FRA has the lead responsibility to ensure that the railroads are in compliance with standards. Five of the divisions of the Office of Safety directly align with the five safety disciplines for inspections regularly performed by FRA. These divisions are:

- Hazardous Materials;
- Motive Power and Equipment;
- Operating Practices;
- Signal and Train Control; and
- Track.

Tank car safety is covered by the Hazardous Materials Division, which ensures that tank cars that carry hazardous materials are secure and properly maintained. Compliance with federal standards for locomotives, passenger and freight cars, and components like air brakes, is in the domain of the Motive Power and Equipment Division. Operating issues, including employee qualifications, training and testing, occupational safety, health standards, and hours of service are examined by the Operating Practices Division. . The Signal and Train Control Division ensures compliance with federal regulations for signal and train control systems and highway-rail grade crossing systems. Finally, track condition and standards are handled by the Track Division. Their efforts include reports and guidance on track maintenance, conditions, standards development and compliance manuals.

The mission of the Pipelines and Hazardous Materials Safety Administration within USDOT is to protect people and the environment from the risks of hazardous materials transportation. This is accomplished by establishing national policy, setting and enforcing standards, educating, and conducting research to prevent incidents. PHMSA also works to prepare the public and first responders to reduce consequences if an incident does occur. Their stated goal is to eliminate harm from hazardous materials transportation. With that goal in mind, PHSMA works to find new ways to reduce risk towards zero deaths, injuries, environmental and property damage, and transportation disruptions.

New York State Department of Transportation

NYSDOT conducts comprehensive safety inspections of track and equipment owned by freight railroads operating within the state.[85] These safety inspections supplement the direct inspections of freight railroads performed by the FRA. In addition, NYSDOT continuously monitors the occurrence of train incidents and investigates serious events to determine their cause and compliance with existing safety laws and regulations.

The New York State Rail Safety Inspection Program has been in some form of existence since 1910, when it was originally established within the jurisdiction of public utilities oversight. The program currently provides safety oversight for railroad freight carriers as well as intercity passenger rail operations in New York State. Since the Federal Railroad Safety Act of 1970, the Rail Safety Inspection Program has been administered within NYSDOT in partnership with the FRA. The primary goal of the program is to provide railroad safety monitoring and reporting of railroad compliance with Transportation Law and Railroad Law and to ensure compliance with the Federal Railroad Safety Program. State rail safety participation in conjunction with the FRA requires the state agency to provide the capability necessary to assure coverage of facilities, equipment, and operating practices through planned routine compliance inspections for all, or a specified part of, the territory of the state.[86] To this end, each participating state is required to certify all Safety Inspectors within their respective discipline.

The federal rail inspection program consists of five distinct safety disciplines including:

- Hazardous Materials,
- Equipment,
- Operating Practices,
- Signals and Train Control, and
- Track.

NYSDOT currently has inspectors in two of the five disciplines. Track inspectors perform both physical inspections and record examinations to ensure that railroads are in compliance with federal track safety standards. Equipment inspectors perform random inspections of railroad rolling stock including rail cars, tank cars, and locomotives. Governor Cuomo's 2014-2015 budget initiative to strengthen rail safety will support NYSDOT's plans to expand the number of inspectors.

U.S. Department of Homeland Security

The U.S. Department of Homeland Security (USDHS) has been given primary responsibility, under a variety of statutes and Executive Orders, most notably, relating to "Critical Infrastructure Identification, Prioritization, and Protection," for assuring security of the nation's critical infrastructure, including the transportation systems sector.

The National Protection and Programs Directorate (NPPD), Office of Infrastructure Protection (IP) leads and coordinates national programs and policies on critical infrastructure issues and has established strong partnerships across government and the private sector. The office conducts and facilitates vulnerability and consequence assessments to help critical infrastructure owners and operators and state, local, tribal, and territorial partners understand and address risks. IP provides information on emerging threats and hazards so that appropriate actions can be taken. The office also offers tools and training to help partners manage the risks to their assets, systems, and networks.[87]

Since 2004, the Department has maintained robust infrastructure protection field operations through the Protective Security Advisor (PSA) program.[88] PSAs are trained subject matters experts in the areas of critical infrastructure protection and vulnerability mitigation. Regional Directors are responsible for the activities of eight or more PSAs and geospatial analysts, who ensure all Office of Infrastructure Protection critical infrastructure protection programs and services are delivered to state, local, territorial, and tribal stakeholders and private sector owners and operators. Since Regional Directors and PSAs are strategically located across the country, they are often the first Department personnel to respond and deploy to emergencies and disasters. During an incident, they frequently work within state and local Emergency Operations Centers and at the Federal Emergency Management Agency (FEMA) Joint Field Office, where they:

- Advise the Department and other government and private sector representatives on interdependencies, cascading effects, and damage assessments concerning impacted critical infrastructure.
- Help owners and operators, law enforcement personnel, and state and local officials prioritize and coordinate re-entry and recovery activities.

In 2013, USDHS finalized the update to the "National Infrastructure Protection Plan: Partnering for Critical Infrastructure Security and Resilience," which covers infrastructure protection strategies to be applied across all critical infrastructure sectors. The Transportation Security Administration (TSA) and the United States Coast Guard (USCG) are the Sector-Specific Agencies (SSAs) for the Transportation Systems Sector. TSA and the USCG, in collaboration with the Department of Transportation coordinate the preparedness activities among the sector's partners to prevent, protect against, respond to, and recover from all hazards that could have a debilitating effect on homeland security, public health and safety, or economic well-being.[89]

U.S. Transportation Security Administration

TSA has statutory responsibility for security of all modes of transportation, including rail transportation security. Its efforts in this area are focused on the highest risk in the freight rail industry. Additionally, TSA, through its Corporate Security Review (CSR) Program, assesses how a carrier's security plan addresses the transportation of hazardous materials and also reviews and assesses the effectiveness of the plans in seven areas, which include cyber security, protection of critical assets, security awareness training and threat assessment.[90]

The Surface Transportation Security Inspection workforce program deploys 175 inspectors in 54 field offices to perform surveys and conduct inspections of freight rail operations throughout the nation. The efforts of the inspectors are focused on the areas of highest risk in the freight rail industry. The inspection program is responsible for verifying implementation of voluntary security measures, conducting vulnerability assessments and regulatory compliance inspections. The inspectors also act as local liaisons to rail carriers and other government agencies for emergency planning and response. This vitally important component of layered security was set to expand to 225 inspectors nationwide.[91]

U.S. Coast Guard

The U.S. Coast Guard (USCG) is a multi-mission maritime service. It aims to protect the public, the environment, and U.S. economic interests in the Nation's ports, on navigable waterways

inland, along the coast, on the high seas, or in any maritime region, as required to support national security. In the event of a maritime incident, the USCG will often act in a first-responder capacity. The USCG has the primary responsibility for the security of the maritime domain, including coordinating mitigation measures to expedite the recovery of maritime infrastructure and transportation systems and to support incident response. The USCG fulfills those roles by undertaking the following:[92]

- Develop and maintain standards and regulations for inspected and uninspected vessels, facilities, and offshore platforms.
- Develop and maintain standards, regulations, and industry guidance for vessel, facility, and platform operations.
- Develop and maintain regulations and guidance concerning operational pollution prevention, response, and removal.
- Prepare national positions and participate as a United States representative to national and international forums, including the International Maritime Organization, to integrate U.S. and international standards with respect to vessel, facility, and platform operations.
- Support and coordinate with classification societies, national professional and industry organizations to foster sound industry standards.
- Recommend, guide, and conduct research and development as a basis for regulations, policy, and guidance toward safe and environmentally sound operating practices by maritime industry.
- Administer the International Convention for Safe Containers (CSC) and a container certification program involving designation of approval authorities.
- Serve as the Executive Director for the National Offshore Safety Advisory Committee (NOSAC).

On November 25, 2002, the President signed the Maritime Transportation Security Act (MTSA). The Area Maritime Security Committees were established under this Act to provide a link for contingency planning, development, review, and update of Area Maritime Security Plans, and to enhance communication between port stakeholders within federal, state and local agencies, and industry to address maritime security issues.[93] The Area Maritime Security Committees:

- Identify critical port infrastructure and operations,
- Identify risks,
- Determine mitigation strategies and implementation methods,
- Develop and describe the process to continually evaluate overall port security, and
- Provide advice to, and assist the Captain of the Port in, developing the AMS Plan.

The Area Maritime Security Committee also serves as a link for communicating threats and changes in Maritime Security.[94]

New York State Division of Homeland Security and Emergency Services

A core responsibility of DHSES/Office of Counter Terrorism (OCT) is to work with local, state, federal agencies and private entities to conduct, and participate in, site security assessments of the state's critical infrastructure to protect it from a terrorist attack and other natural and man-made disasters. While DHSES and OCT have independent, but overlapping statutory authority to conduct critical infrastructure assessments, DHSES authority to conduct assessments covers both man-made and natural disasters and generally railways, as well as nuclear facilities, power plants, telecommunications systems, mass transportation systems, public roadways, bridges and tunnels. The results of these security assessments are used by DHSES to consult with federal, state and local governments and private entities to develop strategies that may be used to protect such infrastructure from terrorist attack and other natural and man-made disasters.

DHSES is also statutorily empowered to develop plans that may be used to contain and remove hazardous materials used in a terrorist attack or released as a result of a natural or man-made disaster. DHSES/OCT regularly exercises this authority to conduct security assessments of the state's critical infrastructure and/or participating in federal site security assessments. In 2013, OCT conducted 66 site visits, which included Chemical, Commercial, Communication, Critical Manufacturing, Government, Healthcare and Public Health, Water and Wastewater facilities, Financial Service Providers, and Transportation infrastructure.

U.S. Environmental Protection Agency

For above-ground tank systems, like those at the majority of Major Oil Storage Facilities (MOSF), the USEPA's main role is in the enforcement of the rules for oil storage facilities to prepare and implement Spill Prevention, Countermeasures, and Control (SPCC) Plans. The requirements for these plans are set in federal regulations.[95]

The owner or operator of the facility must develop and implement an SPCC Plan that describes oil handling operations, spill prevention practices, discharge or drainage controls, and the personnel, equipment and resources at the facility that are used to prevent oil spills from reaching navigable waters or adjoining shorelines. Although each SPCC Plan is unique to the facility, there are elements that must be described in every Plan including:

- Operating procedures at the facility to prevent oil spills
- Control measures (such as secondary containment) installed to prevent oil spills from entering navigable waters or adjoining shorelines
- Countermeasures to contain, clean up, and mitigate the effects of an oil spill that has impacted navigable waters or adjoining shorelines

Every SPCC Plan must be prepared in accordance with good engineering practices and must be certified by a Professional Engineer unless the owner/operator is able to, and chooses to, self-certify the Plan. Facilities which self-certify must have a capacity of less than 10,000 gallons, and have no disqualifying spills three years prior to the submission of the SPCC. Facilities that are required by the USEPA to have an SPCC must maintain them at the facility. Facilities are not required to automatically submit SPCC plans to USEPA, but when USEPA inspects such a facility, the facility must produce a copy of the plan.

New York State Department of Environmental Conservation

DEC is responsible for licensing Major Oil Storage Facilities (MOSF). DEC bulk storage regulations establish requirements for storing and handling petroleum in ways to minimize the risk of a release of petroleum to the environment. In 1977, the New York State Legislature passed the "Oil Spill Prevention, Control and Compensation Act."[96] This law regulates all oil terminals and transport vessels operating in the waters of the state which have a storage capacity of 400,000 gallons or more. The express purpose of the law is to "ensure a clean environment and healthy economy for the State by preventing the unregulated discharge of petroleum which may result in damage to lands, waters or natural resources of the state [...] and to effect prompt cleanup and removal of such discharges." Under the law, owners or operators of major oil storage facilities must do the following:

- Obtain an operating license from DEC,
- Pay a license fee of up to 12 1/4 cents per barrel of throughput at the facility - the fee is adjusted in order to maintain a balance in the Oil Spill fund between $15-30 million,
- Submit data to DEC on operating activities, such as average daily throughput and storage capacity, and
- Report discharges to DEC.

Inspections of Crude Oil Storage at MOSFs

To ensure that MOSFs are operated and maintained in compliance with the statutory and regulatory requirements, DEC carries out regular inspections. Most MOSF inspections are completed by DEC as part of the process of renewing an MOSF license, which are typically issued for five years. If a facility is planning to close or DEC has concerns about facility operations, shorter license periods are established. Additional inspections can be completed at any time there is a concern about a release or potential release at an MOSF (e.g., after a severe storm, incident, spill, or other event that could lead to a discharge of petroleum).

The main elements of an MOSF inspection include a review of facility records and a physical inspection of the tank systems (i.e., tanks, piping, loading/unloading racks, and secondary containment systems). As part of an application for an MOSF facility license, operators are required to submit an “Environmental Compliance Report” (ECR; see Program Policy DER-11, “Procedures for Licensing Onshore Major Oil Storage Facilities”). The ECR documents facility compliance with the main federal and state environmental regulations that address the operations and equipment at an MOSF. DEC’s regulations build upon USEPA and USCG requirements to more aggressively protect New York State’s public health and environment. USEPA requires Spill Prevention, Control, and Countermeasure (SPCC) plans at MOSF facilities that “could reasonably be expected to cause substantial harm to the environment by discharging oil into or on the navigable waters or adjoining shorelines.” In addition, these facilities must have a “Facility Response Plan”[97] and an “Operations Manual” required by the U.S. Coast Guard.[98] DEC Part 610 requires all MOSFs to have an SPCC Plan, regardless of whether the site is near navigable waters. New York State has developed additional MOSF license requirements, including but not limited to secondary containment of the storage tanks, overfill alarms, and groundwater quality monitoring to ensure there have been no subsurface releases of petroleum.

When violations of the regulations are observed, a Notice of Violation (NOV) is issued to the facility. For major violations or multiple minor violations, the case is referred to DEC counsel for

the imposition of monetary penalties and the issuance of an order on consent to bring the facility into compliance. Fines vary based upon the severity of the violation, but DEC can levy fines up to $37,500 per day.

State and federal regulations require that crude oil storage tanks at storage facilities must be equipped with an internal floating roof to limit volatile organic compound (VOC) emissions.[99] The installation of a vapor recovery and vapor combustion unit may also be required to limit the VOC emissions from crude oil loading and unloading operations under the "new source review" regulations. Boiler emissions are regulated under 6 NYCRR Part 227 for Stationary Combustion Installations.

DEC air quality-related inspections are conducted at least once every two years, with more frequent inspections conducted at facilities with the greatest air quality concerns. Permitted facilities are obligated to submit annual compliance certifications, and Title V facilities must additionally submit semi-annual monitoring reports. For vapor combustion units, performance tests are required every five years.

New York State Energy and Research Development Authority

NYSERDA monitors New York State's major energy supply industries, and serves as a resource for information on the state's energy supplies, prices and trends. With respect to petroleum fuels, NYSERDA also monitors the fuel distribution system infrastructure and fuel movements to ensure adequate supplies of critical fuels are readily available to consumers and to support the economy. Through Energy Law 5-117, NYSERDA is also required to report on fuel industry conditions with respect to a pending or existing liquid fuel supply emergency. NYSERDA is a named member of the State Disaster Preparedness Commission, with the responsibility to collaborate with state agencies on the Commission, and to inform the Governor with respect to fuel supply and infrastructure conditions that may require response due to potential or emerging liquid fuel supply shortages. NYSERDA has further responsibility to make recommendations to the Governor for possible waiver of fuel specifications requirements in the event of a fuel supply shortage, including the adequacy of low sulfur distillate fuels used for residential heating as well as petroleum fuels used by power plants as back-up fuel resources in the event of a natural gas interruption.

To help establish a common platform for energy information for government decision-makers and for the public, NYSERDA publishes several energy data reports, including the weekly Transportation Fuels Report and Heating Fuels Report, which include prices and supply trends for petroleum fuels, natural gas, coal, and electricity. NYSERDA also coordinates among state, federal, and industry representatives to discuss and anticipate supply and delivery issues for the spectrum of heating fuels for every upcoming heating season. NYSERDA also serves as a clearinghouse for energy data and information. Each year, the Patterns and Trends report provides a 15-year historical review of New York State energy statistics. Through this clearinghouse function, NYSERDA monitors the supply and demand of primary liquid fuels in the state economy, exchanging information with federal government energy information resources. To complement its fuels monitoring and energy assurance program activities, NYSERDA regularly interacts with the U.S. Department of Energy Office of Electricity Delivery and Energy Reliability, which houses the Office of Energy Assurance that monitors liquid fuel supplies and infrastructure operations. NYSERDA also routinely engages with the Energy Information Administration for fuel data collection, monitoring and

reporting activities. With respect to local fuel data and supply issues, NYSERDA engages with county and municipal governments on an informal basis, to assist with information exchange.

Among other responsibilities, and in response to Superstorm Sandy and its impacts on the fuel distribution infrastructure, Governor Cuomo directed NYSERDA to conduct several studies looking at resiliency issues in the fuel distribution system (including petroleum product terminals and pipelines), and other programs to maintain petroleum product supply and distribution capabilities in the event of widespread disruptions to the distribution infrastructure.

Incident Preparedness and Response

U.S. Environmental Protection Agency

The USEPA has authority over hazardous materials through three federal laws: the Clean Air Act, The Emergency Planning and Community Right-to-Know Act (EPCRA), and Superfund. The Clean Air Act requires that any facility that stores or handles hazardous materials over a certain amount must develop and implement a risk management program that is submitted for review by USEPA. These plans must be updated every five years for each facility, and include assessments of potential chemical release scenarios, information on incident prevention and emergency response, and a five year history of incidents at the facility. These program reports are also submitted to USDHS, which uses them to determine which facilities to classify as “high risk” or “high consequence.”

The Emergency Planning and Community Right-to-Know Act (EPCRA) require states and municipalities to develop state and local emergency response commissions. The commissions are then responsible for developing emergency response plans for the potential release of chemical substances. Local facilities are required to assist the commissions in developing these plans, and to provide any information necessary. Commissions collect material safety data sheets on the substances stored at local facilities, and ensure that they are distributed to the appropriate local authorities. Finally, facilities must submit annual inventories of hazardous materials to the commissions.

The Superfund Amendments and Reauthorization Act of 1986 gave the Centers for Disease Control and Prevention (CDC) the responsibility for public health logistical support in the event of a chemical release event. The CDC has responsibility in the areas of public health assessments, establishment and maintenance of material databases, information dissemination, and medical education. In addition, the CDC has developed a plan for a laboratory response network in the event of a chemical event in order to allow for immediate testing and communication to benefit public health. This involves rapid material screenings to benefit the public and first responders.

When there is an oil spill into navigable waters or onto adjoining shorelines, it can have harmful impacts on the environment, human health, and economic activity. USEPA issued the Oil Pollution Prevention regulation to prevent oil spills and to assure that oil facility personnel are prepared to respond if a spill occurs.[100] This regulation has two sets of requirements. The first set of requirements is the Spill Prevention, Control, and Countermeasure (SPCC) rule. The SPCC rule is the basis of USEPA’s oil spill prevention program. The second set of requirements is the Facility Response Plan (FRP) rule. The FRP program is designed to ensure that certain facilities have adequate oil spill response capabilities. In USEPA Region 2 (NY, NJ, Virgin Islands, Puerto Rico), there are approximately 275 FRP facilities, and over 15,000 SPCC facilities.

According to the Oil Pollution Act of 1990, an owner or operator of a “substantial harm” facility must develop and implement a Facilities Response Plan. A “substantial harm” facility is a facility that, because of its location, could reasonably be expected to cause substantial harm to the environment by discharging oil into or on navigable waters or adjoining shorelines.

Facilities that could reasonably be expected to cause substantial harm to the environment by discharging oil into or on navigable waters are required to prepare and submit Facility Response Plans (FRPs). A facility may pose "substantial harm" according to the Facility Response Plan (FRP) rule if it:

- Has a total oil storage capacity greater than or equal to 42,000 gallons and it transfers oil over water to/from vessels; or
- Has a total oil storage capacity greater than or equal to one million gallons and meets one of the following conditions:
    - Does not have sufficient secondary containment for each aboveground storage area,
    - Is located at a distance such that a discharge from the facility could cause "injury" to fish, wildlife, and sensitive environments,
    - Is located at a distance such that a discharge from the facility would shut down a public drinking water intake, or
    - Has had, within the past five years, a reportable discharge greater than or equal to 10,000 gallons.

Both USEPA and the U.S. Coast Guard participate in a program called Government Initiated Unannounced Exercises (GIUE), where a number of facilities in each region are targeted annually for unannounced drills. The USEPA and/or Coast Guard, sometimes with DEC participation, appear at a facility and request the operator to implement its FRP. The facility is then graded upon the speed and efficacy of the response of its staff and Oil Spill Response Organization (OSRO). If a facility gets a failing grade, more drills follow. Regardless of the grade received, the facility also gets an after-action report from the regulators that can be used to upgrade their response in the future.

Capabilities/Assets

USEPA's Emergency Response Team (ERT) is a group of skilled experts who are specially trained to respond to environmental emergencies and, more specifically, to provide on-scene assistance to deal with the human health and environmental impacts of terrorist attacks. The team also has experts in assessing and responding to chemical, biological, and radiological threats; identifying and analyzing contaminated materials; conducting environmental risk assessments, oil spill cleanups, and bioremediation; establishing human health and ecological risk protocols; and cleaning up hazardous wastes at extremely complex and sensitive sites.

In December 1980, Congress enacted the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), mandating USEPA to take immediate action in the event of any chemical release that poses an imminent threat to public health and safety. In conjunction with the passage of this Act, Congress broadened and strengthened the emergency response capabilities of the National Contingency Plan (NCP). Mandated as one of the Special Forces under the NCP, the ERT functions in an advisory capacity to USEPA On-Scene Coordinators (OSCs), Remedial Project Managers (RPMs), Site Assessment Managers (SAMs), U.S. Coast Guard OSCs, other federal, state, and local officials, and foreign governments concerned with hazardous waste sites, spills, and other environmental threats. In addition, the

ERT provides training to first responders, such as local fire fighters and other emergency personnel, on all aspects of emergency response and readiness.

The U.S. National Response Team (NRT) is an organization of 15 federal departments and agencies responsible for coordinating emergency preparedness and response to oil and hazardous substance pollution incidents. The USEPA and the Coast Guard serve as Chair and Vice Chair, respectively. The NCP and regulations[101] outline the role of the NRT and Regional Response Teams (RRTs). The response teams are also cited in various federal statutes, including Superfund Amendments and Reauthorization Act (SARA) – Title III and the Hazardous Materials Transportation Act (HMTA).

There are 13 Regional Response Teams (RRTs), one for each of ten federal regions, plus one for Alaska, one for the Caribbean, and one for the Pacific Basin. Each RRT maintains a Regional Contingency Plan (RCP) and has state, as well as federal government, representation. USEPA and the Coast Guard co-chair the RRTs. Like the NRT, the standing RRTs are planning, policy and coordinating bodies and do not respond directly to the scene. The RRT provides assistance as requested by the On-Scene Coordinator during an incident.

RRT II is the federal component of the National Response System for the New York State, New Jersey, Puerto Rico, and the Virgin Islands. RRT II is made up of representatives from 16 federal departments and agencies and both states. It is co-chaired by the Manager of the Response and prevention Branch from the USEPA's regional office in Edison, NJ, and the Chief of the Marine Safety Division of the United States Coast Guard's First District. It usually meets twice per year throughout the region.

U.S. Department of Commerce – National Oceanic and Atmospheric Administration

Scientific Support Coordinators (SSCs) can coordinate requests for assistance from federal and state organizations. An SSC may be provided by either USEPA or NOAA. The primary differences between an USEPA SSC and NOAA SSC center on their respective areas of expertise. Other differences exist due to the agency's specific authorities (i.e., response authority, funding mechanisms, NOAA's responsibility as a Natural Resource Trustee, etc.). A USEPA SSC normally responds in support to USEPA OSCs to incidents affecting the inland zone, whereas a NOAA SSC normally responds in support of USCG OSCs to incidents affecting the coastal zone. USEPA and NOAA expertise tends to focus on subject matters specific to their respective geographic zones, but both agencies also maintain expertise in more generalized areas (i.e., biology, chemistry, etc.) that are applicable to both zones.

Scientific support to the USEPA On-Scene Coordinators (OSCs) and Remedial Project Managers (RPMs), and the U.S. Coast Guard (USCG) Federal On-Scene Coordinators (FOSCs) is provided by Special Teams specified in the National Contingency Plan.[102] All SSC support is at the request and direction of the incident specific federal OSC, and performed in order to promote effective coordination and communication among the scientific community during a response. Federal OSCs often act as Incident Commanders (ICs) within the National Incident Management Systems (NIMS).

An SSC may be designated by the federal OSC as the principal advisor for scientific issues, including communicating with the scientific community and coordinating requests for assistance from state and federal agencies regarding scientific studies. Direct support of the federal OSC from scientists and

technicians with a wide range of expertise is available to respond and recover from incidents involving hazardous chemicals as well as consequence management from intentional acts using weapons of mass destruction. The technical pool of experts an SSC may be selected from is comprised of USEPA and National Oceanic Atmospheric Administration (NOAA) scientists and technicians who can access a broad spectrum of science and technology expertise. All USEPA and NOAA scientific support is at the request and direction of the federal OSC.

U.S. Department of Interior

The U.S. Department of the Interior's Natural Resource Damage Assessment and Restoration Program manages the confluence of the technical, ecological, biological, legal, and economic disciplines and coordinates the efforts of six bureaus and four other offices within DOI to accomplish its mission.

Natural Resource Damage Assessment and Restoration (NRDAR) is the process used to determine whether public natural resources have been injured, destroyed, or lost as a result of a release of hazardous substances or oil and to identify actions and funds needed to restore such resources. NRDAR is authorized by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), Oil Pollution Act of 1990 (OPA) and the Clean Water Act (CWA). These statutes designate federal, state and tribal government officials to act as “trustees” on behalf of the public to recover damages from responsible parties to restore injured, destroyed, or lost natural resources. Damages can include money for trustee implementation of restoration actions and/or actual work undertaken by responsible parties with trustee oversight.

New York State Department of Environmental Conservation

Spill Response/Recovery

New York State Navigation Law 173 prohibits the discharge of petroleum from any source. Any person responsible for causing a petroleum discharge must report the discharge within two.[103] Violation of any of these provisions exposes a discharger to a $25,000 dollar civil penalty.

New York State Environmental Conservation Law section 71-3503 prohibits the discharge of petroleum (or any other noxious, offensive, or poisonous substance) into any public waters or into any sewer or stream running or entering into such public waters. Several other provisions of the Environmental Conservation Law (“ECL”) prohibit the discharge of petroleum depending upon where the petroleum is discharged and the effect of the discharge. ECL 17-0501 prohibits the discharge of petroleum (or any organic or inorganic matter) that causes or contributes in contravention of the water standards adopted pursuant to ECL 17-0301. ECL 17-0503 prohibits the discharge of petroleum into the waters of the state in the marine district that injuriously affects the sale of fish or shellfish or that causes any injury to the public and private shell fisheries of the state. ECL 71-3501 prohibits the discharge of petroleum (or any noisome or unwholesome substance) near a public highway which is detrimental to public health.

ECL 17-1743 requires any person in actual or constructive possession of 1,100 gallons or more of any liquid, including petroleum, to notify the DEC of a discharge, and 6 NYCRR 613.8 through 6 NYCRR 610.4(4)(iv), requires the reporting of a petroleum discharge at a major oil storage facility. The Navigation Law 176(2) imposes upon the Department the statutory duty to respond to petroleum discharges and to clean up and remove discharges according to its environmental priorities. 6 NYCRR 611 sets forth the containment requirements along with the cleanup and removal goals of the DEC. The spills guidance

manual provides information and guidance about a wide range of activities to perform routine spill response..[104]

Process

- Spill Subject to Reporting Requirements – There are several state and federal laws which address the reporting of spills of petroleum and hazardous materials. Most notable of these laws are Article 12 of the Navigation Law, ECL 17-1743, and ECL 17-1007 (for Bulk Storage). Under these laws, the spiller, the person in charge, or anyone with knowledge of the spill is required to notify the New York State Oil and Hazardous Material Spill Hotline at 1(800) 457-7362. This notification should be made immediately, but in no case later than two hours after the discharge. During the initial call to the Hotline, the DEC dispatchers ask a series of questions to determine the notifier, the spiller, where the spill occurred, what was spilled, how much was spilled, the date and time of the spill, if anything was recovered, if waterways were affected, and what cleanup is occurring. In addition, the dispatchers can include any remarks the caller may wish to relay to the responders.
- Notification to Hotline, Staff – After the spill has been reported to the DEC Hotline, the dispatchers will forward the spill information to the appropriate region. The dispatchers will also contact the appropriate responder to ensure the information was received. During non-business hours each of the Department's nine regions has two responders on standby to field spill calls as they come in. When responders receive the information from the Hotline, they will call the contact person back to verify the spill information and ask additional questions to determine what type of response is required.
- Initial Evaluation – Not all spills require a physical response by DEC Staff. It is the responsibility of the responder to determine if their response is necessary. It is also the responsibility of the responder to decide if the mobilization of an emergency response contractor is necessary. Factoring into this decision are the material spilled, quantity, resource affected, past dealings with the spiller, and whether the spiller is handling the cleanup itself.
- Response and Containment – If it is determined that a response is necessary, the DEC will mobilize a Response and Containment contractor to the location of the spill. Each region has several of these contractors under contract to ensure a response within two hours of being notified. At the direction of the spill responder, the Response and Containment contractor will assess the situation and take action to contain and clean up the spilled material in an effort to protect human health and the environment. If further cleanup is required after the initial Response and Containment work is done, the DEC will call out an Investigation and Spill Response Funding and Cost Recovery.

State Oil Spill Fund

The New York State Environmental Protection and Spill Compensation Fund, commonly referred to as the Oil Spill Fund, is a non-lapsing revolving fund in the Office of the New York State Comptroller created in 1978 pursuant to Article 12 of the Navigation Law to provide for swift and prompt cleanup and removal of petroleum contamination. Section 181(2) of the Navigation Law holds the Oil Spill Fund strictly liable for all cleanup and removal costs and all direct and indirect damages. The Fund also pays third-party damage claims filed by victims of oil spills as well as the costs of DOH-certified emergency relocation

when the dischargers refuse to do so. Existence of the Fund in no way limits the ultimate responsibility of petroleum dischargers; rather, it provides a vehicle for rapid intervention to ensure effective cleanups.

The Oil Spill Fund's primary source of funding comes from major oil storage facility license fees charged on the transfer of each barrel of petroleum to a major oil storage facility in New York State. Originally, the legislature set the license fee at one cent per barrel; in 1988, Navigation Law section 174(4) raised the fee ceiling authority to a maximum of four cents per barrel. Then, in 1999, the legislature raised the fee ceiling authority to eight cents per barrel. The Fund also receives significant revenue from tank registration fees (Environmental Conservation Law § 17-1009(2)) and cost recovery actions against petroleum dischargers (Navigation Law § 187).

Fund monies fuel the rapid response to oil spills that ensures effective cleanups. Oil spill response relies upon the work of staff from the Office of the State Comptroller, the New York State Department of Environmental Conservation, the New York State Department of Health, and the Office of the New York State Attorney General. DEC spends Oil Spill Fund monies to implement discharge response actions in accordance with its environmental priorities and procedures (Navigation Law § 176(2)(a)). DEC bills the cost of spill response and/or remediation to the Oil Spill Fund.

The Oil Spill Fund must promptly pay those spill response and spill remedial contractors engaged by DEC.[105] Additionally, failure to timely pay results in interest.[106] To promptly pay invoices, the Fund must maintain the staff to promptly review invoices and also, maintain an adequate balance to pay invoices. After the Oil Spill Fund pays response and remedial costs, the Fund refers the cost recovery case to the New York State Office of the Attorney General. To address these cases, the Attorney General's Office maintains a staff of attorneys, paralegals, and support staff in the Oil Spill Unit of the Civil Recoveries Bureau. This litigation unit recovers Oil Spill Fund costs by demanding payment, interest, and any appropriate penalties from liable parties.[107] The Oil Spill Fund pays the litigation costs, which include personnel costs, filing fees, and expert witness fees.

New York State Department of Health

In the event of a crude-oil spill or major fire, the DOH and local health department would initially evaluate impacts that could contribute to human exposure to and adverse health effects from, associated environmental contaminants. With respect to a spill, primary areas of evaluation would include: indoor and outdoor air quality impacts; surface water and groundwater impacts that could affect drinking water; and recreational water resources and soil contamination impacts. With respect to a major fire, primary areas of evaluation would be assisting the incident commander in determining whether to evacuate an area due to acute air impacts, and considering the need for evaluation of potential impacts from deposited combustion products on surface waters, soil and structures.

Current work by DOH on oil-spill related activities includes: oil-spill relocation investigation and management; contaminated-site investigation, environmental sampling and risk assessment; indoor air quality assessment; site cleanup recommendations; cleanup monitoring; and evaluation of cleanup effectiveness. DOH regularly reviews and updates response procedures, incorporating best practices as part of continuous process improvement to address qualitative and quantitative data collection methods, decision criteria, and risk communication tools. In the event of a large event such as an oil spill or major fire, protecting public health and safety will be the highest priority for New York State, and DOH will be called upon to lead the public health response.

The State Commissioner of Health possesses a variety of authorities that enable DOH to address threats to public health, including in times of emergency. Consistent with the Executive Law,[108] local governments and local emergency services provide the first line of defense in times of disaster, but DOH becomes involved when such incidents exceed the capacity of local authorities. Local health departments lead the public health response.

To prepare for such contingencies, DOH conducts all hazards preparedness planning, training and drills that address environmental and community health hazards and healthcare delivery preparedness. DOH also maintains its role as the primary agency with the ability to characterize immediate health risks to first responders and the public (e.g., applying risk assessment practices) and to provide health-risk based advice to first responders and the public (e.g., risk communication advice via press releases, factsheets, and social media).

In response to incidents and during subsequent recovery activities, DOH provides health-based interpretation of environmental sampling data, particularly to assess potential impacts to drinking water supplies, recreational water resources and indoor air quality in residences, schools, businesses and DOH regulated facilities (e.g., hospitals, nursing homes, and food service establishments). This includes evaluation of the adequacy of cleanup activities and continuing assessment of longer term exposure and health concerns associated with residual contamination during the recovery phase. DOH also provides continuing risk-based advice and recommendations to the public during recovery, and evaluation and guidance related to cleanup and re-occupancy of residences, schools, businesses and DOH regulated facilities. The DOH Wadsworth Center, as well as several city and county health department labs across the state are Laboratory Response Network[109] labs that can provide full environmental analytical capabilities, as needed, during all phases of incident response and recovery.

Under the Navigation Law,[110] the State Commissioner of Health serves as the head of an emergency spill relocation network. In this capacity, the Commissioner may deploy state resources, and may coordinate deployment of local resources as they are made available, to assess possible health risks to persons residing near the sites of petroleum spills, releases or discharges. The Commissioner may also determine the actual and necessary costs of relocating those individuals judged to be exposed to health risks from a spill. The Commissioner certifies the amount of such costs to the Office of the New York State Comptroller who administers the New York State Environmental Protections and Spill Compensation Fund.

United States Department of Homeland Security

United States Coast Guard

The United States Coast Guard (USCG) is one of two lead federal agencies charged with response to a hazardous material release. Under federal laws that guide preparedness and response to oil spills, including the Clean Water Act (CWA), the Oil Pollution Act of 1990 (OPA 90), and related regulations including the National Contingency Plan (NCP), the USCG shares this role with the U.S. Environmental Protection Agency (USEPA). Generally, the USCG has jurisdictional responsibility for coastal waters extending two miles; the USCG also has jurisdiction over the Great Lakes. The USCG has a memorandum of understanding (MOU) with the USEPA that designates the two agencies' jurisdictional boundaries in the State of New York. The State of New York is covered by three USCG sectors: Sector

New York, which is located on Staten Island; Sector Buffalo; and Sector Long Island Sound, which is located in New Haven, Connecticut.

The USCG is responsible for operating the National Response Center (NRC), which is the U.S. government point of contact for reporting a radiological, chemical, biological, oil, and etiological discharge into the environment. Upon notification of an oil spill involving the storage and transfer of oil, the USCG will activate a response team from the appropriate sector. A response team will respond to serve as the federal On-Scene Coordinator of the response and to initiate an investigation into the cause of the incident. The USCG will ensure that the party responsible for the release is managing the response according to the Area Contingency Plan (ACP) and is using the National Incident Management System (NIMS).

The ACP is developed by an Area Committee under the auspices of the USCG or USEPA (depending on location) and addresses issues that may be encountered in the area involved. The ACP also provides guidance on issues such as identifying sensitive areas and the size of the response organization that may be required. Content of the ACP is identified in the CWA. The ACP is developed with input from stakeholders ranging from local officials to wildlife experts. ACPs are generally reviewed annually, are updated as needed, and may undergo extensive review every few years.

Resources that the USCG can be expected to activate will include more manpower and expertise than equipment. The responsibility for activating and paying for the necessary resources for an oil spill lies with the Responsible Party (RP), which is the term used for the entity with legal responsibility for the spill. The USCG will ensure that the RP is doing due diligence to activate adequate resources. If the situation arises that the RP fails to meet its obligations, the USCG will serve the RP with a citation. This serves as a warning to the RP that failure to meet its obligations will result in federal government intervention. The USCG has the authority to engage and direct resources as necessary to adequately respond, as determined by the USCG Captain of the Port (COTP). If USCG chooses to federalize an incident, it would activate Oil Spill Response Organizations (OSROs), which are private contractors certified to respond to and clean up hazardous material spills.[111]

The type of tasks that the USCG could be expected to carry out at an oil spill include: filling positions on the spill management team; surveying potentially impacted areas from the water and from the air; and security and management of waterways involved including giving priority to vessel movement important to commerce. The USCG will have an active role in all aspects of the response and will play a role in determining when an incident moves from an emergency response to remediation. The level of experience in spill response can be a factor in effectiveness of immediate response and can impact long-term cleanup.[112] Regular exercises involving use of the Incident Command System (ICS) in spill response related to waterways are expected under the CWA and OPA; the USCG and USEPA participate in these.

The USCG uses ICS and NIMS in managing incidents. To stay prepared for a response, the USCG participates in numerous exercises and drills during a year. During these drills and exercises, stakeholders involved have the opportunity to meet and train with personnel from the USCG. Because of the frequent movement of personnel in and out of a sector, it can be difficult to establish long-term contacts/relationships that serve as a valuable tool in response.

One of the objectives of the USCG in an oil spill response is to ensure that the responsible party is handling the spill in accordance with OPA 90 and related regulations. OPA 90 requires formation of a Unified Command and use of ICS to manage the incident.[113] Depending on the training and experience of

the RP involved this can lead to issues if the RP is not familiar with or proficient in working in an ICS structure. An RP from the vessel/barge arena (maritime) might understand the necessity of having a spill management team because it is required by OPA 90, while an RP from a railroad who is not familiar with or regularly operating under OPA 90 might resist or be slow to activate a spill management team.

Because of the size of New York State and the locations of the USCG sectors and the related geographic distances, there could be a possible delay of USCG personnel arriving on scene. A delay will affect the situational awareness of the USCG, who could be limited to the information provided by the RP in the initial notification. This can cause further delays in ensuring adequate resources are activated as well as delays in additional notifications to stakeholders.

Both USEPA and the U.S. Coast Guard participate in a program called Government Initiated Unannounced Exercises (GIUE), where a number of facilities in each region are targeted annually for unannounced drills. The USEPA and/or Coast Guard, sometimes with DEC participation, appear at a facility and request the operator to implement its FRP. The facility is then graded upon the speed and efficacy of the response of its staff and Oil Spill Response Organization (OSRO). If a facility gets a failing grade, more drills follow. Regardless of the grade received, the facility also gets an after-action report from the regulators that can be used to upgrade their response in the future.

Federal Oil Spill Liability Trust Fund

The Oil Pollution Act of 1990 (33 U. S.C. 2701-2761) amended the Clean Water Act and addressed the wide range of problems associated with preventing, responding to, and paying for oil pollution incidents in navigable waters of the United States. It created a comprehensive prevention, response, liability, and compensation regime to deal with vessel- and facility-caused oil pollution to U.S. navigable waters. OPA greatly increased federal oversight of maritime oil transportation, while providing greater environmental safeguards by:

- Setting new requirements for vessel construction and crew licensing and manning,
- Mandating contingency planning,
- Enhancing federal response capability,
- Broadening enforcement authority,
- Increasing penalties,
- Creating new research and development programs,
- Increasing potential liabilities, and
- Significantly broadening financial responsibility requirements.

Title I of OPA established new and higher liability limits for oil spills, with commensurate changes to financial responsibility requirements. It substantially broadened the scope of damages, including natural resource damages (NRD), for which polluters are liable. It also authorized the Oil Spill Liability Trust Fund (OSLTF). In general, the maximum amount available from the OSLTF per incident is $1 billion or the balance in the fund, whichever is less. Recent reports place the balance in the fund over $1 billion. The Delaware River Protection Act of 2006, Title VI of the Coast Guard and Maritime Transportation Act of 2006, increased the limits of liability.

To ensure rapid, effective response to oil spills, the President has the authority to make available--without Congressional appropriation--up to $50 million each year to fund removal activities and initiate Natural Resource Damage Assessments. Funds not used in a fiscal year are available until expended. To the

extent that $50 million is inadequate, the Maritime Transportation Security Act of 2002 granted authority to advance up to $100 million from the Principal Fund to fund removal activities. This provision has not been utilized to date.

A core mission of the National Pollution Funds Center is to administer the disbursement and ensure proper use of the Emergency Fund, 24 hours a day, every day, so that the FOSC can immediately respond to a discharge or monitor prompt and effective cleanup activities by the responsible party (RP). The Emergency Fund can be used by FOSCs to cover expenses associated with mitigating the threat of an oil spill, as well as the costs of oil spill containment, countermeasures, cleanup, and disposal activities. While the use of the OSLTF is most closely associated with discharges from ships, it has increasingly been used for discharges at industrial or onshore oil storage and production facilities.

National Response Center

The primary function of the National Response Center is to serve as the sole national point of contact for reporting all oil, chemical, radiological, and biological discharges into the environment anywhere in the United States and its territories. In addition to gathering and distributing spill data for Federal On-Scene Coordinators and serving as the communications and operations center for the National Response Team, the NRC maintains agreements with a variety of federal entities to make additional notifications regarding incidents meeting established trigger criteria. The NRC also takes Terrorist/Suspicious Activity Reports and Maritime Security Breach Reports. Details on the NRC organization and specific responsibilities can be found in the National Oil and Hazardous Substances Pollution Contingency Plan, while a simplified discussion of NRC tasking is outlined below.

On behalf of the Department of Homeland Security and the United States Coast Guard, the National Response Center:

- Briefs the White House, Office of Homeland Security, Secretary of Transportation, and Chiefs of Modal Administrations regarding all significant transportation emergencies reported to the Center;
- Provides information the Coast Guard's Office of Marine Safety, Security, and Environmental Protection as needed for a variety of reports, studies, or Congressional Inquiries;
- Receives and relays reports of incidents reportable under the Hazardous Materials Transportation Act;
- Provides electronic and hard copy incident reports to various DOT agencies; and
- Provides notification to specific DOT and National Transportation Safety Board offices of transportation-related incidents that meet certain pre-established criteria.

On behalf of other federal Agencies, the NRC provides a number of services, including, but not limited to the following:

- For the Environmental Protection Agency, the NRC receives incident reports under the Federal Response System (FRS), which is supported under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), Clean Water Act, Clean Air Act, SARA Title III, and the Oil Pollution Act of 1990. The NRC disseminates telephonic and electronic (fax, email) reports of oil discharges and chemical releases to the cognizant USEPA Federal On-Scene Coordinator (FOSC);
- For the Federal Emergency Management Agency, the NRC acts as a 24-hour contact point to receive earthquake, flood, hurricane, and evacuation reports;

- For the Nuclear Regulatory Commission, and the Department of Energy, the NRC makes telephonic notification of all incidents involving radioactive material releases to the environment; and
- For the Federal Railroad Administration, the NRC maintains the 24 hour Rail Emergency Hotline (1-800-424-0201) to take reports of railroad incidents involving hazardous materials, grade-crossing fatalities, incidents resulting in injury or death of railroad employees, and the refusal of railroad employees to submit to required toxicological testing.

Additionally, the NRC is the contact point for activation of the National Response Team and provides facilities for the NRT to use in coordinating a national response action when required.

The NRC is staffed by Coast Guard personnel who maintain a 24 hour per day, 365 day per year telephone watch. NRC Watch Standers enter telephonic reports of pollution incidents into the Incident Reporting Information System (IRIS) and immediately relay each report to the pre-designated Federal On-Scene Coordinator (FOSC). The IRIS system was designed and developed by the Space and Naval Warfare Systems Center Charleston, National Capital Region and is central to all NRC operations. The NRC also provides emergency response support to the FOSCs and has the ability to quickly place them in direct contact with expert technical support centers (ATSDR, CDC, CHEMTREC).

New York State Division of Homeland Security and Emergency Services

Planning and preparedness efforts for hazardous materials incidents, including those involving crude oil, currently occur at multiple levels statewide. Many local governments, consistent with the authority granted pursuant to Article 2B of the Executive Law, have established comprehensive emergency response plans, while others rely on or integrate their efforts into plans established at the County level, including the County Hazardous Materials Response Plan required by New York State General Municipal Law 204-f.

In addition to the State's own planning efforts contained in the Comprehensive Emergency Response Plan (CEMP) and other documents, its role in hazardous materials planning and preparedness efforts at the local, County and Regional levels, include hazard specific planning activities performed by the State Emergency Response Commission (SERC), and the Local Emergency Planning Committees (LEPCs) pursuant to the provisions of the Emergency Planning and Community Right to Know Act of 1986 (EPCRA). EPCRA is also known as the Superfund Amendments and Reauthorization Act (SARA Title III). Additional review and approval requirements by the Office of Fire Prevention and Control for the County Hazardous Materials Response Plans is required by New York State General Municipal Law 204-f.

Any initial response to a crude oil incident, whether transportation or fixed facility, will generally be made by local and county emergency response personnel. While the State currently supports the planning and preparedness efforts of these responders by providing training, response plan review, and funding through administration of State and Federal grant programs, as well as with deployment of its own response capabilities, the majority of planning, preparedness and response efforts and coordination remain focused at the County and local levels. With many local agencies increasingly challenged to simply maintain response capabilities for the "routine", everyday incident while faced with decreasing funding and resources, their ability to undertake new and additional planning and preparedness efforts or build the operational capabilities necessary to address the hazards caused by the dramatic increase in crude oil transportation across the State is currently limited.

State-level response capability for crude oil incidents is divided primarily between two agencies; the Department of Environmental Conservation, which is the lead agency for petroleum spill response, and the Division of Homeland Security and Emergency Services, with the Office of Fire Prevention and Control serving as the lead agency for hazardous materials and fire responses (other than wildfires) and the Office of Emergency Management responsible for coordination of State agency responses through the State Emergency Operations Center (SEOC) and disaster recovery efforts. Other state agencies, such as the Department of Health, the Division of the State Police and the Department of Transportation also have important public health, safety and investigatory response roles. Often, these agencies have responded only upon the request of the local incident commander, although the state has increasingly adopted a lean-forward posture and sought to provide increased support and integration with local and county responders. While these agencies are prepared to respond effectively for their individual roles and responsibilities at a crude oil incident, and have cooperated and coordinated responses on major incidents such as the recent weather-related natural disasters of Irene, Lee and Sandy, as with local and county agencies, their ability to plan, practice and prepare for an incident like a major crude oil spill or fire while continuing to address their routine missions and responsibilities has been limited.

Any major spill or fire involving crude oil will require a significant commitment of specialized resources, specifically the Class B foam capability necessary for vapor suppression and fire control of ignitable liquids, and a large supply of spill containment materials. The type, amount and capability of fire service assets available at the local, County and regional levels capable of the large volume, Class B foam operations necessary varies across New York State. Inventories of foam concentrate, equipment, and the level of training and familiarity of response personnel with foam operations, is often dependent upon limited funding and resource levels. Available foam assets within a County or region may be assembled from local and county fire service and hazardous materials agencies, airport and military fire departments and, in some cases, private industry assets available to respond off site. As a result, equipment, foam concentrate, and training is often not standardized, and any practical skills training involving the actual production of foam in large volumes can be limited by the cost of replacing the foam used during this training. The type, amount and availability of containment materials also vary across the State. In many areas, local and County level emergency response agencies, or other agencies that might be utilized to do so, such as Public Works or Transportation departments, are not equipped or prepared to effectively deploy containment materials. Routine, pre-incident interaction with the Department of Environmental Conservation and these agencies may be limited.

The State's Class B foam response capability is limited to military fire department assets such as those maintained by Air National Guard units in Suffolk, Orange, Schenectady, and Onondaga Counties and the capability maintained by the Office of Fire Prevention and Control. As part of its hazardous materials training and response capabilities, OFPC maintains a single foam trailer capable of generating and applying foam and has a limited stockpile of foam concentrate to support its own operation or supplement local and county resources.

The State's inventory of containment materials, such as containment booms necessary for water-borne spills, is also limited to that maintained by the Department of Environmental Conservation and available through contractors coordinated by that agency.

Relevant training of State personnel for response to a crude oil incident has been provided by each agency, by participation in training available within New York State provided by other State agencies or

private industry, and out of state training including that specific to ignitable liquid firefighting, spill response and railroad incidents.

The Office of Fire Prevention and Control (OFPC) has statutory authority to approve County Hazardous Materials Emergency Response Plans.[114] These plans should address the transportation of crude oil within their jurisdictions. OFPC has provided and will continue to provide hazardous materials planning and preparedness assistance to local and county agencies upon request and will initiate discussions with those counties that are impacted by crude oil transportation to verify that their local plan addresses any specific hazards created by this commodity.

In conjunction with DHSES partner agencies, OFPC administers a targeted Hazardous Materials Grant Program to distribute Federal Homeland Security grant funding to the Counties and NYC via regional partnerships. This funding, focused on improving overall hazardous materials response capacity at the County and regional levels for incidents involving Weapons of Mass Destruction (WMD) or an intentional releases of a hazardous material, has provided resources to increase capabilities relevant to crude oil incidents, such as improved air monitoring and thermal imaging equipment.

With a core mission to provide firefighter and hazardous materials training, OFPC offers courses specifically relevant to ignitable liquid spills and fires. As part of routinely maintaining training programs current, these courses have been updated to ensure they address the risks posed by crude oil transportation and storage.

In addition to the planning and preparedness roles, as noted above, OFPC maintains a hazardous materials operational response capability and upon request or activation can respond statewide to support or supplement local, County and Regional responses to a crude oil transportation or storage incident. Additionally, OFPC administers and implements the State Fire Mobilization and Mutual Aid Plan to coordinate the regional and statewide response of fire service assets in response to man-made and natural disasters which exceed the capacity of any one County and its contiguous Counties.

United States Department of Transportation

Each of the modal administrations within USDOT (rail, water, highway and air) is delegated responsibility to enforce the USDOT regulations within its area of expertise. The Pipeline and Hazardous Materials Safety Administration (PHMSA) is the USDOT operating administration responsible for promulgating regulations implementing the Federal Hazardous Materials transportation law. As authorized by the Clean Water Act (33 U. S.C. 1321), PHMSA has promulgated regulations which require railroads to formulate comprehensive response plans to be implemented in the event of an oil spill. The Federal Railroad Administration's (FRA) jurisdictional responsibilities for response are two-fold. They have been delegated the authority by PHMSA to enforce all hazardous materials regulations affecting rail transportation. This responsibility includes the general oversight and approval of the oil spill response plans developed by each railroad engaged in oil transport. In addition the FRA performs a significant role related to incident reporting and performing rail incident investigations. USDOT regulations require that a railroad must immediately notify the NRC upon learning of the occurrence of certain rail incidents/incidents (49 CFR Part 225.9 & 49 CFR 172). Upon receiving notification of a railroad incident/incident, the FRA may dispatch field inspectors to perform incident investigations. It is the policy of the FRA to investigate rail transportation incidents which result in the death of a railroad employee or the injury of five or more persons. Other incidents are investigated when it appears that an investigation would substantially serve to promote railroad safety.[115]

New York State Department of Transportation

NYSDOT's role in response to railroad incidents includes incident notification, investigation and local transportation coordination. NYSDOT inspectors investigate train incidents and incidents pursuant to State Transportation Law Section 117. Following a railroad incident, the railroad company is required to call the State Transportation Information and Coordination Center (STICC) within one hour depending on the nature of the incident.[116] The STICC is monitored twenty-four hours per day. That timely notification requirement is based upon the following criteria set forth in regulation:

(a) All train and train service incidents involving a passenger train;
(b) Any train or train service incident which causes delays to passenger train movements of more than 30 minutes
(c) All collisions, except those minor collisions which can be repaired without the need to move to a repair facility;
(d) All freight train derailments
  (1) Which occur on any tracks where the maximum authorized track speed for movement of freight trains is normally in excess of 25 miles per hour
  (2) Which involve any freight car or cars required to be placarded by the hazardous materials regulations (49 CFR part 172); or
  (3) Which, regardless of lading, is a magnitude of more than five freight cars--or three freight cars if consisting of articulated platforms;
(e) Any release or spill of a hazardous material identified in 49 CFR part 172;
(f) All bridge or other track opening failures;
(g) Any incident involving a steam powered locomotive;
(h) All incidents at street or highway/rail grade crossings; and
(i) All train and train service incidents which result in death or in injury which results in immediate hospitalization.

Upon receiving notification of a significant rail incident, a rail safety inspector is typically deployed to the incident site to assess severity, investigate the cause and to relay timely information regarding the resulting impacts on the transportation network.

In addition to this required investigatory role, NYSDOT is prepared to provide additional support for mitigating transportation related impacts and to assist with local coordination of response activities in accordance with the State's Comprehensive Emergency Management Plan (CEMP). The STICC serves a lead role in managing the Department's overall response activities in coordination with the State Office of Emergency Management.

Local Partners

Emergency response efforts begin at the local level. In the event of an incident involving storage, transfer, or transport of crude oil, one of the first notifications would be to 9-1-1. This is separate from, and in addition to, required reporting to the National Response Center (NRC). A notification to 9-1-1 serves as the starting point for the activation of local resources, such as the fire department, to respond to the incident. The type, size, and time for the initial response will be largely dependent on the location of the incident. Crude oil moved by rail, vessel, and barge in New York State travels through areas of dense

population as well as through rural areas and small towns. The New York State Constitution and statutes give local governments (county and municipal) the authority to create local laws that relate to their "property, affairs or government" as long as those laws are not in conflict with the state Constitution or general laws. Home rule does not, however, mean the state cannot act if general laws or actions are needed to address an issue of "state concern."

There are 1786 municipal fire departments in New York State, serving large cities and rural areas. New York City's Fire Department has more than 200 units and 11,600 career firefighters. The City of Albany, which serves as a major hub for crude oil being transported by rail, has a fire department made up of 245 career firefighters and 16 companies operating out of 8 stations. A fire department in a rural area of New York State might have only 25 to 30 volunteer firefighters. A large municipality like New York City can be expected to respond with a large amount of resources, compared to a rural county with fewer personnel and resources.

All firefighters in New York State are trained to the operations level for hazardous material (also called hazmat) response. A larger municipality is likely to have personnel trained to the technician level for hazmat response, along with the necessary resources to support them. A small township is more likely to be limited in its response capabilities and training and to be dependent on county hazmat response teams. A county hazmat response team is made up of personnel from fire departments, police departments, and other local agencies in the county who receive additional training in hazmat response and may have personal protective equipment (PPE).

The types of resources that would be activated for a large oil spill on water, such as skimmers, containment boom, and work boats, generally will not be part of the response assets that local responders will bring to the scene. The Responsible Party (RP) will be required to activate their Oil Spill Response Organizations (OSROs), which would provide resources required for a large oil spill. In the event of a spill on water, U.S. Coast Guard (USCG) or Environmental Protection Agency (USEPA) resources also would be available, depending on whether the spill is on a coastal (including the Great Lakes) or inland waterway. Additional personnel and resources may also be available through intrastate or interstate mutual aid agreements with other jurisdictions. It should be noted, however, that significant and specialized response capabilities are likely to be needed immediately in a crude oil spill; mutual aid resources are not likely to be immediately on site in a no-notice event.

Congress passed the Emergency Planning and Community Right to Know Act (EPCRA) as Title III of the Superfund Amendments and Reauthorization Act (SARA) in 1986. Congress enacted this law to help local communities protect health and safety and the environment from chemical hazards. In addition to fixed sites, the provisions of EPCRA apply to "rolling stock," which includes railroad cars. However, crude oil is exempted from the reporting requirements of EPCRA unless the oil contains other hazardous substances. The Local Emergency and Planning Committee (LEPC) is the focal point for Title III activities within a community. The responsibilities of LEPCs are stated in law: each LEPC must develop an emergency plan; collect and store information provided by facilities about the hazardous materials they use, store, and produce; and make the information available to the public.

Local emergency management is responsible for local risk assessments, response plans, and coordination of local incident response. Authority for a community response plan is established in New York State Executive Law Article 2-B, State and Local Natural and Man-Made Disaster Preparedness. National standards for emergency management programs in the U.S. include hazard material response and incident containment in expectations for plans and procedures if hazardous material is a potential

hazard in the location. In New York State, the state Office of Fire Prevention and Control (OFPC) has statutory authority to approve county hazardous materials emergency response plans pursuant to New York State General Municipal Law 204-f. Local governments can access training offered by the OFPC relevant to ignitable liquid spills and fires and can be supported by OFPC hazmat response capabilities during an incident.

Local health departments in 36 counties and New York City are the lead for the public health response during an emergency event. In the 21 counties with partial service health departments, State Department of Health would carry out many of the functions of the local health department for environmental conditions. Local health department staff coordinate with first responders, county or city emergency management staff and regional Department of Environmental Conservation field staff to evaluate potential health risks that might result from contaminants affecting drinking water, recreational water, indoor environments, ambient air, food and soil. Local health departments are also responsible for coordinating emergency response activities related to regulated health-care facilities and health-care delivery. Local health departments work closely with the State Department of Health. DOH provides technical assistance and additional resources as needed to support local health department activities. Several local health department laboratories in the state are also part of the federal Laboratory Response Network.

Private Partners

Federal laws and regulations address response to an oil spill with different regulatory requirements based on transportation mode and location. The regulatory structure for both transport by rail and by vessel and barge recognizes the practical and legal responsibility of the shipping company (shipping line or railroad) in safety of crude oil shipments. In terms of rail, industry safety standards are more stringent than United States federal regulations in some cases. Rail lines that cross the U.S. and Canadian border must adhere to both countries' regulatory requirements. Non-transportation-related storage facilities must follow Environmental Protection Agency (USEPA) regulations.

In general, railroads and shipping lines are responsible for their equipment, tanks, vessels, tracks, personnel, and training, as well as compliance with hazardous material packaging and placarding. Regarding incident response, under U.S. regulations, railroads must maintain either a basic response plan, or if a tank car holds more than 1,000 barrels of oil, a comprehensive response plan. Comprehensive plans are subject to Federal Railroad Administration (FRA) approval, must comply with the National Contingency Plan and relevant Area Contingency Plans (ACPs), and provide for training and exercise to address a worst-case discharge. Basic plans require only identification of the manner of response, response personnel and equipment that will be available, and contact information. The DOT-111 tank cars most frequently used today carry about 700 barrels of oil each and do not require a comprehensive plan.[117]

Currently, crude oil is frequently transported in unit trains – trains made up of cars transporting one product – that can transport a total of 70,000 barrels per train. Given the use of unit trains, the National Transportation Safety Board (NTSB) has recommended lowering the threshold to require comprehensive plans of more railroad shipments. Railroads may have contracts with companies for hazardous materials response, incident mitigation, and cleanup; these provisions are to be noted in their plans.

For discharges that could impact navigable waterways, the Oil Pollution Act of 1990 (OPA 90) requires a three-tiered approach for contingency planning by both government and private industry:

- If an oil discharge affects navigable waterways, shorelines, or natural resources under federal management, OPA 90 amendments to the Clean Water Act (CWA) authorize federal response to the incident;
- Area committees with representatives from federal, state, and local government must develop ACPs, which are detailed and location-specific; and
- Owners or operators of vessels and facilities that pose a threat to the environment must prepare and exercise Facility Response Plans (FRPs) for responding to a worst-case scenario discharge.

OPA 90 establishes that the owner or operator of a facility/vessel from which oil is spilled is liable for the cost associated with the containment and cleanup of the spill, including any damages that may have occurred. In the event a responsible party is unknown or refuses to pay, an Oil Spill Liability Trust Fund has been established that can provide up to one billion dollars for any one incident or oil spill.[118]

OPA 90 requires private companies to test their plans and maintain the equipment necessary to respond to a spill. During a 3-year cycle, a facility must test its plan annually against the 15 prep components that are listed in the National Preparedness for Response Exercise Program, which was developed to meet the intent of section 4202(a) of OPA 90. A facility must test its worst case discharge scenario at least one year in the three-year cycle.[119]

If a facility or vessel were to experience an incident during storage or transfer of crude oil resulting in a spill, it is required to make notifications and activate resources to respond. Notifications must be made to the National Response Center at the federal level and the Department of Environmental Conservation (DEC) at the state level, as well as additional notifications as directed by the facility or vessel's plan. An owner or operator of a storage facility would be required to have resources staged on site for deployment and a contract in place with an Oil Spill Response Organization (OSRO) to respond with additional resources. An OSRO is a private contractor that has been certified to respond to and clean up incidents involving hazardous material. The facility owner or operator is also required to have a spill management team in place to manage the incident. The Responsible Party (RP) is liable for costs associated with the containment and cleanup of the spill up to a limit of $350 million. Failure to fulfill the requirements of OPA 90 can result in substantial fines. For example, an organization that fails to notify the appropriate federal agency of a discharge can be fined up to $500,000. The RP would be expected to respond to and manage the incident according to the ACP.

Private facilities and transportation companies will be guided by their emergency response plans in an incident involving the storage or transfer of crude oil. Emergency response plans should take into account the chemical properties of crude oil and the potential effects of accidental releases for the facility as well as potential off-site consequences. The content of these plans will be familiar to agencies at the federal and state level that have regulatory authority; however, these plans and related response capabilities and gaps may not necessarily be shared with local response and emergency management organizations. Lack of coordination of respective response roles and capabilities across sectors could create gaps in response that negatively impact safety of responders and the public.

There also can be issues with incidents involving the transfer of crude oil from rail cars to either storage facilities or barges, which can involve several private entities. Confusion can occur when trying to determine which party is responsible and liable for the containment and cleanup of the spill.

Oil Spill Response Organizations (OSROs)

The Oil Pollution Act of 1990 established the requirement for certain petroleum storage facilities and tank vessels to establish emergency spill response plans. These plans, called Facility Response Plans (FRPs) and Vessel Response Plans (VRPs), are established to show that these facilities and vessels have the capability to quickly respond, control, and collect oil spills in the shortest possible time frames, and to minimize the damages caused by these spills. Plan holders are required to submit a response plan that identifies and ensures by contract or other approved means (i.e., Letter of Intent), the availability of private personnel and equipment necessary to remove, to the maximum extent practicable, a worst-case discharge (WCD), including a discharge resulting from fire or explosion, and to mitigate or prevent a substantial threat of such a discharge. The system for assembling, mobilizing, and controlling response resources is complex. Therefore, in order to meet the statutory requirements, each response plan holder must identify the means for accomplishing these tasks.

Private spill response companies fulfill this response role in most cases, and are referred to as Oil Spill Removal Organizations (OSROs). The U.S. Coast Guard (USCG) has created an Oil Spill Removal Organization Classification Program to ensure that these private companies used by the Plan holders have the capability to carry out timely and effective spill response. OSROs are judged on the basis of their ability to respond to spills of a certain size, and within set response times and equipment requirements. They are also evaluated on certain core equipment types: boom, estimated daily recovery capacity (EDRC), storage, support equipment (such as response vessels) and response personnel, dispersant product, dispersant application platforms, and aerial oil tracking capabilities.

The classification system is overseen by the USCG National Strike Force Coordination Center, and is based on the response capability of those OSROs evaluated. A complete description of the OSROs' response capabilities and resources is evaluated by the USCG. The Response Resource Inventory (RRI) is maintained by the USCG for use by the Captains of the Port for their use in evaluating Area Contingency Plans, along with Facility Response Plans and Vessel Response Plans.

Endnotes

[1] Association of American Railroads, "Moving Oil by Rail," Transportation of Crude by Rail, December 2013, https://www.aar.org/keyissues/Documents/Background-Papers/Crude-oil-by-rail.pdf.

[2] Ibid.

[3] Energy Information Administration, "U.S Crude Oil Net Imports," http://www.eia.gov/forecasts/aeo/er/early_production.cfm

[4] Energy Information Administration, "U.S. expected to be largest producer of petroleum and natural gas hydrocarbons in 2013," http://www.eia.gov/todayinenergy/detail.cfm?id=13251

[5] http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=W_EPD2F_PRS_SNY_DPG&f=W

http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=EMM_EPM0_PTE_SNY_DPG&f=W

[6] Association of American Railroads, "Moving Crude Oil by Rail," Transportation of Crude by Rail, December 2013, https://www.aar.org/keyissues/Documents/Background-Papers/Crude-oil-by-rail.pdf.

[7] Energy Information Administration, "Refinery Receipts of Crude Oil by Method of Transportation," June 2012, http://www.eia.gov/dnav/pet/pet_pnp_caprec_dcu_nus_a.htm.

[8] Congressional Research Service, "U.S. Rail Transportation of Crude Oil: Background and Issues for Congress," February 2014, https://www.fas.org/sgp/crs/misc/R43390.pdf.

[9] Energy Information Administration, "Refinery Receipts of Crude Oil by Method of Transportation," June 2012, http://www.eia.gov/dnav/pet/pet_pnp_caprec_dcu_nus_a.htm.

[10] Congressional Research Service, "U.S. Rail Transportation of Crude Oil: Background and Issues for Congress," February 2014, https://www.fas.org/sgp/crs/misc/R43390.pdf.

[11] Ibid.

[12] Congressional Research Service, "U.S. Rail Transportation of Crude Oil: Background and Issues for Congress," February 2014, https://www.fas.org/sgp/crs/misc/R43390.pdf.

[13] Association of American Railroads, "Moving Oil by Rail," Transportation of Crude by Rail, December 2013, https://www.aar.org/keyissues/Documents/Background-Papers/Crude-oil-by-rail.pdf.

[14] Congressional Research Service, "U.S. Rail Transportation of Crude Oil: Background and Issues for Congress," February 2014, https://www.fas.org/sgp/crs/misc/R43390.pdf.

[15] Originated carloads from Association of American Railroads, "Moving Oil by Rail," Transportation of Crude by Rail, December 2013, https://www.aar.org/keyissues/Documents/Background-Papers/Crude-oil-by-rail.pdf.

[16] Transportation Safety Board of Canada, "Rail Recommendations *R14-01, R14-02, R14-03," http://www.bst-tsb.gc.ca/eng/recommandations-recommendations/rail/2014/rec-r1401-r1403.asp#4.0.*

[17] Sûreté du Québec

[18] Federal Railroad Administration, Office of Safety Analysis

[19] Rail Supply Institute Committee on Tank Cars, "Docket No. PHMSA-2012-0082, Hazardous Materials: Rail Petitions and Recommendations to Improve the Safety of Railroad Tank Car Transportation (RRR)," comments in response to PHMSA ANPRM, http://rsiweb.org/wp-content/uploads/2014/01/ctc-PHMSA-2012-0082.pdf.

[20] Congressional Research Service, "U.S. Rail Transportation of Crude Oil: Background and Issues for Congress," February 26, 2014.

[21] 78 Federal Register (FR) 54849, "Hazardous Materials: Rail Petitions and Recommendations To Improve the Safety of Railroad Tank Car Transportation (RRR)."

[22] American Association of Railroads, "Evolution of Railroad Industry Tank Car Standards for Crude Oil," https://www.aar.org/safety/Documents/Assets/AAR_TankerSafety_Static.pdf.

[23] The Pipeline and Hazardous Materials Safety Administration, "Preliminary Guidance from Operation Classification," Safety Alert, January 2, 2014.

[24] United States Department of Transportation: http://www.dot.gov/sites/dot.gov/files/docs/Emergency%20Restriction%20-%20Prohibition%20Order%20%28Docket%20DOT-OST-2014-0025%29.pdf

[25] Association of American Railroads, "Moving Oil by Rail," Transportation of Crude by Rail, December 2013, https://www.aar.org/keyissues/Documents/Background-Papers/Crude-oil-by-rail.pdf.

[26] Ibid.

[27] Energy Information Administration http://www.eia.gov/dnav/pet/pet_crd_crpdn_adc_mbbl_a.htm

[28] Statistical Handbook for Canada's Upstream Petroleum Industry, Canadian Association of Petroleum Producers, http://www.capp.ca/GetDoc.aspx?DocId=241200&DT=NTV.

[29] Energy Information Administration, "U.S. expected to be largest producer of petroleum and natural gas hydrocarbons in 2013," http://www.eia.gov/todayinenergy/detail.cfm?id=13251

[30] Energy Information Administration, "U.S. expected to be largest producer of petroleum and natural gas hydrocarbons in 2013," http://www.eia.gov/todayinenergy/detail.cfm?id=13251

[31] Maugeri, Leonardo, "The Shale Oil Boom: A U.S. Phenomenon," Harvard Kennedy School, Belfer Center for Science and International Affairs, http://belfercenter.ksg.harvard.edu/files/The%20US%20Shale%20Oil%20Boom%20Web.pdf

[32] Maugeri, Leonardo, "The Shale Oil Boom: A U.S. Phenomenon," Harvard Kennedy School, Belfer Center for Science and International Affairs, http://belfercenter.ksg.harvard.edu/files/The%20US%20Shale%20Oil%20Boom%20Web.pdf

[33] Marketplace Business http://www.marketplace.org/topics/business/communities-along-rail-lines-worry-about-oil-explosions

[34] Congressional Research Service, "U.S. Rail Transportation of Crude Oil: Background and Issues for Congress," February 2014, https://www.fas.org/sgp/crs/misc/R43390.pdf.

[35] Ibid.

[36] Energy Information Administration, "Refinery Receipts of Crude Oil by Method of Transportation," June 2012, http://www.eia.gov/dnav/pet/pet_pnp_caprec_dcu_nus_a.htm.

[37] Congressional Research Service, "U.S. Rail Transportation of Crude Oil: Background and Issues for Congress," February 2014, https://www.fas.org/sgp/crs/misc/R43390.pdf.

[38] Energy Information Administration, "Refinery Receipts of Crude Oil by Method of Transportation," June 2012, http://www.eia.gov/dnav/pet/pet_pnp_caprec_dcu_nus_a.htm.

[39] U.S. Energy Information Administration, *http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=8_NA_8RB0_NUS_MBBL&f=A*

[40] Congressional Research Service, "U.S. Rail Transportation of Crude Oil: Background and Issues for Congress," February 2014, https://www.fas.org/sgp/crs/misc/R43390.pdf.

[41] Association of American Railroads, "Moving Oil by Rail," Transportation of Crude by Rail, December 2013, https://www.aar.org/keyissues/Documents/Background-Papers/Crude-oil-by-rail.pdf.

[42] Congressional Research Service, "U.S. Rail Transportation of Crude Oil: Background and Issues for Congress," February 2014, https://www.fas.org/sgp/crs/misc/R43390.pdf.

[43] Association of American Railroads

[44] Transportation Safety Board of Canada, "Rail Recommendations *R14-01, R14-02, R14-03," http://www.bst-tsb.gc.ca/eng/recommandations-recommendations/rail/2014/rec-r1401-r1403.asp#4.0.*

[45] CBC News, "Lac-Mégantic Rail Disaster Company MM&A Files For Bankruptcy," Aug. 7, 2013, http://www.cbc.ca/news/business/lac-mpercentC3percentA9gantic-rail-disaster-company-mm-a-files-for-bankruptcy-1.1338481.

[46] National Transportation Safety Board, "Preliminary Report, Railroad, DCA14MR004," http://www.ntsb.gov/doclib/reports/2014/Casselton_ND_Preliminary.pdf.

[47] Sûreté du Québec

[48] Pipelines and Hazardous Materials Administration https://hip.phmsa.dot.gov/analyticsSOAP/saw.dll?Dashboard

[49] Congressional Research Service, "U.S. Rail Transportation of Crude Oil: Background and Issues for Congress," February 2014, https://www.fas.org/sgp/crs/misc/R43390.pdf.

[50] [50] Environmental Protection Agency, "Types of Crude Oil," http://www2.epa.gov/emergency-response/types-crude-oil.

[51] Sources vary: U.S EPA: http://www.epa.gov/otaq/fuels/gasolinefuels/volatility/standards.htm; Oak Ridge National Laboratory https://www.fleetmon.com/en/vessels/Stena_Primorsk_56267Petroleum News: http://www.petroleumnews.com/pntruncate/240780181.shtml; ExxonMobil:http://www.exxonmobil.com/crudeoil/download/KearlOilSands_withAssay.pdf

[52] Picture taken from the fleetmon.com vessel database. https://www.fleetmon.com/en/vessels/Stena_Primorsk_56267

[53] Department of Environmental Conservation

[54] James Kolstad, National Transportation Safety Recommendation letter to Honorable Gilbert E. Carmichael, Administrator, Federal Rail Administration, July 1, 1991.

[55] Ibid.

[56] Ibid.

[57] Ibid.

[58] Ibid.

[59] Congressional Research Service, "U.S. Rail Transportation of Crude Oil: Background and Issues for Congress," February 26, 2014.

[60] Association of American Railroads, "Railroad Tank Cars," February 12, 2014, https://www.aar.org/safety/Documents/Assets/Railroadpercent20Tankpercent20Carspercent202percent2012percent2014.pdf.

[61] Congressional Research Service, "U.S. Rail Transportation of Crude Oil: Background and Issues for Congress," February 2014, https://www.fas.org/sgp/crs/misc/R43390.pdf.

[62] Ibid.

[63] Vantuono, William C. "New Tank Car Builder Coming Online," RailwayAge, February 13, 2014, *http://www.railwayage.com/index.php/mechanical/freight-cars/new-tank-car-builder-coming-on-line.html*.

[64] National Transportation Safety Board, "DOT-111 Tank Car Design," http://www.ntsb.gov/news/events/2012/cherry_valley/presentations/Hazardous%20Materials%20Board%20Presentation%20508%20Completed.pdf

[65] 78 Federal Register (FR) 54849, "Hazardous Materials: Rail Petitions and Recommendations To Improve the Safety of Railroad Tank Car Transportation (RRR)."

[66] 78 Federal Register (FR) 54849, "Hazardous Materials: Rail Petitions and Recommendations To Improve the Safety of Railroad Tank Car Transportation (RRR)."

[67] The Pipeline and Hazardous Materials Safety Administration, "Preliminary Guidance from Operation Classification," Safety Alert, January 2, 2014.

[68] Ibid.

[69] American Association of Railroads, "Evolution of Railroad Industry Tank Car Standards for Crude Oil," https://www.aar.org/safety/Documents/Assets/AAR_TankerSafety_Static.pdf.

[70] Rail Supply Institute Committee on Tank Cars, "Docket No. PHMSA-2012-0082, Hazardous Materials: Rail Petitions and Recommendations to Improve the Safety of Railroad Tank Car Transportation (RRR)," comments in response to PHMSA ANPRM, http://rsiweb.org/wp-content/uploads/2014/01/ctc-PHMSA-2012-0082.pdf.

[71] Rail Supply Institute Committee on Tank Cars, "Docket No. PHMSA-2012-0082, Hazardous Materials: Rail Petitions and Recommendations to Improve the Safety of Railroad Tank Car Transportation (RRR)," comments in response to PHMSA ANPRM, http://rsiweb.org/wp-content/uploads/2014/01/ctc-PHMSA-2012-0082.pdf.

[72] Ibid.

[73] Rail Supply Institute Committee on Tank Cars, "Docket No. PHMSA-2012-0082, Hazardous Materials: Rail Petitions and Recommendations to Improve the Safety of Railroad Tank Car Transportation (RRR)," comments in response to PHMSA ANPRM, http://rsiweb.org/wp-content/uploads/2014/01/ctc-PHMSA-2012-0082.pdf.

[74] U.S. Senate. Committee on Commerce, Science, and Transportation. Subcommittee on Surface Transportation and Merchant Marine Infrastructure, Safety, and Security. "Enhancing Our Rail Safety: Current Challenges for Passenger and Freight Rail." March 2, 2014. Written statement of Joseph C. Szabo, Administrator, Federal Railroad Administration.

[75] 49 CFR 172.500 et seq.

[76] National Transportation Safety Board, "Safety Recommendation: R-14-1 through -3, January, 23, 2014, http://www.ntsb.gov/doclib/recletters/2014/R-14-001-003.pdf.

[77] Branscomb, Lewis M., Mark Fagan, Philip Auerswald, Ryan N. Ellis, and Raphael Barcham. "Rail Transportation of Toxic Inhalation Hazards: Policy Responses to the Safety and Security Externality." Discussion Paper 2010-01, Belfer Center for Science and International Affairs, Harvard Kennedy School, February 2010.

[78] Department of Environmental Conservation photograph

[79] Department of Environmental Conservation photograph

[80] Department of Environmental Conservation photograph

[81] A Multi-Agency Working Group Under the State Disaster Preparedness Commission, Draft NYS Assessment DHSES/OEM- 1 Planning: 2/20/2014

[82] FRA and PHMSA, Safety and Security Plans for Class 3 Hazardous Materials Transported by Rail, http://www.fra.dot.gov/eLib/details/L04861

[83] University of Alaska, Fairbanks, "The Basic Physics Behind Upstream Petroleum," http://ffden-2.phys.uaf.edu/212_spring2011.web.dir/kristine_odom/horizontalsep.gif

[84] Rail Planning http://rail.railplanning.com/files/2013/07/TRN_286_HuntEtAl_pp20-211.pdf

[85] 49 USC 212 and Section 115 of State Transportation Law

[86] CFR 49 Part 212.105(3)

[87] Department of Homeland Security: http://www.dhs.gov/office-infrastructure-protection

[88] Department of Homeland Security: https://www.dhs.gov/protective-security-advisors

[89] Transportation Systems Sector-Specific Plan, An Annex to the National Infrastructure Protection Plan 2010 pg. iii

[90] TSA Website http://www.tsa.gov/stakeholders/programs-and-initiatives

[91] TSA Website http://www.tsa.gov/stakeholders/programs-and-initiatives

[92] Transportation Systems Sector-Specific Plan, An Annex to the National Infrastructure Protection Plan 2010 pg. 18

[93] United States Coast Guard: http://www.uscg.mil/hq/cg5/cg544/amsc.asp

[94] United States Coast Guard: http://www.uscg.mil/hq/cg5/cg544/responsibilities.asp

[95] 40 CFR Part 112

[96] Article 12 of the Navigation Law

[97] 40 CFR 112.20

[98] 33 CFR Parts 154 and 156

[99] See 6 NYCRR Part 229 and/or 40 CFR Part 60 Subpart Kb

[100] 40 CFR Part 112

[101] 40 CFR Part 300

[102] 40 CFR Part 300.145(c)(1))

[103] Navigation Law 175 and 17 NYCRR 32.2 and 32.4

[104] *http://www.dec.ny.gov/regulations/2634.html*

[105] Navigation Law § 176

[106] State Finance Law § 179-d et seq.

[107] Navigation Law § 187

[108] Executive Law § 20

[109] http://www.bt.cdc.gov/lrn/

[110] Navigation Law § 177-a

[111] 33 CFR 154 and 155.

[112] Susan A. Fleming, "Major Oil Spills Occur Infrequently, but Risks Remain", Government Accounting Office (GAO) Report 08-357T, 2007.

[113] 33 USC §2701-2761.

[114] New York State General Municipal Law 204-f

[115] 49 CFR 225.31(a)

[116] 17NYCRR Part 924

[117] 49 Code of Federal Regulations (CFR) 130.31 and John Frittelli, Paul Parfomak, Jonathan Ramseur, Anthony Andrews, Robert Pirog, and Michael Ratner, "U.S. Rail Transportation of Crude Oil: Background and Issues for Congress", Congressional Research Service, 2014.

[118] 33 USC §2701, et seq., Oil Pollution Act of 1990, and 33 USC §1321, et seq.

[119] Oil Pollution Act of 1990, §4202 and 33 USC §1321.