National Transportation Safety Board
Washington, DC 20594

Office of the Chairman

June 25, 2014

The Honorable Ron Wyden
US Senate
221 Dirksen Senate Office Bldg.
Washington, DC 20510

The Honorable Jeff Merkley
US Senate
313 Hart Senate Office Bldg
Washington, DC 20510

Dear Senator Wyden and Senator Merkley:

Thank you for your June 10, 2014, letter regarding the safe transportation of flammable products by rail. The National Transportation Safety Board (NTSB) shares your concerns and has made recommendations since the 1970s about such issues as tank car safety and improved track inspections. More recently, we have recommended that first responders be better informed when accidents occur. As you point out, with the dramatic rise in transport by rail of flammable products, these safety issues are ever more pressing. Below are responses to your questions.

1. The emergency order covers only "crude oil… sourced from the Bakken shale formation in the Williston Basin." However, the market for crude-by-rail is not limited to the Bakken, as demonstrated by the attached maps, which show that nearly twice the volume of oil is transported from North American oil-producing regions outside the Bakken region as within it:

a. Does the NTSB share our concern that crude oil produced outside of the Bakken and transported on railroads poses potential hazards in the case of an accident?

Crude oil of all types and from all regions are flammable materials. The NTSB has investigated numerous accidents in which all types of flammable materials have been released in accidents. We are aware of several accidents involving crude oil from other regions in which these products were released, causing environmental damage and fires. These accidents include the March 27, 2013, derailment of a Canadian Pacific train involving 14 tank cars of Western Canadian crude oil in Parkers Prairie, Minnesota, that released 15,000 gallons of product. On January 31, 2014, 11 tank cars of a Canadian National (CN) train transporting North Alberta crude oil in New Augusta, Mississippi, derailed, releasing 50,000 gallons of product. Additionally, on February 13, 2014, 19 tank

cars of a Norfolk Southern train carrying Western Canadian heavy crude oil derailed in Vandergrift, Pennsylvania, releasing 4,300 gallons of product.[1] On January 7, 2014, 5 tank cars of a CN train carrying Western Canadian (Manitoba/Saskatchewan) crude oil derailed in Plaster Rock, New Brunswick, releasing 60,000 gallons of product.[2]

The NTSB recently issued safety recommendations to the Pipeline and Hazardous Materials Safety Administration (PHMSA) and to the Federal Railroad Administration (FRA) to address our concerns about the lack of route planning and selection requirements for hazardous materials other than those that are explosive, toxic by inhalation, or radioactive, because such protections are not required for trains transporting large bulk quantities of volatile flammable liquids through populated communities. We stated that, at a minimum, the route assessments, alternative route analysis, and route selection requirements of 49 *Code of Federal Regulations* (CFR) 172.820 should be extended to "key trains" transporting large volumes of flammable liquid, including crude oil.[3] We recommended that PHMSA and FRA work together to expand hazardous materials route planning and selection requirements for railroads operating under 49 CFR 172.820, to include key trains transporting flammable liquids as defined by Association of American Railroads (AAR) Circular No. OT-55-N and, where technically feasible, to require rerouting to avoid transportation of such hazardous materials through populated and other sensitive areas.

Further, the NTSB cited the lack of oil spill planning requirements for railroads that currently apply to other modes of transportation, such as marine and pipeline, to address their capability to respond to worst-case discharges. We recommended that PHMSA revise the spill response planning thresholds contained in 49 CFR Part 130 to require comprehensive response plans to effectively provide for the carriers' ability to respond to worst-case discharges resulting from accidents involving unit trains or blocks of tank cars transporting oil and petroleum products. Because we strongly believe there must be an equivalent level of preparedness across all modes of transportation to respond to major disasters involving the release of flammable liquid petroleum products, we also recommended that the FRA develop a program to audit rail carrier response plans. This program should ensure that adequate provisions are in place to respond to and remove a worst-case discharge to the maximum extent practicable and to mitigate or prevent a substantial threat of a worst-case discharge.

[1] The NTSB did not investigate these three accidents.

[2] The NTSB is an observer to the Transportation Safety Board (TSB) of Canada's investigation.

[3] "Key train," as defined by the Association of American Railroads in circular OT-55N, is "any train transporting one tank car load of Poison or Toxic Inhalation Hazard (Hazard Zone A, B, C, or D), anhydrous ammonia (UN1005), or ammonia solutions (UN3318); 20 car loads or intermodal portable tank loads of any combination of hazardous material; or one or more car loads of spent nuclear fuel or high level radioactive waste."

b. If so, what are examples of hazards that non-Bakken crude pose to first responders and the public?

In the case of flammable liquids, like crude oil, a resulting fire can cause great damage to the surrounding community, especially when such liquids are transported in insufficiently protected general service tank cars that tend to release their contents in most accident scenarios. This is why the NTSB has recommended the use of more robust tank cars to offer greater lading protection and to reduce the probability and consequences of releases in accidents.

Risks to communities and the environment for accidents involving non-Bakken crude oil are exemplified by two of the above-cited accidents that occurred in New Augusta, Mississippi, and Plaster Rock, New Brunswick. While the derailment in New August did not result in a fire or injuries, about 50,000 gallons of crude oil were released into a navigable waterway, affecting environmentally sensitive areas. Residents within a ½-mile radius of the scene had to be evacuated. When accidents cause the release of petroleum products, the resulting cleanup is often very costly, and long-term monitoring may be required to mitigate impacts to community health and to ensure the effectiveness of environmental restoration actions.

In the Plaster Rock accident, two punctured DOT-111 tank cars were the primary source of the released oil, which caused a pool fire that damaged three adjacent liquefied petroleum gas (LPG) tank cars. Emergency responders were forced to use explosive charges to implement a risky vent-and-burn operation to inert the LPG cars.

The NTSB is also concerned about the need for timely and effective hazard communications to first responders in the few minutes immediately following an accident. Important safety decisions that depend on timely hazard communications include determining the appropriate isolation distances, deciding whether to evacuate a community or to shelter in place, selecting the appropriate personal protective equipment, and identifying suitable firefighting tactics. In 2007, we recommended that PHMSA and the FRA develop regulations requiring that railroads immediately provide to emergency responders accurate, real-time information about the identity and location of all hazardous materials on a train. (See also response to 3a.) Although PHMSA recently published an advance notice of proposed rulemaking seeking comment on the implementation of this recommendation, we continue to investigate accidents in which emergency responders did not receive timely and accurate hazard communications from railroad operators.

Accidents involving crude oil or flammable liquids of any kind, especially when these liquids are transported in large volumes, such as in unit trains or in blocks of tank cars, can have disastrous consequences, including devastating environmental contamination. Requirements for oil spill response planning for rail transportation of oil and other petroleum products are practically nonexistent, compared to those of other modes of transportation, like marine and pipeline, carrying the same products. Current regulations do not require railroads transporting crude oil in multiple tank cars to develop

comprehensive spill response plans or to have resources available for response to worst-case discharges. Although simple plans must be developed for tank cars that do not exceed an excessively high 42,000 gallons per package planning threshold,[4] regulatory agencies do not review these plans to evaluate the capability of rail carriers to respond to and mitigate discharges. As stated above, the NTSB has recommended that PHMSA revise its spill response planning thresholds contained in 49 CFR Part 130 to require comprehensive response plans to effectively provide for the carriers' ability to respond to worst-case discharges resulting from accidents involving unit trains or blocks of tank cars transporting oil and petroleum products. Implementing this recommendation would provide much-needed assistance to local first responders.

2. We are concerned that the 1,000,000-gallon notification threshold in the emergency order may not sufficiently capture smaller cargoes of crude oil, and that such smaller cargoes could pose dangers of serious accidents or significant spills involving crude oil transported on railroads:

a. Please list accidents within the last 10 years that the NTSB has investigated—or is investigating—that involved the release of less than 1,000,000 gallons of crude oil or other flammable materials, and resulted in a substantial spill, fire or explosion. Please provide available information about injuries or deaths, property damage, the number of cars that ruptured, the volume of cargo that was being transported and the origin of the cargoes.

Below is a list of accidents in the last 10 years that NTSB has investigated or is currently investigating in which less than 1,000,000 gallons of crude oil or other flammable liquids were released. I have also attached a timeline from our April forum on *Rail Safety: Transportation of Crude Oil and Ethanol* which charts the timing of these and other accidents that the NTSB is not investigating. Please note that some cells in the table have been left blank because we do not have this information.

[4] Less than 10 and maybe none of these tank cars operate in the U.S. today.

Location and Date	Product and Volume of Release	Fatalities and/or Injuries	Monetary Damage	Origin of Cargo
New Brighton, Pennsylvania, October 2006	Ethanol, 485,000 gallons	0	$5.8 million	Chicago, Illinois
Painesville, Ohio, October 2007	Ethanol, 76,000 gallons	0	$8.48 million	
Cherry Valley, Illinois, June 2009	Ethanol, 324,000 gallons	1 fatality 9 injuries	$7.9 million	Tara, Iowa
Tiskilwa, Illinois, October 2011	Ethanol, 144,000 gallons	0	$1.6 million (does not include remediation costs)	Cedar Rapids, Iowa
Columbus, Ohio, July 2012	Ethanol, 53,000 gallons	0		
Casselton, North Dakota, December 2013	Crude Oil, 476,000 gallons	0	$6.1 million	Bakken crude
Lynchburg, Virginia, April 2014	Crude Oil, 30,000 gallons	0	$870,000	Bakken crude

b. Please list any accidents the NTSB is aware of that occurred in Canada within the last five years involved the release of less than 1,000,000 gallons of crude oil or other flammable materials, and resulted in a spill, fire or explosion. Please provide available information about injuries or deaths, property damage, the number of cars that ruptured, the volume of cargo that was being transported and the origin of the cargoes.

The Transportation Safety Board (TSB) of Canada is the NTSB's counterpart in that country.

Below is a list of accidents that the TSB of Canada is investigating or has investigated over the last 5 years involving a release of less than 1,000,000 gallons. (The accident investigation for which we are providing technical assistance is marked with an asterisk.) I have also attached a timeline from the TSB which charts the timing of these and other accidents that the TSB is not investigating.

Location and Date	Product and Volume of Release	Fatalities and/or Injuries	Property Damage	Origin of Cargo
Nanticoke, Ontario February 2009	Gasoline/Fuel Oil			
Quebec, Quebec July 2009	Aviation Fuel			
Spy Hill, Saskatchewan, December 2009	LPG, methanol, and butane			
Tilley, Alberta, January 2013	Crude oil			
Paynton, Saskatchewan, January 2013	Fuel oil			
Gainford, Alberta, October 2013	LPG			
Plaster Rock, New Brunswick,* January 2014	Crude Oil, 60,000 gallons	0		

c. Is the NTSB aware of any accidents in the United States, Canada, or Mexico within the last five years that involved a mixed freight or non-unit trains resulting in a spill of crude oil or flammable materials?

During the past 5 years, other accidents have occurred in the United States and Canada involving freight trains that were transporting flammable materials. Below is more information on these accidents.

Location and Date	Products	Injuries	Monetary Costs
Spy Hill, Saskatchewan, December 2009	LPG, methanol, and butane		
Tiskilwa, Illinois, October 2011	Ethanol	0	$1.6 million
Paulsboro, New Jersey, November 2012	Vinyl Chloride, ethanol, chlorine, and others	28 transported to the hospital	$30 million
Gainford, Alberta, October 2013	LPG		

3. As noted above, first responders from throughout Oregon told us in recent meetings that they need more consistent and detailed information from railroads about shipments of crude oil through their towns and communities.

a. Please list any outstanding Board recommendations related to greater transparency, information sharing or similar topics involving the transportation of flammable or hazardous materials. Has the Department of Transportation satisfactorily addressed any such recommendations?

In several accident investigations, we have found that first responders did not have all the information necessary to develop the best response plan to protect themselves and their communities. Today, with railroad usage of electronic data interchange, electronic copies of a train consist can be easily transmitted to first responders shortly after an event. We have called for this real-time accurate information for first responders through the recommendations below, both issued in 2007:

> To the FRA: Assist PHMSA in developing regulations to require that railroads immediately provide emergency responders accurate, real-time information regarding the identity and location of all hazardous materials on a train. (R-07-02. Present classification: Open—Unacceptable Response.)
>
> To PHMSA: With the assistance of the FRA, require that railroads immediately provide emergency responders accurate, real-time information regarding the identity and location of all hazardous materials on a train. (R-07-04. Present classification: Open—Acceptable Response.)

We reiterated these two recommendations in our investigation report on the 2009 Cherry Valley, Illinois, ethanol train derailment and fire. Unfortunately, despite the 7 years that have elapsed since they were first issued and the 5 years that have elapsed since their reiteration, we continue to see problems with the timely provision of necessary hazardous materials information to first responders.

b. What testimony has the NTSB received regarding greater transparency, information sharing or similar topics involving the transportation of flammable or hazardous materials? Please detail the source of any such testimony and the main points related to the topic of transparency or information sharing.

In April 2014, we held a forum on rail safety at which representatives from the National Fire Protection Association, International Association of Fire Chiefs (IAFC), local fire chiefs, and other response organizations presented information about the challenges they face when heading into a fire without having all the information they need about the products involved. Chief Rick Edinger, representing the IAFC, testified as follows:

> The key to a safe and effective emergency response is based on the planning analysis of Strengths, Weaknesses, Opportunities, and Threats (SWOT). . . . The industries that product or transport crude oil, ethanol, and other hazardous materials that travel through, or are stored in, a community have an obligation to reduce risks by working with all local

> officials to minimize the potential harm from these "low frequency, high hazard, high traffic" incidents.
>
> Fire departments face challenges in planning for shipments of hazardous materials through urban, suburban and rural communities across the nation. . . . Commodity flow studies provide a vast amount of information that is not easily understood. . . . communities are not funded to conduct these types of research projects to gather the pertinent information and build an emergency response plan. Industry needs to provide direct assistance for this endeavor.

The CN Railroad representative responded as follows:

> In our community outreach efforts we try to be as transparent as we possibly can, making communities aware of the dangerous goods that travel through their community, that originate in their community or that might be destined for their community, . . . We go so far as to specify exactly what percentage of commodities flow through their community. ... and we tell them exactly what's going through their community in an effort to help them better prepare for emergencies.

Also, during our investigative hearing on a vinyl chloride tank car breach in Paulsboro, New Jersey, the fire chief expressed his concern over the amount of time that it took for his responders to secure an accurate consist and that their response, including providing protection for themselves and the community, was hampered by the lack of this information. We have not yet completed this investigation, but we are aware that 28 community members sought medical care as a result of the accident.

c. Why does the NTSB believe that greater transparency or information sharing for flammable or hazardous material cargoes could help first responders in the case of an accident?

The railroad industry participates in a number of voluntary outreach and education programs for first responders and communities, such as the Transportation Community Awareness and Emergency Response (TRANSCAER) program. The AAR instructs its membership to assist local emergency planners and provide them with commodity flow data upon request, but many small communities with volunteer firefighting services do not have either the awareness or the resources necessary even to request this assistance. The NTSB and the industry both have concerns about the poor level of participation in, and the effectiveness of, the volunteer outreach and education programs that exist, in part because participation in them is not mandatory and their effectiveness is not evaluated.

Nearly all other industrial facilities handling the same or similar commodities must comply with the 1986 Emergency Planning and Community Right-to-Know Act (EPCRA), which was passed to help increase the public's knowledge and access to information about chemicals at facilities, their uses, and releases of them into the environment. Regulations administered by the Environmental Protection Agency under

40 CFR Parts 355 and 370 require facilities handling certain hazardous materials to make information available to local officials, fire departments, and the public. These facilities are also required to work with emergency responders and planning committees to develop emergency plans to protect public health and the environment. However, in 42 *United States Code* 11047, Congress exempted all transportation from these emergency planning requirements.

The NTSB is concerned that the lack of a requirement for railroads to assist local emergency planners may leave communities unprepared for response to major hazardous materials releases, and, consequently, many communities learn about these hazards for the first time during an actual emergency. Therefore, the NTSB believes that, if railroads were to play a greater role in local emergency planning and implemented effective public awareness programs, emergency response organizations would be better prepared to safely respond to hazardous materials emergencies.

I appreciate your commitment to rail safety and your interest in NTSB investigations. Please let me know if you have further questions about any of these issues. We have called for many of these improvements for a number of years, and we appreciate the support that Congress has given the NTSB in our work as we improve transportation safety for all Americans.

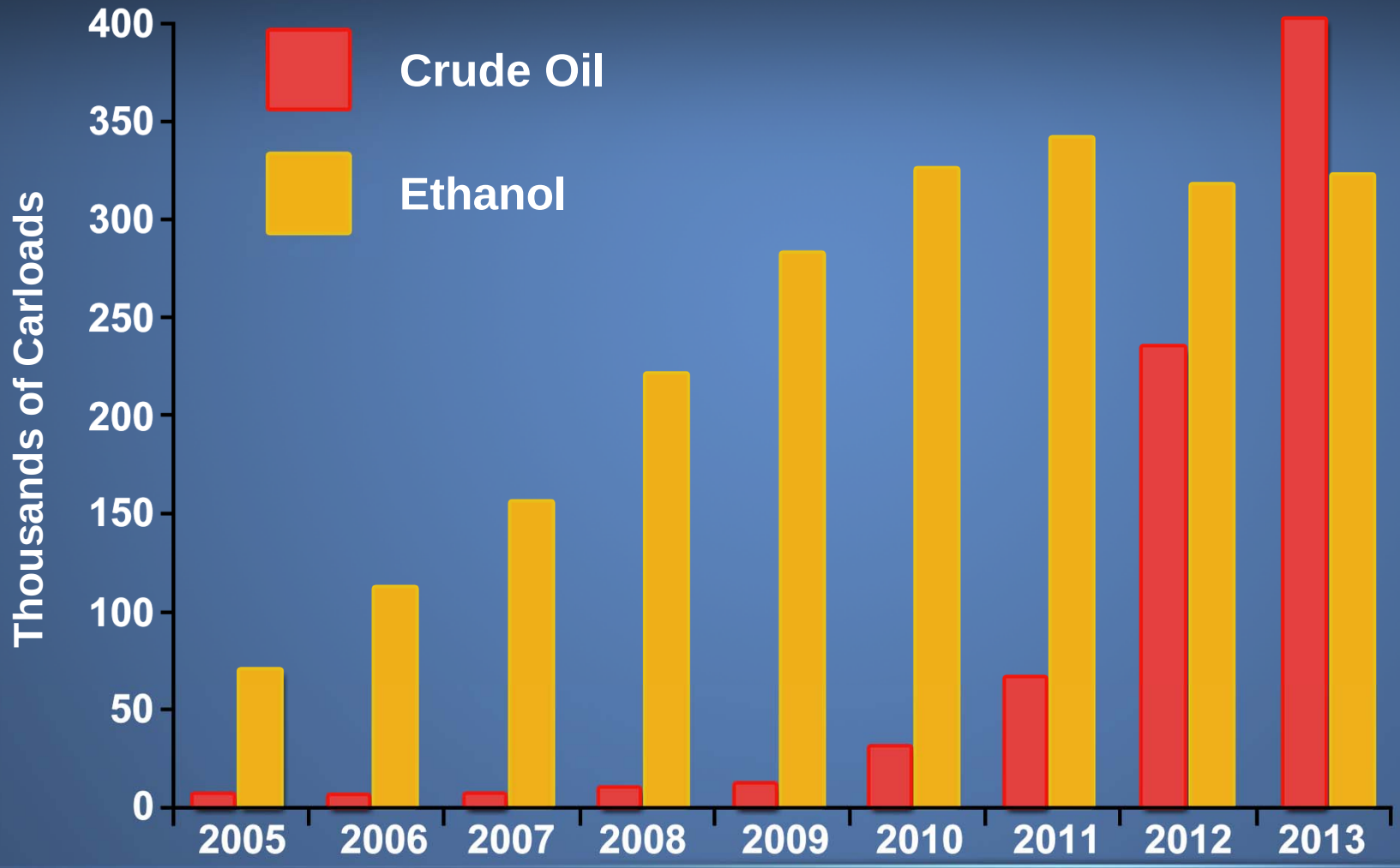
Sincerely,

Christopher A. Hart
Acting Chairman
Approved for Electronic Transmittal
No Hard Copy Will Follow

Enclosures

	A	B	C	D	E	F	G	H
1	**List of Rail Accidents With a Release of Liquid Hydrocarbons (2009 to 2014) Reportable to the Transportation Safety Board of Canada**							
2	**As of 18 June 2014**							
3								
4		**Occurrence No.**	**Date**	**Location**	**Product**	**Accident Type**	**Description of Release**	**Release Size (Est.)**
5	1	R09T0057**	11-Feb-09	Nanticoke, ON	Gasoline / Fuel Oil	NON-MAIN-TRACK TRAIN DERAILMENT	2 tank cars were reported leaking gasoline	Small
6	2	R09Q0030**	17-Jul-09	quebec, QC	Aviation Fuel	NON-MAIN-TRACK TRAIN DERAILMENT	A tank car was leaking product	Small
7	3	R09W0252**	5-Dec-09	Spy Hill, SK	LPG / Methanol / Butane	MAIN-TRACK TRAIN DERAILMENT	Fire / explosion (14 car loads lost)	Large
8	4	R10E0116	11-Sep-10	Prentiss, AB	Butane / Propane	MAIN-TRACK TRAIN DERAILMENT	One Tank car venting propane	Small
9	5	R11E0052	29-May-11	Edmonton, AB	Aviation Fuel	NON-MAIN-TRACK TRAIN DERAILMENT	One Tank car on side leaking product	Small
10	6	R11V0151	6-Jul-11	Chetwynd, BC	Diesel Fuel	MAIN-TRACK TRAIN DERAILMENT	Leaked 2 gallons (approx.) from vent valve	Small
11	7	R12W0013	22-Jan-12	Glen Ewen, SK	PETROLEUM CRUDE OIL	CROSSING	One Tank car leaking product	small
12	8	R13C0008*	19-Jan-13	Tilley, AB	PETROLEUM CRUDE OIL	CROSSING	Product spill from tanker truck, up to 30,000L (approx.)	Large
13	9	R13E0015*	24-Jan-13	Paynton, SK	Fuel Oil	CROSSING	Four tank cars leaking product 106,000L (approx.)	Large
14	10	R13T0060*	3-Apr-13	White River, ON	PETROLEUM CRUDE OIL	MAIN-TRACK TRAIN DERAILMENT	Two tank cars were leaking 103,000L (approx.)	Large
15	11	R13W0145	21-May-13	Jansen, SK	PETROLEUM CRUDE OIL	MAIN-TRACK TRAIN DERAILMENT	One tank car punctured and leaking 91,500L (approx.)	Large
16	12	R13D0054*	6-Jul-13	Lac Megantic, QC	PETROLEUM CRUDE OIL	MAIN-TRACK TRAIN DERAILMENT	Fire / Explosion 63 tank cars 5.8 Million Litres (approx.)	Large
17	13	R13E0142*	19-Oct-13	Gainford, AB	Liquid Petroleum Gas	NON-MAIN-TRACK TRAIN DERAILMENT	Explosion / Fire,Three tank cars 419,400L (approx.)	Large
18	14	R14M0002*	7-Jan-14	Plaster Rock, NB	Liquid Petroleum Gas / PETROLEUM CRUDE OIL	MAIN-TRACK TRAIN DERAILMENT	Explosion / Fire, 16 tank cars	Large
19								
20		** Completed investigations (report available on our website)						
21		* Ongoing investigations						
22		No star - Class 5 (not a full investigation)						

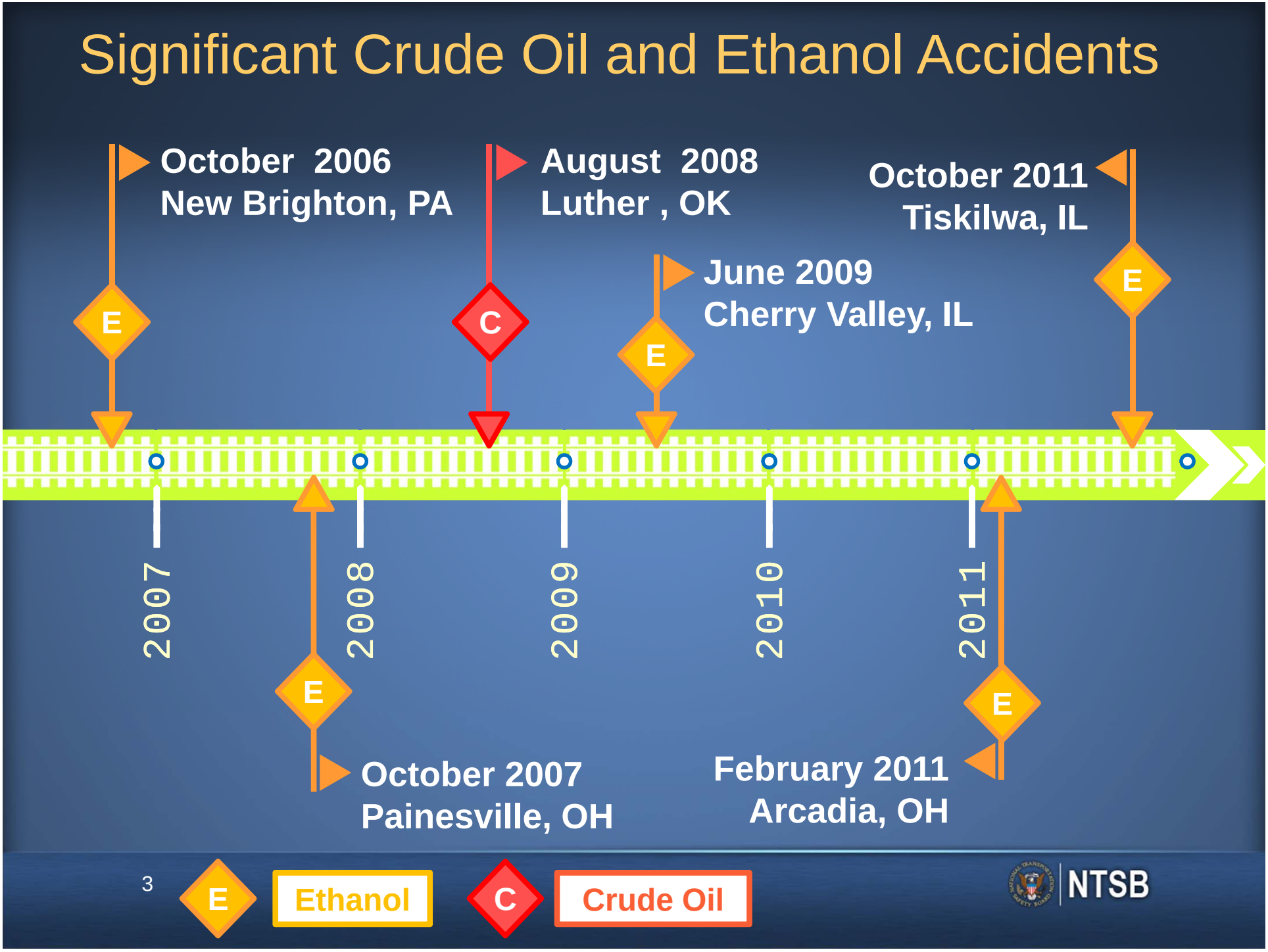
Crude Oil and Ethanol Rail Carloads



AAR 2013: “Moving Crude Oil by Rail”; “Railroads and Ethanol”
Ethanol carloads estimated from RFA data for 2012 and 2013

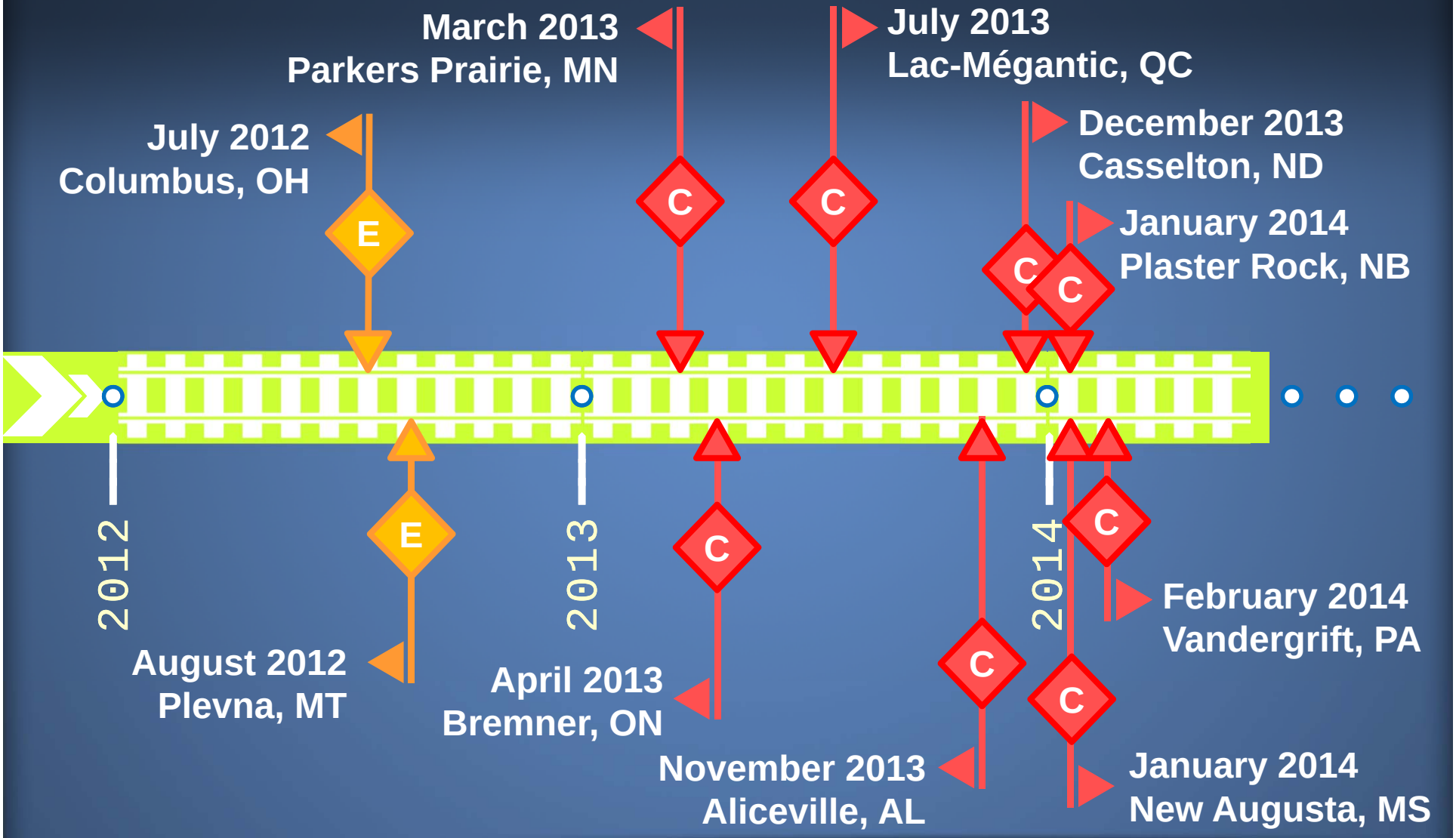
NTSB

Significant Crude Oil and Ethanol Accidents



NTSB

Significant Crude Oil and Ethanol Accidents



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