

Oil-by-Rail: A Primer

Part II

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Holland & Knight

Introduction

- » Expansion in North American oil production has led to increasing volumes of product transported to refineries. Traditionally, pipelines and oceangoing tankers have delivered the vast majority of crude oil to U.S. refineries, accounting for approximately 93 percent of total receipts (in barrels) in 2012.
- » Rail volumes have been increasing for several years, and continued to increase through 2013. In 2009, there were 10,800 carloads of crude oil originations transported by Class I railroads, and in 2013, there were over 400,000 carloads of crude oil originations by Class I railroads, representing a 37x increase. Approximately 68 percent of the flammable liquids transported by rail are comprised of crude oil or ethanol.
- » As the number of shipments of crude oil by train has increased, the number of U.S. mainline train accidents involving crude oil has increased from zero in 2010 to five in 2013 and thus far five in 2014. This increase comes at a time when, across the entire rail network, the number of train accidents and hazardous materials releases are decreasing. While total shipment volume has increased, since 2003 the total number of train accidents has declined by 43 percent, and accidents involving a hazardous materials release has declined by 16 percent.

U.S. Department of Transportation



Pipeline and Hazardous Materials Safety Administration (“PHMSA”)

Develops and promulgates regulations regarding the multimodal transportation of hazardous material (“Hazardous Materials Regulations”)

Federal Railroad Administration (“FRA”)

Promulgates and enforces nationwide rail safety regulations

Regulates rail infrastructure (track, bridges, interchanges, signals)

Regulates rail operations (movements, control and operation of trains, traffic)



» FRA Regulations (49 C.F.R. Parts 200-272)

- » Part 212 – State Safety Participation
- » Part 213 – Track Safety Standards (track geometry, track structure, inspection)
- » Part 217 - Railroad Operating Rules (filing and record keepings)
- » Part 218 – Railroad Operating Practices (displays, handling equipment, switches)
- » Part 220 – Railroad Communications (radio and wireless communications)
- » Part 221 – Rear End Marking Devices (display, inspection procedures)
- » Part 228 – Hours of Service of Railroad Employees (maximum work hours)
- » Part 229 – Railroad Locomotive Safety Standards (brake and electrical systems)
- » Part 231 – Railroad Safety Appliance Standards (safety equipment on rolling stock)
- » Part 232 – Brake System Safety Standards
- » Part 233 – Signal Systems Reporting Requirements

Hazardous Materials Regulations

- » Hazardous materials are defined and listed in different places
- » 49 U.S.C. Chapter 51 (Transportation of Hazardous Materials)
- » 49 U.S.C. § 5103 permits the Secretary of Transportation to designate as hazardous materials any Substance or material that “is capable of posing an unreasonable risk to health, safety, and property when transported in commerce”.

Hazardous Materials Regulations

» Hazardous Materials includes:

- explosives
- radioactive material
- infectious substance
- flammable or combustible liquid, solid, or gas
- toxic, oxidizing, or corrosive material, and compressed gas
- marine pollutants
- elevated temperature materials

» Crude Oil is considered a Class 3 flammable liquid

» 49 U.S.C. § 5103(b)

- Hazardous Materials regulations apply to anyone who:
 - 1) Transports hazardous material in commerce;
 - 2) Causes hazardous material to be transported in commerce;
 - 3) Designs, manufactures, fabricates, inspects, marks, maintains, reconditions, repairs, or tests a package, container, or packaging component that is represented, marked, certified, or sold as qualified for use in transporting hazardous material in commerce;
 - 4) Prepares or accepts hazardous material for transportation in commerce;
 - 5) Is responsible for the safety of transporting hazardous material in commerce; or
 - 6) Certifies compliance with any requirement under this chapter.

Hazardous Materials Regulations

» 49 C.F.R. Part 172 (Hazard Materials Labeling)

Labeling requirements for Hazardous Materials apply to:

- 1) Each person who offers a hazardous material for transportation, and
- 2) Each carrier by air, highway, rail, or water who transports a hazardous material.

Hazardous Materials Regulations

- » **49 C.F.R. Part 174 (Carriage by Rail)**

- » **§ 174.3**

- » No person may accept for transportation or transport by rail any shipment of hazardous material that is not in conformance with the Hazardous Materials Regulations

- » **§ 174.24**

- » A person may not accept a hazardous material for transportation or transport a hazardous material by rail unless that person receives a shipping paper prepared in accordance with Part 172 (see previous slide)

Hazardous Materials Regulations

» **49 C.F.R. Part 174 (Carriage by Rail)** *(continued)*

» **§ 174.26 Notice to Train Crews**

- a. The train crew must have a document that reflects the current position in the train of each rail car containing a hazardous material. The train crew must update the document to indicate changes in the placement of a rail car within the train. For example, the train crew may update the document by handwriting on it or by appending or attaching another document to it.
- b. A member of the crew of a train transporting a hazardous material must have a copy of a document for the hazardous material being transported showing the information required by Part 172, including the requirements in §172.604(b) applicable to emergency response information.

» **49 C.F.R. Part 174 (Carriage by Rail)** *(continued)*

» **§ 174.67 Tank Car Unloading**

- Braking
- Removing valve caps/manhole covers
- Types of cargo-handling connections
- Operation of signaling system

Hazardous Materials Regulations

» **49 C.F.R. Part 174 (Carriage by Rail)** *(continued)*

» **§ 174.300 Special Handling Requirements for Class 3 Liquids**

- a. Class 3 (flammable liquid) materials may not be loaded, transported, or stored in a rail car equipped with any type of lighted heater or open-flame device, or in a rail car equipped with any apparatus or mechanism utilizing an internal combustion engine in its operation.
- b. A truck body or trailer which is loaded with Class 3 (flammable liquid) materials and equipped with a lighted heater or any automatic heating or refrigerating apparatus may not be loaded on a flatcar except as provided in paragraph (c) of this section.

Hazardous Materials

» 49 C.F.R. Part 174 (Carriage by Rail) *(continued)*

» § 174.300 Special Handling Requirements *(continued)*

- c. Heating or refrigeration apparatus on a motor vehicle loaded with Class 3 (flammable liquid) materials may be operated while the motor vehicle is loaded on a flatcar only if:
 - 1) The lading space is not equipped with any electrical apparatus that is not non-sparking or explosion-proof;
 - 2) There is no combustion apparatus in the lading space;
 - 3) There is no connection for the return of air from the lading space to any combustion apparatus; and
 - 4) The heating system conforms to § 393.77 of this title and does not heat any part of the lading over 54 °C (129 °F).
- d. Metal barrels or drums containing Class 3 (flammable liquid) materials may be transported in a steel gondola or flatcar or in a stock car. However, they may not be transported in a hopper bottom car.

» **49 C.F.R. Part 179 (Specifications for Tank Cars)**

» **§ 179.13 Tank car capacity (286,000 lbs.) for non-poisonous-by-inhalation material**

Subpart D – Specifications for Non-Pressure Tank Cars

- Almost all oil transported by rail is carried in DOT-111 tank cars (called CTC-111A in Canada)
- Maximum capacity of 34,500 gallons

» **§ 179.200-6 Minimum plate thickness**

» **§ 179.200-7 Standards on materials (e.g., carbon plate steel, aluminum alloy plate, high alloy steel plate)**

- » **49 C.F.R. Part 179 (Specifications for Tank Cars)** *(continued)*
- » § 179.200-8 Tank heads
- » § 179.200-9 Compartment tanks
- » § 179.200-10 Welding
- » § 179.200-14 Expansion capacity
- » § 179.200-16 Gauging devices, venting, and air inlet devices
- » § 179.201-3 Lined tanks

Association of American Railroads

- Overall, there are 335,000 tank cars in the active fleet (pressure and non-pressure).
 - 228,000 of these tank cars are DOT-111s, which are non-pressure tank cars designed to carry a wide range of products including hazardous and non-hazardous materials.
 - Today, roughly 92,000 DOT-111 tank cars are used to move flammable liquids, such as crude and ethanol, with approximately 14,000 of those tank cars built to the latest industry safety standards.
 - Railroads generally do not own tank cars, with the vast majority of tank cars owned or leased by rail customers that use cars built to suit the products they need to transport.
- » The AAR Tank Car Committee is comprised of the AAR, rail car owners, manufacturers, and rail hazmat customers, with active participation from the U.S. DOT, Transport Canada and the National Transportation Safety Board (NTSB).

Association of American Railroads

- » The AAR Tank Car Committee works together to develop technical standards for how tank cars, including those used to move hazmat, are designed and constructed.
- » The Committee's standards today exceed the federal requirements, with DOT-111 tank cars used for moving crude oil and ethanol ordered after October 2011 being built to the higher AAR-Tank Car Committee standards.
 - In the absence of federal action from PHMSA, AAR in July 2011 adopted the higher standards as requirements for new tank cars transporting crude oil and ethanol, ordered after October 1, 2011.
- » In November 2013, AAR again urged PHMSA increase federal tank car safety by requiring all tank cars used to transport flammable liquids be built to a higher standard, and all existing cars to be retrofitted to this higher standard or phased out of flammable service.

Association of American Railroads

- » In comments responding to a PHMSA advanced notice of proposed rulemaking, AAR recommended retrofit specifications aimed at significantly decreasing the likelihood of a release of hazardous materials by a tank car involved in an accident.
 - Today roughly 92,000 tank cars are moving flammable liquids and approximately 78,000 of those will require retrofitting or phase out based on AAR's proposal.
 - The roughly 14,000 newer tank cars that today comply with higher industry-imposed safety standards from 2011 also might require some upgrades.
- » AAR offered the following specific recommendations to PHMSA in determining what federal safety standard improvements should be required for tank cars moving flammable liquids.
- » The AAR Tank Car Committee has, independent of a federal mandate, implemented nearly all of the recommendations made to PHMSA in its design standards for new crude oil and ethanol tank cars ordered after October 2011.

Federal Preemption

- » Under the Supremacy Clause (Art. VI, cl. 2) of the U.S. Constitution, federal laws and regulations supersede any conflicting state or local laws or regulations.
- » Under 49 U.S.C. § 20106, “laws, regulations, and orders” related to railroad safety and railroad security “shall be nationally uniform to the extent practicable.”
- » However, a savings clause provides that a state “may adopt or continue in force a law, regulation, or order” related to railroad safety or security until the federal government prescribes a regulation or order “covering the subject matter” so long as the regulation or order:
 - 1) is necessary to eliminate or reduce an “essentially local safety hazard”;
 - 2) is not incompatible with a law, regulation, or order of the United States government;
AND
 - 3) does not “unreasonably border” interstate commerce.
- Almost all litigation regarding state and local regulation of railroads has involved the issue of whether there exists an “essentially local safety hazard” requiring additional state regulation.
- The burden is on the party claiming preemption.

» In The Matter of The Speed Limit For The Union Pacific Railroad Through The City Of Shakopee, State Of Minnesota

» 610 N.W.2d 677

- Town of Shakopee had a railroad track running through the middle of its central business district
- Ten grade crossings along one-mile stretch, with the west-bound and east-bound lanes of one avenue being divided by the railroad track, meaning drivers going through the railroad crossing had to immediately check for cross traffic
- Grade crossings had various combinations of warning devices, including crossbucks, flashing signals, and overhead mast flashers. None had automatic gates with time circuitry or automatic flashers with constant warning time circuitry
- Six reported accidents had occurred in previous five years
- Town was experiencing substantial population growth, with approximately 2000 vehicles traveling on road adjacent to railroad track at particular area
- Town petitioned Minnesota DoT to set speed limit of 10 miles per hour on that part of track

- » Court's analysis focused on what constitutes an "essentially local safety hazard"
- » Court agreed with DoT's determination that such hazard existed because the rail road:
 - 1) runs down the middle of a city street with parallel lanes of traffic on both sides
 - 2) has ten grade crossings within one mile
 - 3) has a high volume of pedestrian and vehicular traffic
 - 4) runs in close proximity to traffic and buildings
 - 5) is the only place in Minnesota exhibiting this unique combination of factors

- » Common hazardous factors “coupled with the truly distinguishing characteristic of a track that runs between opposing lanes of traffic down the middle of a downtown street”
 - Railroad argued that the town had a host of other options to address the problem but the Court also held that “necessary to eliminate or reduce” a hazard should not be interpreted to mean “absolutely necessary”

Union Pacific Railroad v. CPUC

» **Union Pacific Railroad Company v. California Public Utilities Commission**

» 346 F.3d 851 (9th Cir. 2003)

- Following Cantara Loop derailment, California legislature directed California Public Utilities Commission (“CPUC”) to identify “local safety hazards” on California railways and adopt necessary regulations to prevent future accidents
- CPUC identified 19 sites of concern and promulgated regulations requiring railroads:
 - 1) To cooperate in developing performance-based standards for train configuration based on track-train dynamics (“TTD”)
 - 2) To develop standards for dynamic braking systems
 - 3) To equip trains with two-way end-of-train telemetry devices (“EDTs”)
 - 4) To institute new training programs
 - 5) To install more hot bearing trackside defect detectors
 - 6) To adopt heightened standards for securing standing trains
 - 7) To maintain current track strength at one particular site
 - 8) Not to discipline railroad employees who report violations of the new regulation

Union Pacific Railroad v. CPUC

- Court's analysis on "essentially local safety hazard" requires an inquiry into the "nature of the hazard itself to determine whether it is of the type of hazard that is properly dealt with on a local level"
- Inquiry is satisfied if the hazard is "not adequately encompassed within national uniform standards"
- Hazard cannot be "statewide in character"
 - Although Site 9 had the highest grade/sharp curve combination in all of California, it did not meet the definition of an "essentially local safety hazard" as many other curves nationwide share the same characteristics
 - With regard to pollution of the Sacramento River, environment consequences, no matter how severe, also do not satisfy the definition of an "essentially local safety hazard" because "the risk is not fundamentally different from those of other locales"
 - CPUC's requirement that railroads adhere to otherwise voluntary internal operating procedures regarding limits on trailing tonnage behind certain types of couplers would infringe the Safety Appliance Act and would require trains entering California from other states to reconfigure the order of its railcars

Duluth, Winnipeg and Pacific v. Orr

» **Duluth, Winnipeg and Pacific Ry. Co. v. City of Orr**

» 529 F.3d 794 (8th Cir. 2008)

- City had 250 inhabitants on shores of Pelican Lake
- Railway owned a Class 4 track that ran approximately 16 trains through Orr everyday, some transporting hazardous materials
- Following a major track improvement project, the railway increased speeds of trains traveling through Orr to regulatory maximum of 60 mph
- In response, Minnesota state legislature passed statute prohibiting any railroad operating within Orr city limits from traveling faster than 30 mph

Duluth, Winnipeg and Pacific v. Orr

- » District Court ruled in favor of the City, finding that five factors present in Orr created an “essentially local safety hazard”:
 - 1) Track’s proximity to the lake could cause contamination from spillage in a derailment
 - 2) Track placement over swampy soil could cause a “continuing problem” for restructuring and rebuilding the track in the future
 - 3) Presence of propane tanks close to the tracks created a risk of explosion
 - 4) Churches and businesses were located between 67 and 278 feet of the track
 - 5) Extreme seasonal temperature changes in northern Minnesota limited alternatives such as relocation of the tracks

Duluth, Winnipeg and Pacific v. Orr

- » Appellate Court reversed, favorably quoting *City of Shakopee* but noting several elements that distinguished the two cases:
 - 1) The characteristics in City of Shakopee were truly unique and not found in another section of track in Minnesota
 - 2) The five factors cited by the district court were not unique to Orr, even when viewed in combination
 - 3) Each of the five conditions “has been or could be adequately addressed within the national track safety standards”
- » The court then noted that, aside from City of Shakopee, it had not found any other case in this court had held that a citywide speed limit was appropriate as a remedy for an “essentially local safety hazard”.

New Proposed Changes to HMR

- » On August 1, 2014, PHMSA issued a Notice of Proposed Rulemaking (“NPRM”) regarding changes to the HMR in connection with increased shipment by rail of oil from the Bakken oil field.
- » The proposed changes are designed to achieve three goals: (1) To ensure that hazardous materials are packaged and handled safely and securely during transportation; (2) to provide effective communication to transportation workers and emergency responders of the hazards of the materials being transported; and (3) to minimize the consequences of an incident should one occur.
 - To address the risks associated with mined liquids and gases (like crude oil), and HHFTs, PHMSA focuses on three areas: (1) Proper classification and characterization; (2) operational controls to lessen the likelihood and consequences of accidents; and (3) improvements to tank car integrity.
 - The proposed rule changes would define a train comprised of 20 or more carloads of a Class 3 flammable liquid (especially ethanol and crude oil) as a “high-hazard flammable train” (“HHFT”), and attempt to align the rail requirements more closely with the risks posed by the operation of such trains.
 - The new rules would primarily impact unit train shipments of ethanol and crude oil; because ethanol and crude oil are most frequently transported in high volume shipments, typically in trains with 20 or more cars of those commodities.

New Proposed Changes to HMR

- Shippers must undertake written sampling and testing program for all mined gases and liquids, such as crude oil.
- Require trains containing one million gallons of Bakken crude oil to notify State Emergency Response Commissions (SERCs) or other appropriate state delegated entity about the operation of these trains through their States.
- Restrict all HHFTs to 50-mph in all areas.
- Three speed restriction options for HHFTs that contain any tank cars not meeting the enhanced tank car standards proposed by this rule:
 - a) a 40-mph maximum speed restriction in all areas
 - b) a 40-mph speed restriction in high threat urban areas
 - c) a 40-mph speed restriction in areas with a 100K+ population
- Require all HHFTs be equipped with alternative brake signal propagation systems. Depending on the outcome of the tank car standard proposal and implementation timing, all HHFTs would be operated with either electronic controlled pneumatic brakes (ECP), a two-way end of train device (EOT), or distributed power (DP).
- 30-mph speed restriction for HHFTs that do not comply with enhanced braking requirements.
- Introduction of new tank design requirements and performance criteria (e.g., thermal, top fittings, and bottom outlet protection; tank head and shell puncture resistance).

League of California Cities Comments to New Proposed Changes to HMR

- Provide more information to first responders
- Provide funding for training and equipment, integration of manifest and shipment information to the emergency response system, and real-time information during emergencies, including:
 - Fully-funded regular training programs that cover the cost of training, including backfill employee costs
 - Routine information on Class 3 train shipments upon request to provide information for planning and training
 - Require comprehensive Oil Spill Response Plans (OSRPs) for every type of train and every rail line that will transport more than 3,500 gallons of Class 3 liquids per train per month
- Use all available data to assess the risk and consequences of crude rail car accidents
- Adoption of a maximum speed limit of 40 miles per hour in all areas for all transport of Class 3 flammable liquids
- More study to ascertain the relative risks from trains transporting 20 or more Class 3 tank cars of crude oil or more compared to trains carrying fewer cars

Recent State Legislation and Activities

- » Covered in Oil by Rail Webinar Part I
 - » AB 380 - Spill Response for Railroads
 - » AB 1476 - Spill Response and First Responder Training and Equipment
 - » SB 861 – Spill Response and 6.5 cent/barrel fee
 - » SB 1064 – Regulatory Accountability and Transparency
 - » SJR 27 – Resolution on U.S. DOT Policy
 - » SPUC Recommendations to U.S. DOT

Railway Safety Improvement Act of 2014

» **Railway Safety Improvement Act of 2014 (“RIA”)**

» (introduced in Senate on September 10, 2014).

- Prohibits the operation of a HHFT in a state until the railroad carrier has provided the SERCs or other delegated entity the following information:
 - 1) A reasonable a reasonable estimate of the number of HHFTs that are expected to travel, per week, through each county within the State;
 - 2) Each route that the HHFT will take within the State;
 - 3) A description of the Class 3 flammable liquid being transported through the State;
 - 4) All applicable emergency response information required under 49 C.F.R. Part 172 (see previous slides); and
 - 5) The contact information, including name, title, telephone number, and address, for at least one individual at the railroad carrier responsible for serving as the point of contact for the State Emergency Response Commission.

Railway Safety Improvement Act of 2014

- Imposes a general 50 mph speed limit on all HHFT,
- Imposes a 40 mph speed limit on any HHFT with:
 - 1) With at least 1 DOT specification 111 tank car while the train operates in an area that has a population of more than 100,000 people, as determined by census population data; or
 - 2) With at least 1 non-DOT specification tank car while the train operates in an area that has a population of more than 100,000 people, as determined by census population data.
- Requires each HHFT (unless traveling less than 30 mph) to be equipped with:
 - A two-way end-of-train device;
 - A distributed power system; or
 - An electronically controlled pneumatic brake system.

Railway Safety Improvement Act of 2014

- Requires DoT to conduct accident analysis and mitigation research to examine:
 - 1) How the safety risks of transporting energy products by rail changes from source to destination;
 - 2) The likelihood and consequences of accidents during pre-treatment, classification, loading, transit, and unloading; and
 - 3) Mitigation strategies to reduce identified risks throughout the supply chain, including –
 - a. regulation and enforcement;
 - b. more accurate classification methods;
 - c. alternative routing;
 - d. reduced speeds;
 - e. improved braking;
 - f. improved tank car crashworthiness; and
 - g. better informed emergency responders.

Options for League of California Cities

- » **Option 1 – Secure change in federal law and regulations (including FRA regulations and HMR) to implement LCC’s desired changes**

- » **Option 2 – Enact state and local regulations that satisfy narrow savings clause by focusing on “essentially local safety hazards”**
 - Care must be taken in identifying any “essential local safety hazard”
 - Must be narrowly tailored to cope with particular characteristics of local hazard (e.g., no city-wide speed limit)
 - Must not affect railway operations in other states (e.g., cannot require the use of equipment not mandated by FRA regulations or the Hazardous Materials Regulations such that the railway would be affected even outside California)



Questions?



Thank You!

Contact Slide Sample

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