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April 2015

ExxonMobil response to rail safety proposed rule

Energy lives here™

Agenda

Energy supply imperative

Rail transportation principles

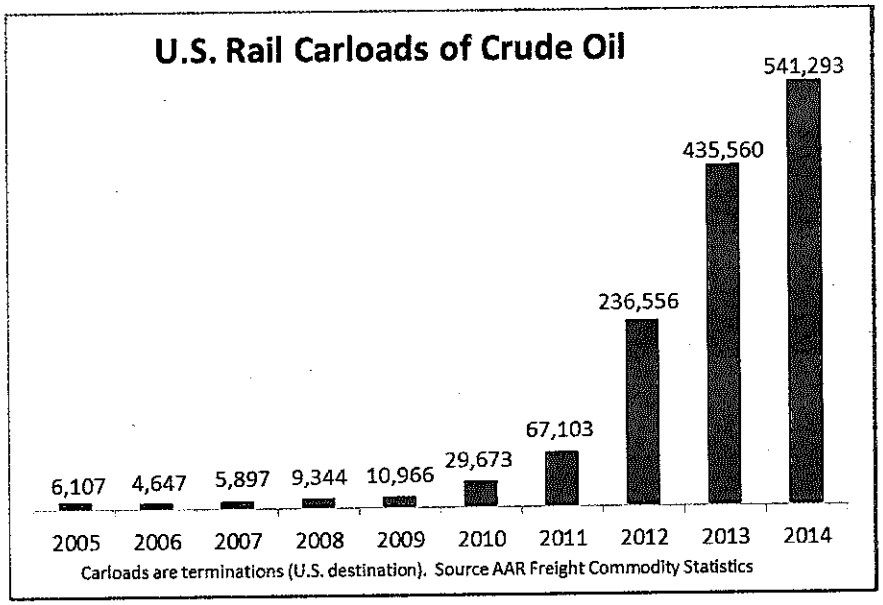
Industry collaboration

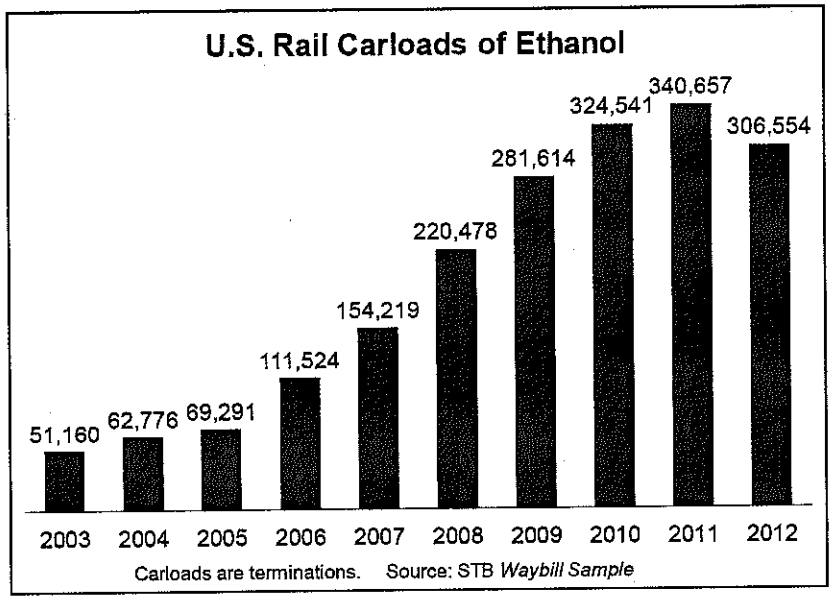
Harmonization

Retrofit priorities

ECP brakes

Need for rail for crude and ethanol





- North America requires all modes of transportation to supply energy needs
- North America crude production has exceeded pipeline capacity
- Rail provides efficient flexible crude transportation to refineries when pipelines not accessible
- New pipeline capacity not keeping pace with growing demand of US / West Canadian crude
- Ethanol mandate now ~10% of U.S. gasoline; rail most efficient transport to terminals

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Rail Transportation Principles

- Holistic approach to safety includes prevention, mitigation and emergency response
- Requirements in Canada and the U.S. should be fully harmonized
- Risk based approach focusing on crude and ethanol unit trains
- Tank car standards for new and retrofitted cars should be risk based
- Retrofit schedule prioritized by risk reduction and within industry shop capacity
- Electronically Controlled Pneumatic brakes (ECP) unproven technology and not cost justified; Distributed Power (DP) and End of Train devices (EOT) provide effective braking solutions

Holistic collaborative approach to safety

- ExxonMobil working closely with AAR and API to develop holistic approach to safety through industry work groups on Prevention, Mitigation and Emergency Response

- Prevention Team sharing best practices
  - Safety Culture and Safety Management Systems
  - Technology
  - Industry standards and training

- Mitigation Team supporting improved rail car standards
  - Accelerate risk reduction
  - Risk based approach within available shop capacity
  - Avoid unnecessary economic impact

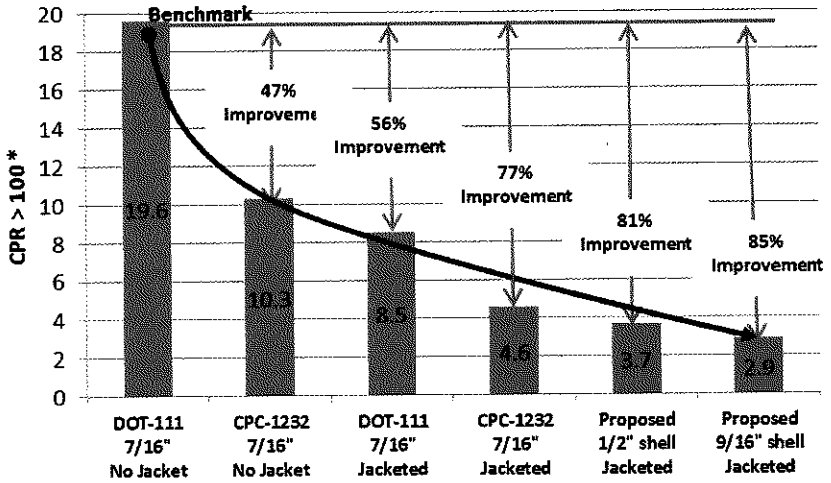
- Emergency Response Team developing new programs for first responders
  - Training programs and videos
  - Information sharing workgroups

Retrofit standard and scope

YE 2015 Class 3 Rail Car Fleet

Design	Crude	Ethanol	Other Flam
Non-Jack 111	23k	27k	25k
Non-Jack 1232	22k	0.8k	3k
Jacketed 111	7k	-	9k
Jacketed 1232	35k	-	2k
Total	87k	28k	39k

Conditional Probability of Release for different car types



*** CPR (>100) = Conditional Probability of release for releases >100 gallons calculated by AAR-RSI Railroad Tank Car Safety Research and Test Project**

- Prioritize unit trains due to higher risk
  - Higher trip miles; large blocks flammable cars
  - Crude and ethanol transported by Unit Train
  - Other flammables low risk, not justified
- Within Crude/Ethanol fleet prioritize by car type
  - High CPR unjacketed cars prioritized first
  - Non-jacketed CPC-1232 second priority
- Retrofitting shell thickness not feasible
  - CPR improvement marginal
- PHMSA underestimated retrofit scope

  Crude / ethanol 115k cars

  Unjacketed crude / ethanol – 73k cars

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Harmonized North America regulation

- Integrated North American rail system critical to U.S. energy supply
  - Canada #1 oil supplier to U.S., offsetting imports from Venezuela and Mexico
  - Trains move interchangeably between countries
  - Harmonized regulation critical for continued rail movement of crude oil

- Support Transport Canada risk based approach
  - Support new car spec with full height head shields, top fitting protection, jacketed thermal blanket, normalized steel, reclosing relief valve and modified Bottom Outlet Valve; thicker shell will increase rail traffic
  - Support retrofit spec to DOT Option 3, jacketed thermal blanket, head shields, relief valve, BOV
  - Retrofit with priority on crude and ethanol unit trains

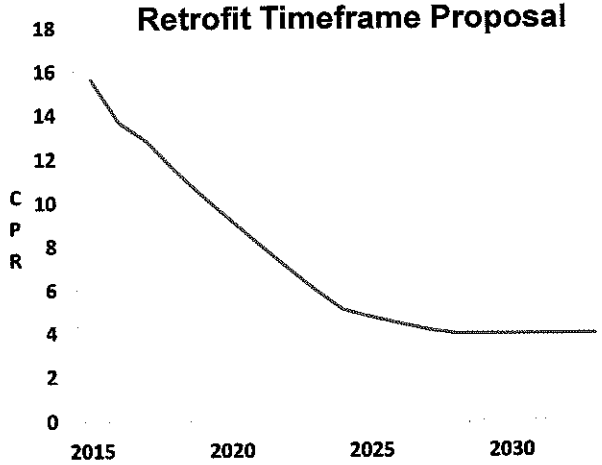
Rule Feature	DOT	TC	EM Position	Rationale
Full new car spec with 9/16th shell	✓	✓	½ inch shell	½ inch shell similar performance, fewer cars
Retrofit - standard	Option 1/2/3	Option 3	Option 3	Option 3 with 7/16th inch shell
Retrofit priority	By PG	Crude/EtOH NJ DOT-111	Crude/EtOH NJ DOT-111	Retrofit by Packing Group does not achieve fastest risk reduction within shop capacity
Retrofit scope	Class 3	Class 3	Crude / EtOH	90% of risk is for crude and ethanol carried by unit train
Retrofit timeline	5 year all flammables	10 year all flammables	10 year crude/ethanol	DOT / TC schedule not feasible – will impact energy supply and pricing
ECP Brakes	✓	No	No	High cost; DP and EOT devices effective

Retrofit schedule

YE 2015 Crude / Ethanol Rail Car Fleet

Design	2015 Fleet	Years to Complete
Non-Jack 111	50k	6
Non-Jack 1232	23k	3
Jack 111	7k	1
Jack 1232	35k	@ insp.

Retrofit Timeframe Proposal



(1) ExxonMobil estimates based on RSI shop capacity estimates
(2) Excludes 35,000 other flammable tank cars

- RSI estimates ~6000 cars retrofit per year
- Retrofit schedule within shop capacity limits
  - Legacy NJ DOT-111 72 months after publication
  - NJ CPC-1232 111 months after publication
  - Legacy jacketed DOT-111 123 months
  - Jacketed CPC-1232 at next shop / qualification
  - Assumes no replacement / retrofit of shell thickness
- Retrofit crude/ethanol fleet within 10 years
  - Achieves 75% fleet CPR reduction in 5 years
  - Comparable timeframe to previous retrofits
  - Retrofit of other flammables not cost justified
- HHFT definition will not limit rule application to highest risk crude / ethanol unit trains
  - Revise to continuous 20+ car block of crude/ethanol, or
  - 70+ cars of crude / ethanol

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Enhanced braking

- Distributed Power (DP) and End of Train (EOT) devices are proven technologies that can be easily deployed for effective braking power
- Electronically controlled pneumatic braking (ECP) technology is not proven and requires every car and locomotive on the train to be retrofitted with dual braking systems
- ECP brakes do not provide significant safety advantages over DP or EOT
- PHMSA and TCs proposals to limit ECP brakes to key trains or HHFT trains as defined today would affect all manifest trains and all rail cars in North America
- This would further reduce shop capacity necessary to retrofit more important safety features on unit trains

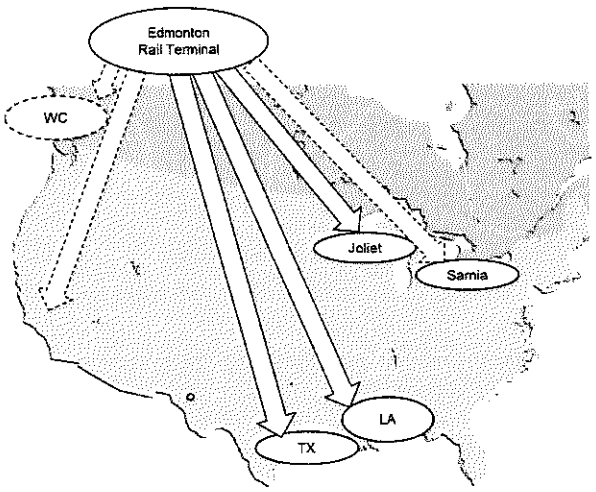
Key takeaways

- Continue to work with API, ACC and AAR to develop comprehensive safety solutions to further address prevention, mitigation and emergency response.
- Support enhancements to tank cars that will mitigate impact of derailments
- Critical that prioritization is based on risk and focused on crude and ethanol unit trains
- To be feasible, retrofit standard should allow 7/16" shell thickness
- Support aggressive retrofit schedule set to achieve fastest fleet risk reduction
- Failure to set a practical retrofit schedule will limit crude and ethanol supply to the market

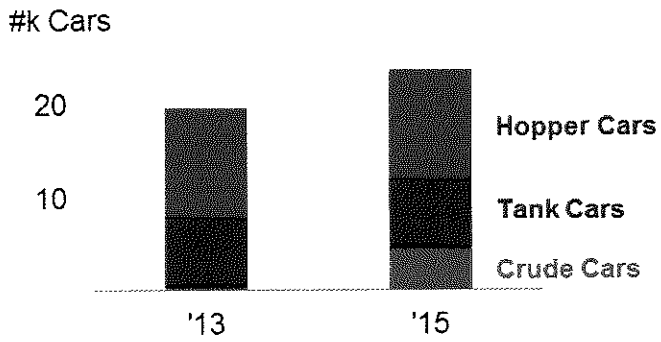
Back up

ExxonMobil crude by rail expanding

EM Crude by Rail



EM Railcar Fleet



- Bakken producer of 60 kbd via XTO Energy
- Producer of Alberta Crude
  - Cold Lake 250 kbd
  - Kearl 150 kbd – expansion to 330 kbd planned
- Small (10kbd) crude by rail operation in California
- Start-up of 210 kbd crude by rail project 1Q15
  - Joint venture with Kinder Morgan
  - Edmonton loading terminal
  - Destinations in U.S. and Canada
- Crude loading or offloading for nine refineries
- Adds 3600 crude cars (20%) to existing rail fleet
  - Existing fleet mainly plastics and lubricants

Comparison of proposed rule features

Rule Feature	DOT	TC	EM Position	Rationale
New car - Full height head shields, top fitting protection, jacket, thermal blanketing, normalized steel, reclosing relief valve, BOV mod	✓	✓	Support	77% CPR risk reduction vs. non-jacketed DOT-111; reasonable cost ($85k/car). Thermal blanket significantly improve pool fire performance.
New car - 9/16th inch shell	✓	✓	½ inch new cars only	Marginal 4% CPR risk reduction over ½". Additional weight requires more cars. ½ inch design exists for CPC-1232
Retrofit - jacket, head shield, reclosing relief valve, BOV mod	✓	✓	Support	Greatest risk reduction on current cars (77% for non-jacketed DOT 111, 56% for non-jacketed CPC 1232)
Retrofit - thicker shell	✓	No	No	Only 4% CPR risk reduction; no current design, high cost; diverts significant shop capacity / time.
Retrofit - normalized steel	No	✓	No	Not possible, requires scrapping
Retrofit - thermal blanketing	✓	✓	non-jacket retrofits only	Low cost (<$10k) during jacket installation. High cost (~$60k) and shop time to retrofit jacketed car. Existing jacketed cars twice pool fire standard.
Retrofit - top fittings protection	No	✓	No	DOT agreed low benefit/cost. Previously agreed with AAR to include this.
Retrofit priority	By PG (1)	Risk based by car design (2)	Risk-based by car design	Achieves greater risk reduction given limited shop capacity to retrofit
Retrofit scope	HHFT	Class 3	Unit trains	90% of risk is for crude and ethanol carried by unit train
Retrofit timeframe	5 yrs (1)	10 yrs (2)	10 years (3)	Achievable within projected workshop capacity. Results in ~30% scrapping of DOT 111 cars
ECP Brakes	✓	✓	No	High cost; long implementation time; Distributed Power and End of Train devices much more effective

(1) DOT schedule is PG-1 in 2 years, PG-2 in 3 years, PG-3 in 5 years
(2) TC retrofit schedule is crude/ethanol in 3 years, then phased 10-yr schedule by Packing Group
(3) Crude and Ethanol only

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