Analysis of Freight Rail Rates for Chemical Shippers

Conducted by Escalation Consultants, Inc.
ACC commissioned Escalation Consultants to:

- Analyze chemical movements in STB public use waybill
  - (for years 2010 and 2005)
- Determine revenue-to-variable-cost ratio (RVC) for each shipment
- Calculate the premium for chemical shippers
  - (avg. rate above 180% RVC – avg. rate below 180% RVC) X # carloads shipped above 180% RVC
- Provide results by RVC ranges
  - (180–240%, 241–300%, >300%)
Analysis of Freight Rail Rates for Chemical Shippers

The premium paid by chemical shippers for rates above 180% RVC totaled more than $3.9 billion in 2010

$3.9 Billion Cost to Chemical Shippers

<table>
<thead>
<tr>
<th>RVC Range</th>
<th>% Total Carloads</th>
<th>Premium for Rates above 180% RVC</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;180</td>
<td>24.7%</td>
<td>--</td>
</tr>
<tr>
<td>180-240</td>
<td>23.0%</td>
<td>$402,945,412</td>
</tr>
<tr>
<td>241-299</td>
<td>16.7%</td>
<td>$665,473,520</td>
</tr>
<tr>
<td>&gt;300</td>
<td>35.6%</td>
<td>$2,880,710,533</td>
</tr>
<tr>
<td>Total</td>
<td>100.0%</td>
<td>$3,949,129,465</td>
</tr>
</tbody>
</table>
Analysis of Freight Rail Rates for Chemical Shippers

From 2005 to 2010, the cost premium for chemical shipments increased substantially.

Premium paid by chemical shippers increased by $1.7 billion in just five years.

From 2005 to 2010:
- The number of carloads that moved at rates below 180% RVC dropped from 40% to only 25%.
- The number of carloads above 300% RVC increased from 25% to over 35%.
Analysis of Freight Rail Rates for Chemical Shippers

2010 Chemical Premium Paid on Rates Above a 180% RVC by Origin Rail Territory

- **Canada Territory 0**
  - Total Cars: 203,853
  - % Above 180% RVC: 60.0%
  - Premium Paid: $295,771,926
  - Rate Difference: $2,604

- **Mountain-Pacific Territory 5**
  - Total Cars: 208,805
  - % Above 180% RVC: 79.2%
  - Premium Paid: $351,683,715
  - Rate Difference: $2,132

- **Upper Mid-West Territory 3**
  - Total Cars: 343,903
  - % Above 180% RVC: 77.6%
  - Premium Paid: $352,589,993
  - Rate Difference: $1,244

- **Northeast Territory 1**
  - Total Cars: 445,063
  - % Above 180% RVC: 76.8%
  - Premium Paid: $52,771,282
  - Rate Difference: $2,731

- **Southeast Territory 2**
  - Total Cars: 502,347
  - % Above 180% RVC: 78.7%
  - Premium Paid: $1,028,928,426
  - Rate Difference: $2,698

- **Southwest Territory 4**
  - Total Cars: 578,500
  - % Above 180% RVC: 73.7%
  - Premium Paid: $967,478,123
  - Rate Difference: $2,421
Canada’s policies allow for more rail competition – enabling chemical producers to ship at lower rates and providing Canada with a substantial competitive advantage.

**Analysis of Freight Rail Rates for Chemical Shippers**

<table>
<thead>
<tr>
<th>Category</th>
<th>Percent of Chemical Traffic with Rail Rates under 180% RVC (2010)</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S.</td>
<td>23%</td>
</tr>
<tr>
<td>Canada</td>
<td>40%</td>
</tr>
</tbody>
</table>

Chemical traffic that originates or terminates in the U.S.

Chemical traffic that originates in Canada and terminates in the U.S.
### Analysis of Freight Rail Rates for Chemical Shippers

Plastic materials and synthetic resins are the most impacted commodity

<table>
<thead>
<tr>
<th>STCC</th>
<th>Commodity</th>
<th>Premium for Rates above 180% RVC</th>
</tr>
</thead>
<tbody>
<tr>
<td>28211</td>
<td>Plastic Materials/Synthetic Resins</td>
<td>$1,090,618,986</td>
</tr>
<tr>
<td>28184</td>
<td>Alcohols</td>
<td>$485,958,256</td>
</tr>
<tr>
<td>28123</td>
<td>Sodium Compounds, exc. Sodium Alkalies</td>
<td>$250,900,747</td>
</tr>
<tr>
<td>28128</td>
<td>Chlorine</td>
<td>$187,695,596</td>
</tr>
<tr>
<td>28198</td>
<td>Anhydrous Ammonia</td>
<td>$148,843,864</td>
</tr>
<tr>
<td>28125</td>
<td>Potassium Compounds, exc. Potassium Alkalies</td>
<td>$145,251,142</td>
</tr>
<tr>
<td>28181</td>
<td>Misc. Acyclic Organic Chemical, exc. Organic Dyes</td>
<td>$145,246,466</td>
</tr>
<tr>
<td>28186</td>
<td>Organic Acids or Salts, exc. Acid Dyes</td>
<td>$126,115,298</td>
</tr>
<tr>
<td>28193</td>
<td>Sulphuric Acid</td>
<td>$107,408,354</td>
</tr>
<tr>
<td>28122</td>
<td>Sodium Alkalies</td>
<td>$106,276,884</td>
</tr>
<tr>
<td></td>
<td><strong>TOP TEN TOTAL</strong></td>
<td><strong>$2,794,315,592</strong></td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL ALL CHEMICAL COMMODITIES</strong></td>
<td><strong>$3,949,129,464</strong></td>
</tr>
</tbody>
</table>
### Analysis of Freight Rail Rates for Chemical Shippers

On a per carload basis, chlorine shippers pay the highest premium

<table>
<thead>
<tr>
<th>STCC</th>
<th>Commodity</th>
<th>Per Car Premium for Rates above 180% RVC</th>
<th>Percentage Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>28128</td>
<td>Chlorine</td>
<td>$4,810.60</td>
<td>262.0%</td>
</tr>
<tr>
<td>28182</td>
<td>Misc. Acyclic Organic Chemical, exc. Organic Dyes</td>
<td>$4,637.70</td>
<td>215.5%</td>
</tr>
<tr>
<td>28996</td>
<td>Blacks</td>
<td>$4,636.50</td>
<td>259.1%</td>
</tr>
<tr>
<td>28198</td>
<td>Anhydrous Ammonia</td>
<td>$3,716.40</td>
<td>128.5%</td>
</tr>
<tr>
<td>28714</td>
<td>Misc. Fertilizer Compounds</td>
<td>$3,485.10</td>
<td>147.9%</td>
</tr>
<tr>
<td>28211</td>
<td>Plastic Materials/Synthetic Resins</td>
<td>$2,966.00</td>
<td>139.8%</td>
</tr>
<tr>
<td>28185</td>
<td>Glycols or Glycerines</td>
<td>$2,879.30</td>
<td>73.7%</td>
</tr>
<tr>
<td>28199</td>
<td>Industrial Inorganic Chemicals, exc. Mining/Milling or Preparing Natural Boron</td>
<td>$2,653.70</td>
<td>84.2%</td>
</tr>
<tr>
<td>28151</td>
<td>Cyclic Intermediates Benzene/Toluene/Naphthalene/Anthracene/Pyridine</td>
<td>$2,613.00</td>
<td>83.2%</td>
</tr>
<tr>
<td>28186</td>
<td>Organic Acids or Salts, exc. Acid Dyes</td>
<td>$2,410.50</td>
<td>84.7%</td>
</tr>
</tbody>
</table>
Reducing the rate premium on chemical shipments would allow the chemical industry to increase economic output and create new jobs:

- Up to 25,000 More Jobs
- Up to $1.5 Billion in New Wages
- Up to $6.8 Billion in New Economic Output

Source: ACC Analysis of Escalation Consultants Data
ACC Rail Issues Survey

Conducted by Veris Consulting, Inc.
Responding companies represent a large number of facilities that utilize rail service:

- Survey conducted June-July 2012 by Veris Consulting, Inc.
- All ACC and Chlorine Institute members invited to participate
- 82 companies (49%) responded
- 76 companies that shipped and/or received chemicals by rail completed survey
- Respondents represent 677 chemical production facilities
- Of these companies, 77% either shipped or received TIH materials
Consolidation Has Reduced Access to Competitive Rail Service

Most chemical shippers and receivers are captive to one railroad and report paying a 30% premium on captive shipments over non-captive shipments.

Chemical producers report, on average, that 73% of their facilities with inbound rail transportation and 65% of their facilities with outbound transportation are captive to a single railroad.

30%

Captive chemical shippers reported that rates for captive shipments are on average 30% higher than rates for non-captive shipments.

Source: American Chemistry Council Rail Survey; Veris Consulting, Inc.; 2012
Rates Aren’t the Only Way Railroads Are Applying their Leverage

- Rail freight rates increasing more than rates for other modes of transportation (74%)
- Substantial increases in other ancillary charges (storage, demurrage, etc.) (59%)
- Railroad fuel surcharges over and above the underlying freight rates (57%)
- Efforts to shift liability from the railroad to the shipper for incidents involving specific materials (43%)
- Rate levels that led your company to consider filing a complaint at the Surface Transportation Board (36%)
- One railroad effectively choosing not to compete with another for your business (26%)

Source: American Chemistry Council Rail Survey; Veris Consulting, Inc.; 2012
Shippers Face Significant Barriers to Challenge Uncompetitive Rail Rates and Practices

Shippers cited potential costs, a lengthy process and other barriers to filing a rate case.

34%

More than one-third of shippers companies surveyed chose not to file a STB complaint due to the costs or other barriers.

Source: American Chemistry Council Rail Survey; Veris Consulting, Inc.; 2012
Higher Shipping Costs Are Impacting Business Performance and Decisions

Rail issues help drive investment decisions and have caused companies to source raw material from off-shore as well as to site new production facilities based on access to competitive rail service.

69% More than two-thirds of shippers surveyed reported that captivity and associated rail rates and service problems hurt their ability to meet customer demand.

27% More than a quarter of shippers surveyed reported captivity and associated rail rates and service problems hindered their company from making domestic investments.

Source: American Chemistry Council Rail Survey; VERIS Consulting; 2012
Rail Issues Impact Domestic Business Decisions

Rail issues help drive investment decisions and have caused companies to source raw material from off-shore as well as to site new production facilities based on access to competitive rail service.

"Since rail rates to and from our captive plants are higher than our competitor’s non-captive plants, our net cost is higher and we lose business as a result.”
– Chemical Shipper

"We routinely source our customers in the south central and southeastern U.S. from our Canadian plants despite having a production site in the southeast.”
– Chemical Shipper

"Greater than 30% [of shipments of a product] has ended as production has been switched to India v. the USA.”
– Chemical Shipper

Our production facilities utilizing inbound shipments of TIH materials "are at a competitive disadvantage vs. our plants overseas.”
– Chemical Shipper

Source: American Chemistry Council Rail Survey; Veris Consulting, Inc.; 2012
A Way Forward: Leverage Market Forces to Increase Competitive Access

The freight rail system can be improved by unleashing market forces. This would also help an economy that depends on the efficient transport of goods.

Greater rail competition would allow chemical shippers to transport their products more cost-effectively to the thousands of U.S. manufacturers that depend on them. This would improve the economy and ultimately reduce the need for government intervention.

A healthier chemical sector would lead to a higher volume of investment and shipments – allowing railroads to increase revenue and profits even in a more competitive market.
Conclusion

The full reports and summary materials will be available tomorrow at noon. You can find the materials at:

http://www.americanchemistry.com/Policy/Rail-Transportation