National Transportation Safety Board
Rail Safety Forum: Transportation of Crude and Ethanol
Railway Supply Institute Committee on Tank Cars

Member Companies:

- American Railcar Industries; American Railcar Leasing; CIT Rail; GATX Corporation; General Electric Railcar Services Corporation; The Greenbrier Companies; Trinity Rail Group, LLC; and Union Tank Car Company

- Build 95 percent of tank cars operating in North America

- Own and lease 70 percent of tank cars in North America
RSICTC Recommendations

- A comprehensive set of regulatory recommendations to DOT and TC to address the transportation of Class 3, flammable liquids including crude oil and ethanol in tank cars.
  - Future Tanks Cars to be built
  - CPC-1232 “Good Faith” Tank Cars on order
  - CPC-1232 “Good Faith” Tank Cars in service
  - Existing “Legacy” Tank Cars
RSI CTC is urging PHMSA and TC to give priority to crude oil and ethanol for a modification program and to consider the following factors in determining a modification schedule:

- Availability and capability of modification facilities
- Car cleaning capacity

- Estimate more than 95,000, Class 3, Packing Group I and II modification candidates:
  - Legacy and Good Faith tank cars

- Some tank cars will be retired or repurposed
- Disruption of tank car supply to shippers
Until such time when standards applicable to Legacy tank cars are developed, non-CPC-1232 compliant tank cars should not be newly assigned into crude oil or ethanol service.
Questions
Fleet Statistics: CPC-1232 Tank Cars

33,800: Tank car industry annual new car capacity
55,400: Current cars on order
25,300: Jacketed crude oil cars on order
12,500: Non-Jacketed crude oil cars on order

0: Jacketed and non-jacketed ethanol cars on order
5,600: Jacketed cars in flammable liquids service
11,700: Non-Jacketed cars in flammable liquids service
55,100: Total CPC-1232 tank cars by the end of 2015
Fleet Statistics: Legacy Tank Cars

22,800: Non-Jacketed crude oil cars
29,200: Non-Jacketed ethanol cars
26,600: Non-Jacketed other Class 3, PG I and II Cars

5,500: Jacketed crude oil cars
102: Jacketed ethanol cars
81,500: Total legacy tank cars

Costs will vary depending on car design and modification
New Cars

Class 3, PG I and II, Including Crude Oil and Ethanol Tank Cars

- Ordered after PHMSA and TC Date Certain
  - Minimum 7/16 inch normalized steel tank
  - Full height head shields
  - Jacket
  - Top fittings protection
  - ½ inch thermal blanket
  - Pressure relief device per TCC recommendations
  - Re-configured BOV handle
  - Ongoing classification work may require some crude oils packaged in cars other than DOT-111s
New Cars

Class 3, PG III Tank Cars

- Ordered after PHMSA and TC Date Certain
  - Build to current standards
  - Normalized steel tank
  - Top fittings protection
  - Pressure relief device per TCC recommendations
  - Re-configured BOV handle
Current New Car Backlog

Crude Oil and Ethanol Jacketed Tank Cars

- Built after PHMSA and TC Date Certain
  - Build to CPC-1232 standard base
  - ½ inch thermal blanket
  - Full height head shields
  - Pressure relief device per TCC recommendations
  - Re-configured BOV handle
  - 25,300 cars
Current New Car Backlog

Crude Oil and Ethanol Non-Jacketed Tank Cars

- Built after PHMSA Date Certain
  - Build to CPC-1232 standard base
  - Pressure relief device per TCC recommendations
  - Re-configured BOV handle
  - 12,500 cars
Current New Car Backlog

Other Jacketed Class 3, PG I and II Tank Cars
- Build to CPC-1232 standard base
- ½ inch thermal blanket
- Full height head shield
- Pressure relief device per TCC recommendations
- Re-configured BOV handle

Other Non-Jacketed Class 3, PG I and II Tank Cars
- Build to CPC-1232 standard base
- Pressure relief valve per TCC recommendations
- Re-configured BOV handle

Other Jacketed and Non-Jacketed Class 3, PG III Tank Cars
- Build as ordered
- Pressure relief device per TCC recommendations
- Re-configured BOV handle
Existing CPC-1232 (Good Faith)

Existing CPC-1232 Jacketed and Non-Jacketed Tank Cars

- Pressure relief device per TCC recommendations
- Re-configured BOV handle
- Full statutory life
- 55,100 in service or on order
Existing Legacy

Existing (Legacy) Non-Jacketed Crude Oil and Ethanol Tanks Cars

- Full height head shields
- Jacket
- Improved top fittings protection
- ½ inch thermal blanket
- Pressure relief device per TCC recommendations
- Re-configured BOV handle
- Full statutory life
- 22,800 crude oil cars
- 29,200 ethanol cars
Existing Legacy

Existing (Legacy) Non-Jacketed Other Class 3, PG I and II Tank Cars

- Half height head shields
- Improved top fittings protection
- Pressure relief device per TCC recommendations
- Re-configured BOV handle
- Full statutory life
- 26,600 cars
Existing Legacy

Existing (Legacy) Jacketed Class 3, PG I and II Tank Cars

- Pressure relief device per TCC recommendations
- Re-configured BOV handle
- Full statutory life
- 5,500 crude oil cars
- 102 ethanol cars
- 9,400 other cars
Existing Legacy

Existing (Legacy) Jacketed and Non-Jacketed Class 3, PG III Tank Cars

- Pressure relief device per TCC recommendations
- Re-configured BOV handle
- Full statutory life
Newly Ordered Tanks Cars

<table>
<thead>
<tr>
<th>All Class 3, PG I and II (incl. crude oil and ethanol)</th>
<th>Class 3, PG III (other flammable liquids)</th>
<th>NOTE: Some types of crude oil may require packaging in a DOT tank car class other than a DOT 111</th>
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</thead>
<tbody>
<tr>
<td>- Min. 7/16” normalized steel tank</td>
<td>- Current standards</td>
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<tr>
<td>- Full height head shield</td>
<td>- Normalized steel tank</td>
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<td>- Top fittings protection</td>
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<td>- ½” thermal blanket with steel jacket</td>
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<td>- Reconfigured bottom outlet valve handle (TBD)</td>
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New Tank Car Backlog

<table>
<thead>
<tr>
<th>Crude Oil and Ethanol Only</th>
<th>Other Class 3, PG I and II</th>
<th>Class 3, PG III</th>
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</thead>
<tbody>
<tr>
<td><strong>Jacketed:</strong></td>
<td><strong>Jacketed:</strong></td>
<td><strong>Built as ordered</strong></td>
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<tr>
<td>- CPC-1232 Compliant</td>
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<td>- Can include non-normalized tank for certain commodities</td>
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<tr>
<td><strong>Non-Jacketed:</strong></td>
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<td><strong>Built as ordered</strong></td>
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<td>Legacy Tank Cars</td>
<td>Crude Oil and Ethanol Only</td>
<td>All Other Class 3, PG I and II</td>
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<td></td>
<td>Freeze fleet – no new assignment; existing ok</td>
<td>Jacketed:</td>
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<td>• Remain in unrestricted service, full statutory life</td>
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<td>[All Class 3, PG I, II and III]</td>
<td>Non-Jacketed:</td>
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<td>[Existing CPC-1232 Compliant Good Faith tank cars]</td>
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