

PUBLIC VERSION

**BEFORE THE
SURFACE TRANSPORTATION BOARD**

Finance Docket No. 35517

**CF INDUSTRIES, INC. v. INDIANA & OHIO RAILWAY, POINT COMFORT AND
NORTHERN RAILWAY, AND THE MICHIGAN SHORE RAILROAD—
PETITION FOR DECLARATORY ORDER**

**REPLY EVIDENCE AND ARGUMENT ON BEHALF OF
AMERICAN CHEMISTRY COUNCIL, ARKEMA, INC.
THE CHLORINE INSTITUTE, INC.,
THE FERTILIZER INSTITUTE AND PPG INDUSTRIES, INC.**

The American Chemistry Council (“ACC”); Arkema, Inc. (“Arkema”); the Chlorine Institute, Inc. (“CI”); The Fertilizer Institute (“TFI”); and PPG Industries, Inc. (“PPG”), hereinafter collectively (“Complainants”),¹ hereby present their reply evidence and argument in this proceeding. Of all the parties of record in this proceeding, RailAmerica, Inc. and its railroad operating subsidiaries have filed the only set of comments in support of their tariff language that requires the movement of toxic-inhalation-hazard (“TIH”) materials by rail to occur in Special Train Service (“STS”). Between the Complainants, CF Industries, Inc., and The Dow Chemical Company, virtually every argument posited by RailAmerica in support of the STS tariff requirement was anticipated and addressed in the opening evidence and argument.

PRELIMINARY STATEMENT

In its initial statement of evidence and argument, RailAmerica seeks to portray itself as a poor struggling group of Class III rail carriers without the wherewithal to deal with the transportation of TIH materials and without the ability to provide adequate insurance to protect

¹ Inasmuch as the identified parties are Complainants in Docket NOR 42129, they are referred to here as Complainants for ease of reference.

itself against potential liabilities for its negligence in transporting those commodities.

RailAmerica goes so far as to attach the Verified Statement of the Vice President and General Counsel of the American Short Line and Regional Railroad Association (“ASLRRA”) to bolster this line of argument. What RailAmerica and the ASLRRA choose not to mention, however, is that RailAmerica is hardly the model of a Class III railroad. According to its most recent SEC filings, RailAmerica had operating revenues for 2006 through 2010 averaging \$462,253 million, and for the first three quarters of 2011, revenues of \$403,817 million, which annualized shows RailAmerica on track toward revenue of \$538,422 million. When consolidated, RailAmerica is a Class I railroad.

SEC filings also reveal that, as of December 31, 2010, RailAmerica had cash on hand of \$153 million and working capital of \$152 million. RailAmerica is not a company unable to make the investments necessary to meet its common carrier obligations without resorting to the income generating scheme of Special Train Service.

The RailAmerica STS is not merely unreasonable in that it has been established and enforced without any effort to justify the services allegedly being provided and the costs imposed; it is per se unlawful in that it is being enforced without being published in any tariff or contract document.

Moreover, it is in violation of at least one safety regulation issued by the United States Department of Transportation (“DOT”). Citing to 49 C.F.R. 174.20, RailAmerica has alleged that its STS is made necessary by local conditions that require special safety enhancements. Opening Evidence of RailAmerica *et al.*, pp. 15-16 (filed Jan. 13, 2012) (“RA Opening”). However, Section 174.20 requires that any such unusually hazardous local condition must be reported to the Bureau of Explosives with full information as to any restrictions that the carrier

seeks to impose. RailAmerica has plainly not fulfilled this requirement and is in violation of the section. Furthermore, it is disingenuous to claim that the STS requirement, which RailAmerica is rolling out across all of its operating railroads that transport TIH materials, is based upon local conditions.

ARGUMENT

I. The Failure Of RailAmerica To Publish Its STS Requirements In A Tariff Is Itself An Unreasonable Practice.

RailAmerica engages in a “shell game” by hiding the most objectionable STS requirements in its Standard Operating Practices (“SOP”) without publishing them in its tariffs. At the top of page 4, RailAmerica tries to draw a distinction between the STS terms that it has published in its tariffs and those that appear only in its SOP document. According to RailAmerica, only its tariff terms are subject to challenge because the SOP is merely a proposal. Indeed, RailAmerica is so brazen as to state:

Complainants argue that only three aspects of the original SOP are objectionable: the speed limit, the “permit” requirement and the dedicated train requirements. The Tariffs have been amended to remove all three objectionable features.

RA Opening at 17. Thus, by hiding some STS terms in the SOP, RailAmerica seeks to immunize them from any regulatory review altogether, even though RailAmerica is applying the SOP provisions to actual common carrier transportation services.

For example, at pages 7-8, RailAmerica lists seven SOP recommendations, and then proceeds to point out that three of them—dedicated trains, 10 mph speed limits, and surcharges—are not required by its tariffs. The very heart of this proceeding concerns the dedicated train requirement that RailAmerica claims is not challengeable because its tariffs do not require dedicated trains. Yet, RailAmerica cannot deny that its operating subsidiaries are in fact requiring that TIH cars move in dedicated trains, that these dedicated trains are required to

move at slower speeds than regular trains, and that TIH shippers are required to pay significantly higher charges for this unilaterally mandated service.

Taking all of RailAmerica's claims at face value, the fact that the dedicated train requirement is not in a tariff does not immunize that STS requirement from challenge. RailAmerica does not point to any statutory language that restricts the Board's jurisdiction over railroad practices to just those practices published in a tariff. Moreover, even if there were such a provision, the STB could and should declare that any implementation of the SOP outside of a tariff is itself an unreasonable practice. Otherwise, any railroad could engage in unreasonable practices but avoid regulatory review by refusing to publish those practices in its tariffs. In other words, the failure of RailAmerica to publish its dedicated train requirements in a tariff should render enforcement of that requirement in and of itself an unreasonable practice.

II. RailAmerica Has Not Demonstrated That Its STS Requirements Increase Safety At All, Much Less At A Level Commensurate With The Cost Of Providing STS.

RailAmerica asks the Board to declare that its STS requirements are valid and enforceable for three reasons:

because they (1) provide protection for the railroads delivering TIH/PIH, the employees of those railroads, the local communities that the railroads pass through on their way to deliver TIH/PIH, the cargo of other shippers, the TIH/PIH shippers themselves, and the investors in short line railroads from the catastrophic consequences of a potentially deadly release of TIH/PIH; (2) impose a minimal burden on the shippers of TIH/PIH; and (3) enhance each railroad's ability to comply with the requirements of 49 C.F.R. Part 174...."

RA Opening at 4. What is missing from this statement, however, is any demonstration that the STS requirements are necessary to accomplish these objectives, how they will do so, and whether the cost of STS is commensurate with its alleged benefits.

In order to show that the STS requirements accomplish any of these objectives, RailAmerica at the very least must establish a baseline by which to compare the potential for a catastrophic release of TIH materials before and after implementing its STS requirements. Because RailAmerica has not conducted any assessment of the risk of a catastrophic TIH release in the absence of the STS requirement, there is no basis for its claim that the STS requirements reduce that risk or by how much.

Complainants, by contrast, have submitted evidence that short line railroads, even when operating at maximum speeds, do not exceed the speeds at which established studies indicate there is a risk of puncturing a TIH tank car. In Exhibit A of this Reply Evidence, Complainants bolster their Opening Evidence with the testimony of Dr. Dipen Shah, who is the Chief Engineer at HLA Engineers, Inc. Dr. Shah reviews the history of rail accidents involving a release of TIH materials and their causes, rail car collision dynamics modeling performed by the Volpe Center, and the velocity required to puncture a tank car. From this review, Dr. Shah reaches several key conclusions:

- A 25 mph train speed would preclude the likelihood of a catastrophic breach of a tank car in a derailment or train collision. Moreover, with the latest chlorine tank car, DOT 105A500W, that speed increases to 36 mph.
- Placing a TIH tank car in the middle of the train consist provides the least potential for puncture. In dedicated trains, TIH cars are the only consist.
- RailAmerica's 3 car limit per dedicated train is arbitrary because the risk associated with more than 3 cars is no different from just 3 cars.

Dr. Shah's conclusions indicate that not only do the RailAmerica STS requirements not enhance safety, they may in fact decrease it.

It is not as if RailAmerica lacked the ability or opportunity to conduct its own study to determine whether its STS requirements would enhance the safe transportation of TIH materials. When first presented with RailAmerica's plan to implement STS, the Dow Chemical Company "offered to participate in an empirical study to determine if [RailAmerica's] proposal met the

safety goals ascribed to it.” Dow Opening at 20. But RailAmerica rejected that offer. Id. at 20, 22. Dow’s offer stands in stark contrast to RailAmerica’s assertion that it received no input from shippers. RA Opening at 8. A more apt statement is that RailAmerica did not like the input it received and chose to ignore it.

In Trainload Rates on Radioactive Materials, Eastern Railroads, 362 I.C.C. 756, 772-73 (1980), the ICC rejected an STS requirement for radioactive waste after finding that “[a]ll available evidence supports the finding that, especially because of the ability of the casks to withstand stress, the use of special trains provides no cognizable safety benefits.” In this proceeding, the evidence similarly is that TIH tank cars have a substantial ability to withstand stress, and that the use of dedicated trains does not provide any cognizable safety benefits. Therefore, the Board should reach the same conclusion in this proceeding that it reached in that case:

We can appreciate the desire to provide some added measure of safety....But we are not prepared to allow [railroads] to require a service which is several times as costly as regular service without (any) commensurate safety benefits. Thus we (must) find that...the special train requirement is wasteful transportation and an unreasonable practice in violation of section 10701(a) of the act.

Id.

III. RailAmerica Is Imposing Misleading Surcharges That Greatly Exceed The Costs Of Any Additional STS Being Provided By Its Carriers.

RailAmerica is being disingenuous when it claims that it has not implemented any surcharges for STS. Its own documents show that shippers are paying much higher rates for STS. Instead of an STS surcharge on top of the normal line-haul rate, however, RailAmerica has chosen to publish a single all-inclusive rate. Despite this public obfuscation, RailAmerica internal documents show that this all-inclusive rate is in fact comprised of three distinct factors,

of which two are clearly identified by RailAmerica as “surcharges” attributable to the STS requirements.

Complainant’s Reply Exhibit B is reproduced from the public version of RailAmerica’s opening evidence. Slide Nos. 11, 14 and 16 show how RailAmerica calculates its STS charges.² Slide 16 shows the three components of the STS rate. The first component, which is called the “Transportation Rate,” is equivalent to the line-haul charge without STS service. According to Slide 11, this rate is 250% of the URCS costs (less locomotive, crew and fuel).

The second component, which is called “Special Train Surcharge,” is 115% of the locomotive, crew and fuel URCS costs. Although not explicitly stated in the document, the \$3394 surcharge on Slide 16 mathematically is 115% of the \$2951 estimated operating expense at the bottom of Slide 14, which is the estimated URCS cost for locomotive, crew and fuel associated with STS operations.

Finally, the third component, which is called “Handling Surcharge,” is comprised of a \$250 “Administrative Fee” and a \$350 “Inspection Fee.” RailAmerica has not explained what services are covered by the “Administrative Fee” that are not already covered in the URCS costs that comprise the other two rate components. Furthermore, RailAmerica is engaged in double-dipping by charging an “Inspection Fee” for inspections that RailAmerica itself concedes are required by FRA regulation, at 49 C.F.R. 174.9, when any hazardous material is placed in a train. See RA Opening at 20, n. 26.

Thus, in this example of an actual STS rate from RailAmerica’s own documents, \$3694 of a \$4736 STS rate, or 78%, is attributable to the STS requirement. RailAmerica itself refers to those latter two rate components as “Surcharges,” in contrast to the first rate component called

² Complainants’ Reply Exhibits C and D show these rate calculations for TIH movements on behalf of Dow and Koch Industries using the same format as Slide 16 in Exhibit B.

the “Transportation Rate.” In RailAmerica’s mind, these are surcharges regardless whether it breaks them out separately in its tariff.

By not using the term “surcharge” in its tariffs and by publishing a single all-inclusive rate, Rail America is attempting through semantic games to avoid the Board’s holding in Ex Parte No. 661, Rail Fuel Surcharges (served Aug. 3, 2006). In that decision, the Board affirmed its unreasonable practice jurisdiction to review railroad fuel surcharges against railroad arguments that such a challenge fell only within the purview of the Board’s unreasonable rate jurisdiction:

Here, however, we are not proposing to limit the total amount that a carrier can charge, through a combination of base rates and surcharges, for providing rail transportation. Rather, we are only addressing what we believe is an unreasonable practice of applying what the railroads label a fuel surcharge in a manner that is not limited to recouping increased fuel costs that are not reflected in the base rate. The measures we are proposing are designed to preclude such an unreasonable practice.

Id., slip op. at 4. By avoiding the term “surcharge” in its tariff and publishing a single all-inclusive rate, RailAmerica seeks to distinguish its STS requirement from this STB holding. This objective is evidenced at pages 23-24 of RailAmerica’s Opening Evidence, wherein RailAmerica claims that Complainants must file a rate reasonableness complaint to the extent that that they object to the rate levels charged for STS.

This is yet another attempt at misdirection by RailAmerica. The issue in this proceeding is the reasonableness of the STS requirement. Even if the charges for STS are reasonable based upon the higher cost of providing STS (*e.g.* dedicated crews and equipment), the issue in this proceeding is whether the STS requirement itself is reasonable in the first instance. If not, then RailAmerica may not charge for that service regardless of how the charge is labeled. In other words, STS is a wasteful service for which shippers should not have to pay.

V. RailAmerica Is Imposing Extremely High Surcharges For The Performance Of Services That It Is Already Legally Obligated To Perform.

In its efforts to justify its STS and associated surcharges, RailAmerica makes two completely inconsistent arguments. On the one hand, RailAmerica asserts that STS or some variation thereof is necessary to provide additional safety and security measures, and on the other hand, RailAmerica argues that it is not actually doing anything that it is not already obligated to do under existing laws and regulations.³ While the inconsistency of these arguments seems lost on RailAmerica, its second argument is largely correct.

The Alabama Gulf Coast Railway (“AGR”), for example, charges up to \$15,000 per car for a 22 mile movement to Arkema within Alabama. AGR and RailAmerica assert that it is necessary to reduce their STS to 10 mph for safety reasons. But, they then admit that the track condition is so decayed that the Federal Railroad Administration (“FRA”) has limited movement of any car or locomotive over that 22 mile line to 10 mph anyway.

Similarly, RailAmerica has stated that part of its STS is to provide for inspection of any TIH car at interchange before it will accept the car. But, 49 C.F.R. 174.9 already requires exactly that inspection of any hazardous materials car, whether TIH or non-TIH, by a qualified inspector. 49 C.F.R. 215.11.

RailAmerica also alleges that TIH cars will be expedited under the STS regime. But it fails to note that all hazardous materials cars must be expedited under 49 C.F.R. 174.14.⁴

RailAmerica asserts that STS is necessary to allow the AGR and other RailAmerica carriers to receive shipping papers and notify train crews of the delivery of a TIH car. But, 49

³ See RailAmerica’s Response to Motion for Injunctive Relief Under 49 U.S.C. §721(b)(4), dated May 9, 2011, in Docket No. 42129.

⁴ This is a particularly puzzling argument inasmuch as AGR’s initial tariff provided that TIH cars would be held to allow for the accumulation of three cars before shipment. This provision was dropped after the Complaint in Docket 42129 pointed out that the provision violated 49 C.F.R. 174.14.

C.F.R. 174.24 makes it unlawful for any person to accept a hazardous materials shipment without first receiving these same shipping papers.

In short, RailAmerica is offering little or nothing to justify STS. Every regulatory compliance justification provided by RailAmerica applies equally to all hazardous materials, whether or not they are a TIH material. RailAmerica has not, nor can it, explain why STS is necessary to facilitate compliance with FRA regulations for TIH shipments but not other hazardous materials. In short, these are *post hoc* justifications for an STS program that is neither warranted nor justified.

CONCLUSION

In view of the foregoing, the Board should find that the STS program of RailAmerica and its subsidiary carriers is an unreasonable practice that should cease immediately.

Respectfully submitted,

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February 27, 2012

Certificate of Service

I hereby certify that on this 27th day of February 2012, a copy of the foregoing Reply Evidence and Argument on behalf of American Chemistry Council, Arkema, Inc, the Chlorine Institute, Inc., The Fertilizer Institute and PPG Industries, Inc. was served by electronic delivery on all parties of record in these proceedings.

/s/ Jeffrey O. Moreno

Attachment A

Testimony of Dr. Dipen Shah

HLA Job Number: 12305

**LIMITING TRAIN SPEEDS TO PREVENT
PUNCTURE CONDITIONS FOR
TIH/PIH TANK CARS**

Prepared For: Mr. Frank Reiner
President
The Chlorine Institute

Prepared By: Dipen Shah, Ph.D.
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Upon your request, I have conducted a study of the relevant engineering rationale in the transport of TIH/PIH tank cars in limiting train speeds to prevent accident and derailment conditions. This work was performed in reference to Docket NOR-42129; American Chemistry Council; The Chlorine Institute, Inc., The Fertilizer Institute and PPG Industries, Inc. vs. Alabama Gulf Coast Railway, and RailAmerica, Inc.

1.0 SUMMARY OF FINDINGS

Based upon my review and understanding of the documents provided and researched, I summarize the findings of my studies as follows:

1.1 Part A: Accident Histories

1. Accident data collected by the Railroad Tank Car Safety Research and Test Project (sponsored by the Railway Supply Institute (RSI) and the Association of American Railroads (AAR)), and FRA's Railroad Accident/Incident Reporting System (RAIRS) [1], indicate that the two types of accidents namely, derailments and train collisions, account for a vast majority (more than 90 percent) of all hazmat-related accidents [2].
2. Data from FRA's Railroad Accident/Incident Reporting System (RAIRS) indicates that the number of accidents per year with at least one car releasing hazmat has decreased significantly since the late 1970s (Figure 1)[6].

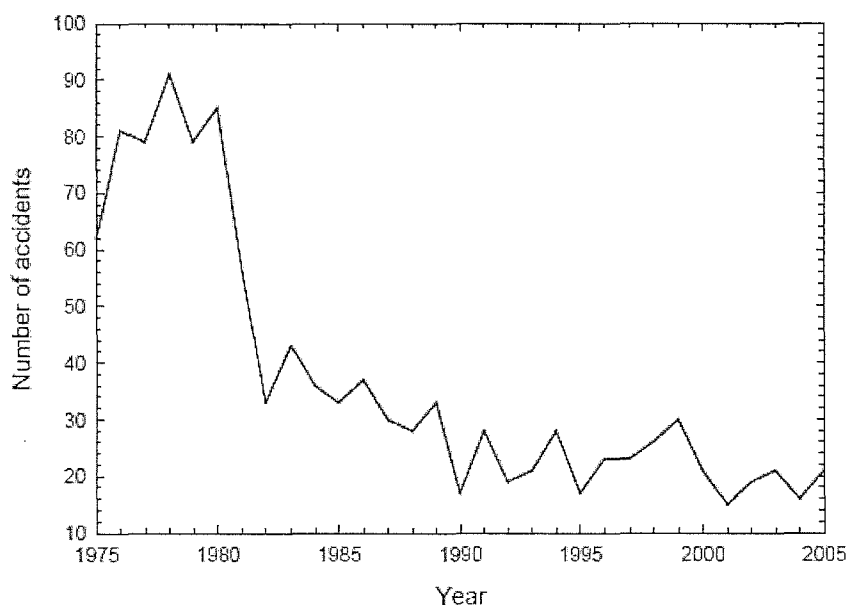


Figure 1. Number of Accidents per Year with at least One Car Releasing Hazmat from FRA RAIRS Database [6]

3. Derived from data on damage to tank cars involved in accidents, Figure 2 shows a similar trend in the number of accident-caused releases from tank cars carrying specific lading called toxic inhalation hazardous (TIH) materials [6]. Between 1965 and 2005, a total of 252 tank cars released TIH in 176 accidents.

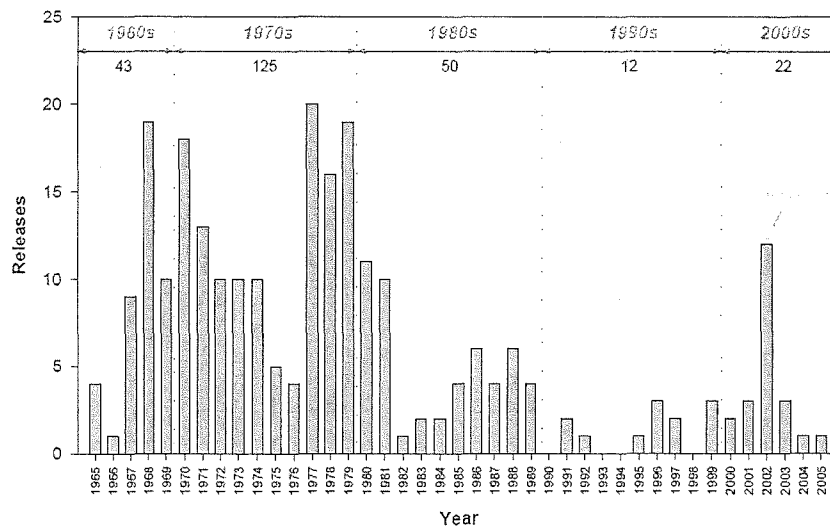


Figure 2. TIH Tanks Cars Releasing Lading in Accidents by Year, 1965-2005 [6]

4. Figure 3 shows the causes of lading loss and the number of gallons lost associated with these releases. For example, roughly less than half of the releases are caused by failures in the head and the shell of the tank car, but head and shell failures resulted in over 85 percent of the gallons lost. Failures to valves and fittings account for about one-third of the number of accident-caused releases, but less than 5 percent of the total gallons of lost lading.

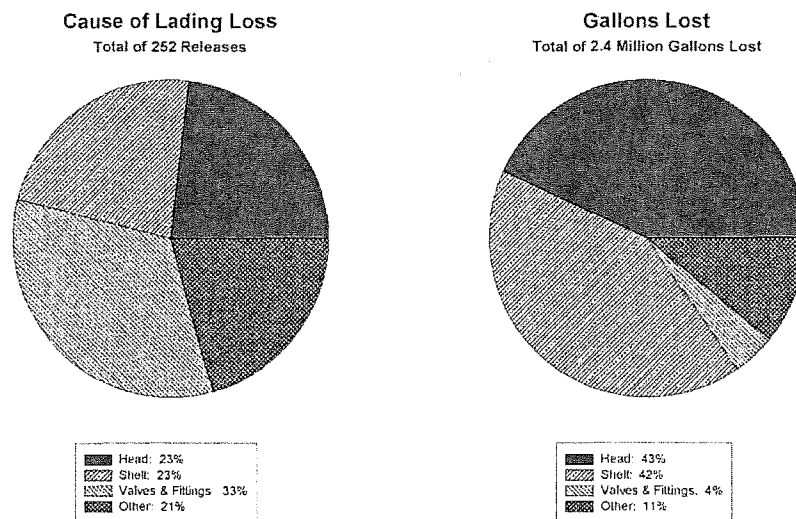


Figure 3. Accident-Caused Releases in TIH Tank Cars, 1965-2005 [6]

5. While the frequency of tank-head and tank-shell failures is slightly less than all other causes combined, their consequence in terms of gallons of lost commodity is much greater.

1.2 Part B: Collision Dynamics Modeling

6. Collision dynamics modeling performed by the Volpe Center [4,5] suggests that the gross motions of rail cars in derailments and collisions produce initial and secondary car-to-car impacts that are similar to those observed in actual accidents when cars come off the rails. Modeling of derailments and collisions as well as field experience suggests that the car-to-car impact scenarios of concern are Tank-head and tank-shell impacts. These studies describe a planar or two-dimensional model to examine the gross motions of rail cars in a generalized train derailment. Results from the purpose-built model are also compared to those from a model for derailment dynamics developed using commercial software for rigid-body dynamics called Automatic Dynamic Analysis of Mechanical Systems (ADAMS). Moreover, the purpose-built and the ADAMS models produce nearly identical results, which suggest that the dynamics are being calculated correctly in both models.
7. The analytical model performed for an initial train speed of 40 mph also shows a typical derailment pattern for the model when coupler break is included. The evolution of the derailment shows how a pile-up configuration develops in Figure 4.

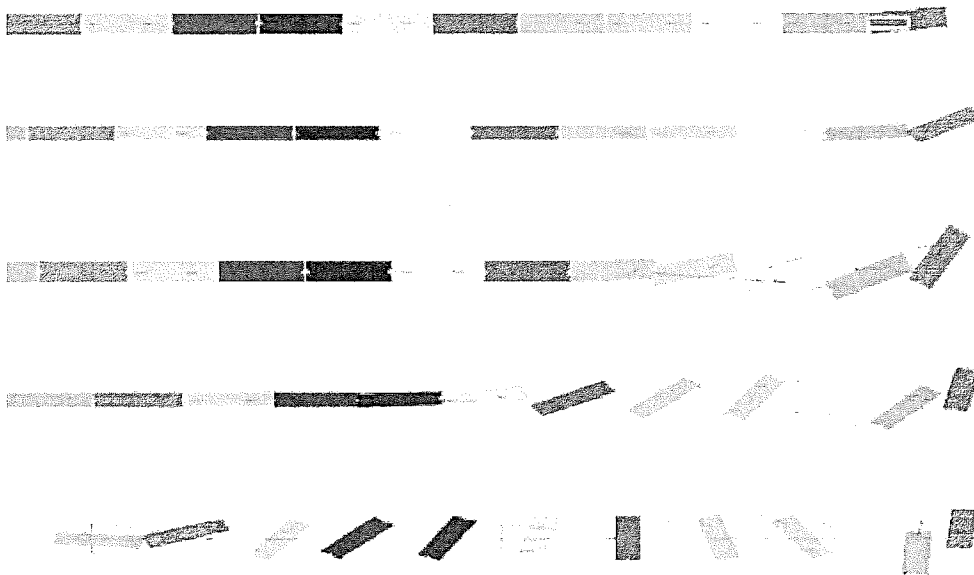


Figure 4. 30-car model with 70 car equivalent lumped mass – initial contact.

8. The corresponding closing velocities of the initial impacts are shown in Figure 5.

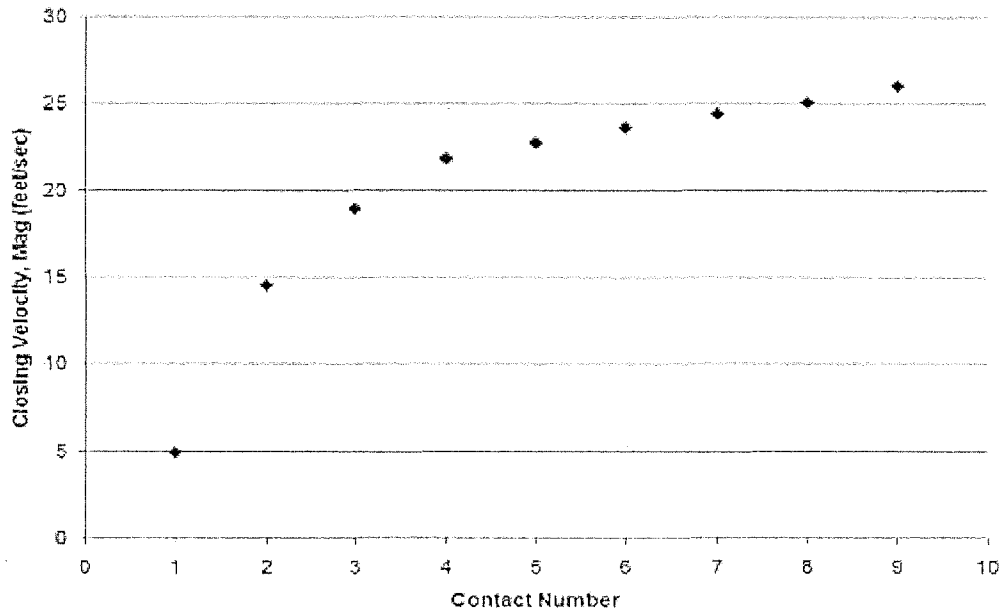


Figure 5. 30-car model with 70 car equivalent lumped mass – initial closing velocities.

9. Based on initial contact in the referenced study, the maximum closing speed tends to become fairly constant after the first 6 cars. It was also found that the maximum initial closing velocity (the speed that is defined as puncture velocity) is approximately half the train initial speed. Thus, as an example, a Train Speed of 50 mph would give a closing speed or puncture velocity of approx. 25 mph.

1.3 Part C: Puncture Velocities

10. Analytical studies have also been performed to compute the safe tank-head and tank-shell puncture velocities (also termed as closing speeds). Analytical studies performed by the Volpe Center [7] show that several factors affect the puncture velocities of tank cars. Baseline tank-shell puncture analysis was predicted to be 20 mph, and that for Tank-head puncture were estimated to be 13 mph. However, the puncture velocities for tank-shell puncture range from 10 to over 30 mph depending on internal pressure and impactor sizes (Figure 6). Similarly for tank-head puncture the puncture velocities range from 9 mph to 18 mph as shown in Figure 7.

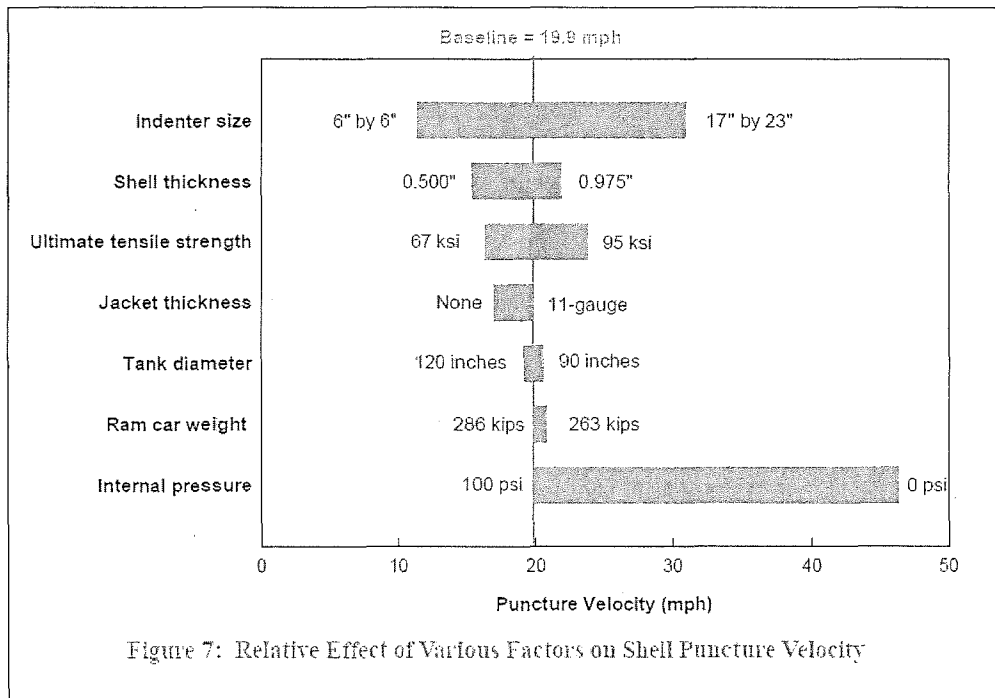


Figure 6. Tank-shell Puncture Velocity in Analytical Studies

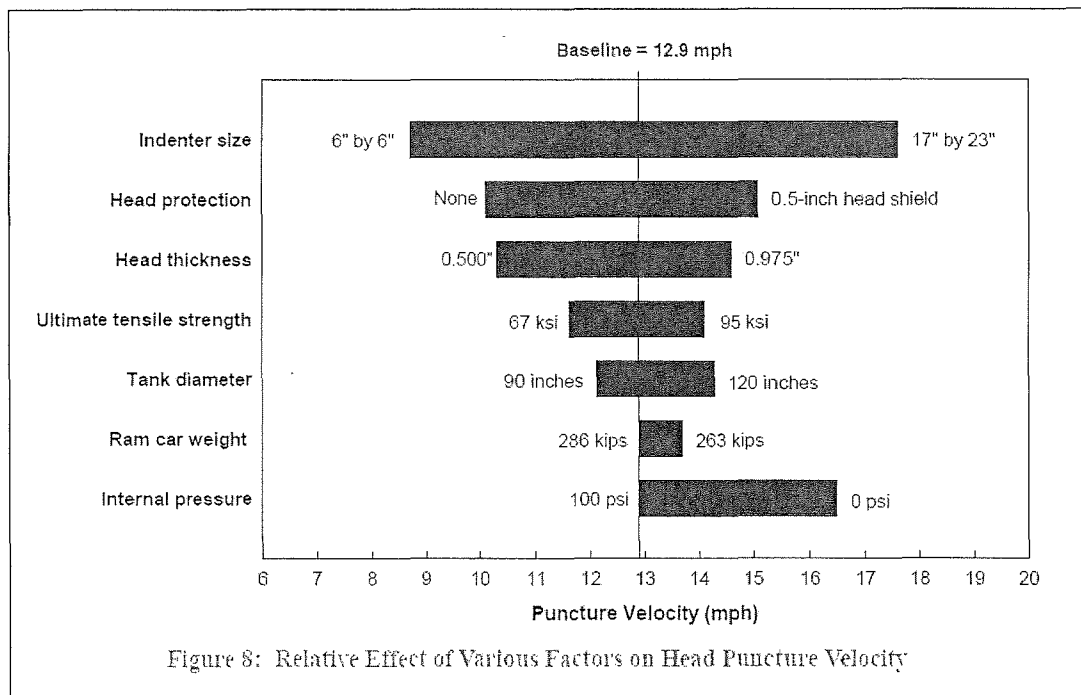


Figure 7. Tank-head Puncture Velocity in Analytical Studies

11. Based on CFR 49 Section 179.16 (Appendix A), these puncture velocities are estimated at 18 mph for Tank-head puncture. Again equivalent pre-collision train

speeds would be twice the values given. Thus it can be inferred that the safe operating train speed before collision, would be in the range of 36 mph for tank-head impact and higher for tank-shell impact.

12. Puncture tests conducted in 1992 [8] showed that the DOT 105A500W (chlorine) car tested had a puncture resistance near the 18 mph threshold required by 49 CFR 179.105-5 for tank cars in LPG (propane) and other specifically identified flammable gas Lading.

1.4 Conclusions

13. Based on the available Accident Histories, it appears that the tank-head and tank-shell puncture of tank cars are the two most critical conditions for lading loss in derailments and collisions.
14. Analytical collision dynamics modeling shows that placing the PIH/TIH cars in the middle of the consist provides for the least likelihood of puncture in train collision and that appears to be reflected in CFR 49 Part 174.85.
15. The 3 car limit is solely arbitrary by RailAmerica "SOP". The risk associated with more than 3 cars in a consist is not any different than a maximum of 3 cars. In fact, if 1 out of 4 cars received (as an example) is held at the interchange for a Dedicated Train, the undue risk should be considered in the context of 49 CFR part 179.14.
16. From a tank-head and tank-shell puncture safety perspective, based on a general Tank car configuration and a variety of factors, a 25 mph Train speed would preclude the likelihood of a catastrophic breach in a derailment or train collision. Specific to the DOT 105A500W (chlorine car), tests conducted have shown that the car is safe from head puncture until 18 mph, which would indicate a safe train speed up to 36 mph.
17. CFR 49: Section 174.86 b) specifies an allowable maximum speed of 50 mph for PIH/TIC tank cars. No minimum is specified. The 10 mph speed limited by the Class 1 track stands by itself and is not part of 49 CFR Section 174.86.
18. It appears that the RailAmerica "SOP" is unclear about the purpose of the 10 mph limit. The 10 mph speed limit is clearly based on track classification and should not be stated as a safety concern from a tank puncture perspective.

2.0 REFERENCES:

1. Nayak, P.R., Rosenfield, D.B., Hagopian, J.H., "Event Probabilities and Impact Zones for Hazardous Materials Accidents on Railroads," Final Report, DOT/FRA/ORD- 83/20, November 1983.
2. Anderson, R.T., and Barkan, C.P.L., "Railroad Accident Rates for Use in Transportation Risk Analysis," Transportation Research Record 1863 (2004) 88-98.
3. Karl Alexy, "Tank Car Safety and Security - NextGen Project to the Present", 2010 Mechanical Association Railcar Technical Services - Annual Conference.
4. C.R. Paetsch, A.B. Perlman, D.Y. Jeong, "Dynamic Simulation of Train Derailments", Proceedings of IMECE2006 2006 ASME International Mechanical Engineering Congress and Exposition November 5-10, 2006, Chicago, Illinois, USA
5. D.Y. Jeong, M.L. Lyons, O. Orringer, A.B. Perlman, "Equations of Motion For Train Derailment Dynamics", RTDF2007-46009, Proceedings of the 2007 ASME Rail Transportation Division Fall Technical Conference, RTDF2007, September 11-12, 2007 Chicago, Illinois, USA.
6. D.Y. Jeong, Y.H. Tang, H. Yu, M.L. Lyons, J.E. Gordon, O. Orringer, and A.B. Perlman, "Engineering Studies on Structural Integrity of Railroad Tank Cars Under Accident Loading Conditions", U.S. Department of Transportation Volpe National Transportation Systems Center Research and Innovative Technology Administration Cambridge, MA, REPORT NUMBER DOT/FRA/ORD-09/18.
7. David Y. Jeong, Yim H. Tang, A. Benjamin Perlman, "Semi-Analytical Approach to Estimate Railroad Tank Car Shell Puncture", Proceedings of the ASME/ASCE/IEEE 2011 Joint Rail Conference JRC2011 March 16-18, 2011, Pueblo, Colorado, USA. JRC2011-56028.
8. Michael Coltman, Morrin E. Hazel, Jr. , Chlorine Tank Car Puncture Resistance Evaluation, U.S. Department of Transportation, Report No. DOT/FRA/ORD-92/11

APPENDIX A : 49 CFR - TRANSPORTATION

§ 179.16 Tank-head puncture-resistance systems.

(a) *Performance standard.* When the regulations in this subchapter require a tank-head puncture-resistance system, the system shall be capable of sustaining, without any loss of lading, coupler-to-tank-head impacts at relative car speeds of 29 km/hour (18 mph) when:

- (1) The weight of the impact car is at least 119,295 kg (263,000 pounds);
- (2) The impacted tank car is coupled to one or more backup cars that have a total weight of at least 217,724 kg (480,000 pounds) and the hand brake is applied on the last "backup" car; and
- (3) The impacted tank car is pressurized to at least 6.9 Bar (100 psig).

(b) *Verification by testing.* Compliance with the requirements of paragraph (a) of this section shall be verified by full-scale testing according to appendix A of this part.

(c) *Alternative compliance by other than testing.* As an alternative to requirements prescribed in paragraph (b) of this section, compliance with the requirements of paragraph (a) of this section may be met by installing full-head protection (shields) or full tank-head jackets on each end of the tank car conforming to the following:

- (1) The full-head protection (shields) or full tank-head jackets must be at least 1.27 cm (0.5 inch) thick, shaped to the contour of the tank head and made from steel having a tensile strength greater than 379.21 N/mm² (55,000 psi).
- (2) The design and test requirements of the full-head protection (shields) or full tank-head jackets must meet the impact test requirements in Section 5.3 of the AAR Specifications for Tank Cars (IBR, see §171.7 of this subchapter).
- (3) The workmanship must meet the requirements in Section C, Part II, Chapter 5, of the AAR Specifications for Design, Fabrication, and Construction of Freight Cars (IBR, see §171.7 of this subchapter).

[Amdt. 179-50, 60 FR 49077, Sept. 21, 1995, as amended by Amdt. 179-50, 61 FR 33255, June 26, 1996; 66 FR 45390, Aug. 28, 2001; 68 FR 75759, Dec. 31, 2003]

174.14 Movements to be expedited.

(a) A carrier must forward each shipment of hazardous materials promptly and within 48 hours (Saturdays, Sundays, and holidays excluded), after acceptance at the originating point or receipt at any yard, transfer station, or interchange point, except that where biweekly or weekly service only is performed, a shipment of hazardous materials must be forwarded on the first available train.

(b) A tank car loaded with any Division 2.1 (flammable gas), Division 2.3 (poisonous gas) or Class 3 (flammable liquid) material, may not be received and held at any point, subject to forwarding orders, so as to defeat the purpose of this section or of §174.204 of this subchapter.

[Amdt. 174-26, 41 FR 16092, Apr. 15, 1976, as amended by Amdt. 174-68, 55 FR 52677, Dec. 21, 1990]

174.85 Position in train of placarded cars, transport vehicles, freight containers, and bulk packagings.

(a) Except as provided in paragraphs (b) and (c) of this section, the position in a train of each loaded placarded car, transport vehicle, freight container, and bulk packaging must conform to the provisions of this section.

(b) A car placarded "RADIOACTIVE" must comply with train positioning requirements of paragraph (d) of this section and must be separated from a locomotive, occupied caboose, or carload of undeveloped film by at least one non-placarded car.

(c) A tank car containing the residue of a hazardous material must be separated from a locomotive or occupied caboose by at least one rail car other than a placarded tank car.

(d) Position of rail cars in a train. In the following table:

Position in Train of Placarded Cars Transporting Hazardous Materials

RESTRICTIONS	Placard Group 1	Placard Group 2		Placard Group 3		Placard Group 4
	Rail Car	Tank Car	Rail Car	Tank Car	Rail Car	Rail Car
1. When train length permits, placarded car may not be nearer than the sixth car from the engine or occupied caboose	X	X		X		
2. When train length does not permit, placarded car must be placed near the middle of the train, but not nearer than the second car from an engine or occupied caboose	X	X		X		
3. A placarded car may not be placed next to an open-top car when any of the lading in the open top car protrudes beyond the car ends, or if the lading shifted, would protrude beyond the car ends.	X	X		X		
4. A placarded car may not be placed next to a loaded flat car, except closed TOFC/COFC equipment, auto carriers, and other specially equipped cars with tie-down devices for securing vehicles. Permanent bulk head flat cars are considered the same as open-top cars	X	X		X		
5. A placarded car may not be placed next to any transport vehicle or freight container having an internal combustion engine or an open-flame device in operation.	X	X		X		
6. Placarded cars may not be placed next to each other based on the following:						
Placard Group 1		X	X	X	X	X
Placard Group 2	X			X	X	X
Placard Group 3	X	X	X			X
Placard Group 4	X	X	X	X	X	

PLACARD GROUP:

Group 1—Divisions 1.1 and 1.2 (explosive) materials.

Group 2—Divisions 1.3, 1.4, 1.5 (explosive), Class 2 (compressed gas; other than Div 2.3, PG I, Zone A), Class 3 (flammable liquid), Class 4 (flammable solid), Class 5 (oxidizing), Class 6 (poisonous liquid; other than Div 6.1, PG I, Zone A), and Class 8 (corrosive) materials.

Group 3—Divisions 2.3 (Zone A; poisonous gas) and 6.1 (PG I, Zone A; poisonous liquid) materials.

Group 4—Class 7 (radioactive) materials.

(1) Where an "X" appears at the intersection of a Placard Group column and a Restriction row, the corresponding restriction applies.

(2) "Rail Car" means a car other than a tank car.

(3) For purposes of this subpart, each unit of an articulated intermodal rail car shall be considered as one car.

[Amdt. 174–68, 55 FR 52680, Dec. 21, 1990, as amended at 57 FR 45464, Oct. 1, 1992; Amdt. 174–83, 61 FR 28678, June 5, 1996; Amdt. 174–83, 61 FR 50255, Sept. 25, 1996; Amdt. 174–83, 61 FR 51339, Oct. 1, 1996; 64 FR 51919, Sept. 27, 1999; 66 FR 45383, Aug. 28, 2001]

§ 174.86 Maximum allowable operating speed.

(a) For molten metals and molten glass shipped in packagings other than those prescribed in §173.247 of this subchapter, the maximum allowable operating speed may not exceed 24 km/hour (15 mph) for shipments by rail.

(b) For trains transporting any loaded, placarded tank cars containing a material poisonous by inhalation, the maximum allowable operating speed may not exceed 80.5 km/hour (50 mph) for shipments by rail.
[74 FR 1801, Jan. 13, 2009]

§ 213.9 Classes of track: operating speed limits.

(a) Except as provided in paragraph (b) of this section and §§213.57(b), 213.59(a), 213.113(a), and 213.137(b) and (c), the following maximum allowable operating speeds apply—

[In miles per hour]

Over track that meets all of the requirements prescribed in this part for—	The maximum allowable operating speed for freight trains is—	The maximum allowable operating speed for passenger trains is—
Excepted track	10	N/A
Class 1 track	10	15
Class 2 track	25	30
Class 3 track	40	60
Class 4 track	60	80
Class 5 track	80	90

(b) If a segment of track does not meet all of the requirements for its intended class, it is reclassified to the next lowest class of track for which it does meet all of the requirements of this part. However, if the segment of track does not at least meet the requirements for Class 1 track, operations may continue at Class 1 speeds for a period of not more than 30 days without bringing the track into compliance, under the authority of a person designated under §213.7(a), who has at least one year of supervisory experience in railroad track maintenance, after that person determines that operations may safely continue and subject to any limiting conditions specified by such person.

APPENDIX B : 49 USC 11101 - Sec. 11101

49 USC 11101 - Sec. 11101. Common carrier transportation, service, and rates

(a) A rail carrier providing transportation or service subject to the jurisdiction of the Board under this part shall provide the transportation or service on reasonable request. A rail carrier shall not be found to have violated this section because it fulfills its reasonable commitments under contracts authorized under section 10709 of this title before responding to reasonable requests for service.

Commitments which deprive a carrier of its ability to respond to reasonable requests for common carrier service are not reasonable. (b) A rail carrier shall also provide to any person, on request, the carrier's rates and other service terms.

The response by a rail carrier to a request for the carrier's rates and other service terms shall be - (1) in writing and forwarded to the requesting person promptly after receipt of the request; or (2) promptly made available in electronic form. (c) A rail carrier may not increase any common carrier rates or change any common carrier service terms unless 20 days have expired after written or electronic notice is provided to any person who, within the previous 12 months - (1) has requested such rates or terms under subsection (b); or (2) has made arrangements with the carrier for a shipment that would be subject to such increased rates or changed terms. (d) With respect to transportation of agricultural products, in addition to the requirements of subsections (a), (b), and (c), a rail carrier shall publish, make available, and retain for public inspection its common carrier rates, schedules of rates, and other service terms, and any proposed and actual changes to such rates and service terms.

For purposes of this subsection, agricultural products shall include grain as defined in section 3 of the United States Grain Standards Act (7 U.S.C. 75) and all products thereof, and fertilizer. (e) A rail carrier shall provide transportation or service in accordance with the rates and service terms, and any changes thereto, as published or otherwise made available under subsection (b), (c), or (d). (f) The Board shall, by regulation, establish rules to implement this section.

The regulations shall provide for immediate disclosure and dissemination of rates and service terms, including classifications, rules, and practices, and their effective dates.

Final regulations shall be adopted by the Board not later than 180 days after January 1, 1996.

Prior Provisions

A prior section 11101, Pub. L. 95-473, Oct. 17, 1978, 92 Stat. 1419; Pub. L. 96-258, Sec. 1(10), June 3, 1980, 94 Stat. 426; Pub. L. 96-448, title II, Sec. 222, Oct. 14, 1980, 94 Stat. 1929; Pub. L. 99-521, Sec. 9(a), Oct. 22, 1986, 100 Stat. 2997; Pub. L. 103-180, Sec. 8, Dec. 3, 1993, 107 Stat. 2052, related to duties of carriers to provide transportation and service, prior to the general amendment of this subtitle by Pub. L. 104-88, Sec. 102(a). See sections 11101, 13710, 14101, and 15701 of this title.

AMENDMENTS 1996 - Subsec. (f). Pub. L. 104-287 substituted "January 1, 1996" for "the effective date of the ICC Termination Act of 1995". EFFECTIVE DATE Chapter effective Jan. 1, 1996, except as otherwise provided in Pub. L. 104-88, see section 2 of Pub. L. 104-88, set out as a note under section 701 of this title.

Section Referred To In Other Sections

APPENDIX C : CV of Dipen Shah, Ph.D.

**Dipen K. Shah, Ph.D.
Chief Engineer
HLA Engineers, Inc.**

Education and Training:

Ph.D. in Mechanical Engineering, University of Texas at Arlington, 1993

M.E. in Mechanical Engineering, University of Texas at Arlington, 1989

B.E. in Mechanical Engineering, Ravishankar University, India, 1987

Areas of Experience and Interest:

- 2D and 3D Finite Element Stress Analysis with ANSYS, NASTRAN and MARC.
- Fracture and Damage Mechanics, Fatigue, Durability and Damage Tolerance.
- Composite Delamination.
- Creep at Isothermal and High Temp.
- Experimental Characterization of Metals and Composites.
- Material and Geometric non-linear Analysis.
- Computer-Aided Design and Geom. Modeling.
- Mesh Generation and Optimization.
- Structural and Design Optimization.
- Isotropic and orthotropic materials.
- Thermoset, Thermoplastic and Elastomeric composites.
- Continuous and short fiber composites.
- Piezoelectric, piezopolymers and other smart materials

Years with HLA Engineers, Inc. : 17 years

Experience:

TRANSPORTATION STRUCTURES – Railcar and Intermodal Cargo Containers, Locomotive Structures, Puncture Resistance of Toxic Inhalation Hazards (TIH) Tank Cars, Static and Dynamic Stress Analysis, Crash Worthiness, Damage Tolerance, Crack Growth, Fracture Mechanics and Fatigue Life Assessment, Structural and Buckling Analyses.

DSN/ANTENNAS – Static, Dynamic, Buckling and Stress Analysis, Thermal, Pointing and Frequency Analyses of Deep Space and other commercial satellite antennas.

WIND TOWERS - Static, Dynamic, Buckling, Stress Analysis and Fatigue of Wind Tower Structures.

CRANES - Static, Dynamic, Buckling, Wind Loading and Stress Analysis and Fatigue of Cranes Structures, Tower Cranes, Pedestal Cranes, Cableways etc.

ROLL-OVER PROTECTIVE STRUCTURES (ROPS) - Large Displacement FE Analysis with Material Plasticity of Roll-over Protective Structures (ROPS).

COMPOSITES AND ELASTOMERS - Material Properties Characterization of Composites and FEA Analysis of elastomeric materials, conveyor belts and bearings.

SOFTWARE AND PROGRAMMING - Developed Computer applications and GUIs for Thermal Curing and Finite Element Analysis of Conveyor Belts. Features included Networking, TCP/IP, FTP, Open Inventor Graphics, Finite Element Analysis, 2D and 3D FEA Meshing.

FORENSIC AND LEGAL INVESTIGATIONS – Deposed and Testified in several legal cases including structural failures and collapses.

Publications:

Include several Reports, Journal Articles and Conference Presentations for U.S. Army Research Office, ASME, AIAA, Computers and Structures, Interlaminar Fracture of Composites, Journal of Smart Structures, Journal of Aerospace Engineering, and Journal of The American Physiological Society.

Depositions and Testimonies

1. FEBRUARY 10, 2006 - Deposed

THEODOROFF vs. TUCKER and GENERAL MOTORS CORPORATION, STATE OF MICHIGAN, CIRCUIT COURT FOR THE COUNTY OF WAYNE, CASE NO. 03-308716-NI

2. SEPTEMBER 29, 2008 - Deposed

THE COMMUNITY FOUNDATION FOR PALM BEACH AND MARTIN COUNTIES, INC. vs. KOLTER PROPERTIES MANAGEMENT, INC. d/b/a KOLTER PROPERTY COMPANY; MORROW EQUIPMENT COMPANY, LLC, LC; KOLTER CITY PLAZA II, INC.; KAST CONSTRUCTION COMPANY, LLC, AND BAY ERECTORS & RIGGING, INC., CIRCUIT COURT OF THE 15TH JUDICIAL CIRCUIT IN AND FOR PALM BEACH COUNTY, FLORIDA, CASE NO. 50 2006 CA 004164

3. AUGUST 14, 2009 - Deposed

OBUYASHI CORPORATION / PSM CONSTRUCTION USA JOINT VENTURE vs. AMERICAN BRIDGE, AMERICAN ARBITRATION ASSOCIATION, AAA CASE NO. 79 110 Y 00146 07 BRSH. Case related to the Hoover Dam Bypass Construction over the Colorado River, Collapse of the Cableway System.

4. OCTOBER 21, 2009 - Testified

OBAYASHI CORPORATION / PSM CONSTRUCTION USA JOINT VENTURE vs. AMERICAN BRIDGE, AMERICAN ARBITRATION ASSOCIATION, AAA CASE NO. 79 110 Y 00146 07 BRSH. Case related to the Hoover Dam Bypass Construction over the Colorado River, Collapse of the Cableway System.

Work Performed on Other Legal Cases

1. Sanchez vs. General Shelters – FEA of Trailer Tongue, 2008
2. Elliot vs. Emerson, 2007 – 2008, Case Settled
3. Jack Stands – Case Settled
4. Trucut UR 6500 Auto Ramp – Case Settled
5. Elmendorf AFB Moment Connection Weld Analysis - Trial
6. Stimpson vs. Manitowoc – Case Settled
7. Temple Inland – Case Settled
8. Lexington vs. Morrow – Case Settled
9. People vs. James Lomma, et.al. Indictment No. 852/2010 – #2 NYC Crane Collapse 91st Street - Pending.

List of Publications:

- Hsia CCW, R.L. Johnson Jr, D. Shah., "Red cell distribution and the recruitment of pulmonary diffusing capacity." *Journal of Applied Physiological Society*, Vol. 86:1460-1467, 1999.
- H. Keith Hunt, Ricky Cribbs, Steve Stahl and Dipen Shah, "FEA Modeling Of Hazardous Material Cargo Tanks", Presented at the National Research Council, Transportation Research Board 77th Annual Meeting, Washington D.C., January 1997.
- R. H. Finney, D. K. Shah and R. Cribbs, "Have we learned anything yet?" A discussion on elastomeric FEA and material modeling, Presented at the Elastomer-FEA Forum '97, University of Akron, Ohio. 1997
- H. Neelakanthan, D. K. Shah and W. S. Chan, "Effects of stiffener around multiple loaded holes in composite shear panel", Presented at the 38th AIAA/ASME/ASCE/AHS/ASC-SDM Conference at Kissimmee, FL in April, 1997.
- D. J. Chen, D. K. Shah and W. S. Chan, "Interfacial Stress Estimation Using Least-square Extrapolation and Local Stress Smoothing in Laminated Composites", *Computers and Structures*, Vol. 58, No. 4, pp. 765-774, 1996.
- D. J. Chen, D. K. Shah and W. S. Chan, "Using Stress Smoothing for Interlaminar Stress Distributions in FE Analysis of Composite Laminates", *Interlaminar Fracture of Composites*, 1996.
- D. K. Shah and W. S. Chan, "Analysis of stiffened shear panels with a loaded hole," Presented at the 7th Japan-US conference on composite materials in June 1995 at Kyoto Japan.
- D. K. Shah, S. P. Joshi and W. S. Chan, "Delamination suppression and detection in a composite laminate using embedded piezoelectric patch", *Journal of Smart Structures and Materials*, 1994.
- D. K. Shah, S. P. Joshi and W. S. Chan, "Stress Concentration Reduction in a Plate with a Hole using Piezoceramic Layers", *Journal of Smart Structures and Materials*, 1994.
- D. K. Shah, S. P. Joshi and W. S. Chan, "Static Structural Response of Plates with Piezoceramic Layers", *Journal of Smart Structures and Materials*, 1993.
- D. K. Shah and W. S. Chan, "Delamination Characteristics around a Hole in Laminates with a Softening Strip", *Journal of Aerospace Engineering*, Apr. 1993.
- D. K. Shah, W. S. Chan and S. P. Joshi, "Finite Element Analysis of plates with piezoelectric layers", Presented at the 34th AIAA/SDM Conf. in Apr. 1993 at La Jolla, CA.
- D. K. Shah, S. P. Joshi and W. S. Chan, "Comparison of Embedded and Surface Mounted Piezoelectric Actuators," Presented at the 1993 ASME/AIAA/AHS Winter Annual Meeting at New Orleans LA. Also in 'Adaptive Structures and Material Systems', AD-Vol. 35, Ed.: Carman and Garcia, 1993, pp. 237-245.
- Chapter on "Finite Element Analysis of Smart Plates", *Damage-Survivable and Damage-Tolerant Laminated Composites with Optimally placed Piezoelectric Layers*, Final Report No. 1, U.S. Army Research Office, Grant No. DAAL 03-89-G-0090. Dec. 1992.
- D. K. Shah, W. S. Chan and S. P. Joshi, "Response of a Piezoelectric layer in composite laminates due to Electro-mechanical Loads," Presented at the 33rd AIAA/SDM Conference in Apr. 1992 at Dallas, TX.
- D. K. Shah, W. S. Chan, S. P. Joshi and S. Subramanian, "Analysis of Laminates with Embedded Piezoelectric Layers," Recent Developments in Composite Materials Structures, Ed.: David Hui and C.T. Sun, AD-vol. 19, AMD-Vol. 113, Presented at the 1990 ASME/AIAA/AHS Winter Annual Meeting at Dallas, TX. pp. 19-24, November 25-30, 1990.

Attachment B

July 30, 2010 SOP

TIH/PIH Standard Operating Practice

Implementation Proposal

A proposal to enhance RailAmerica's policies
and procedures for handling TIH/PIH
commodities.

July 30, 2010

RailAmerica

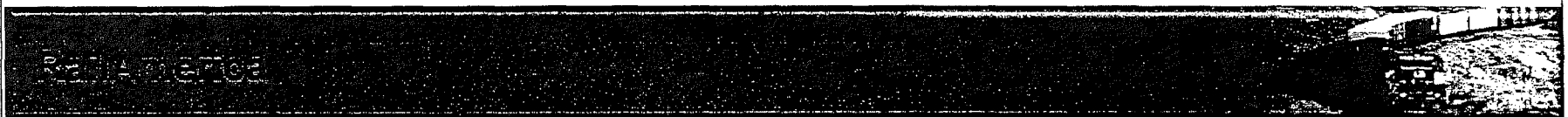


The consequence of the 2002 CP derailment in Minot, North Dakota was 1 casualty, 333 injured people, a vapor plume of anhydrous ammonia gas emanating from 5 catastrophically ruptured tank cars affecting 11,600 residents and 8 years of litigation costing CP an estimated \$25M.

2

**Minot, ND; January 18, 2002, 1:37AM (CST); Anhydrous Ammonia,
estimated total liability \$25M**

- Canadian Pacific derailment of 31 of 112 railcars, including 5 catastrophically ruptured *anhydrous ammonia* tank cars, resulting in a vapor plume covering the derailment site and surrounding area affecting 11,600 residents.
- One casualty, 11 people sustained serious injuries and 322 people sustained minor injuries.
- Damages exceeded \$2M and environmental remediation exceeded \$8M.
- Civil lawsuit settlements included a \$7M class action lawsuit on behalf of 2,000-3,000 people, and 2,000-3,000 additional settlements averaging between \$700 per person for waiving future rights to a lawsuit to \$4,000 after a suit was brought forth. Largest individual suit netted \$1.86M for 4 plaintiffs complaining of asthma, dry eyes and post traumatic stress relative to living near the accident site.
- It took 4 hours for the vapor cloud to dissipate before the emergency responders were able to evacuate nearby residents.



An unattended interchange of a butadiene tank car that later leaked and caught fire at a CSX rail yard in New Orleans, LA resulted in a \$2.5B judgment against CSX even though it had never handled the car, did not own the car and was not responsible for the leak.

New Orleans, LA; September 9, 1987, Non-TIH

- A tank car containing butadiene, a hazardous compound, began to leak then subsequently burst into flames at a CSX owned interchange rail yard and burned for 36 hours following the local fire official's decision to let it burn out.
- 8,000 residents partook in a class action lawsuit and were initially awarded \$3.5B in damages, including the \$2.5B judgment against CSX, who had not even handled the car.
- The accident was caused by a misalignment and tearing of a gasket in the rail car and a cover that was improperly closed, all of which had occurred prior to CSX taking receipt of the car at an unattended interchange.

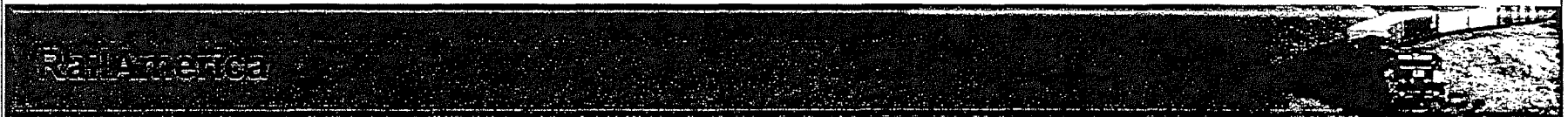


The breach of **one** chlorine tank car in the 2006 Norfolk Southern derailment in Graniteville, SC was the most serious of the fatal railway releases of TIH, resulting in 9 deaths, 554 people treated for respiratory difficulties, 75 people hospitalized, 5,400 residents evacuated and damages estimated to be \$126M.

4

Graniteville, SC; January 6, 2006, 2:39AM (EST)

- Most serious of the fatal railway releases of TIH.
- Norfolk Southern derailment of 16 cars and two locomotives including 3 tank cars containing chlorine led to the breach of one car.
- Improperly lined switch diverted train from mainline to industry track
- Accident resulted in 9 deaths, 554 people treated for respiratory difficulties including 75 that were admitted to the hospital. 5,400 residents within a 1 mile radius of the site were evacuated from their homes for several days.
- "FRA analysis estimated that the total cost of the accident was **\$126M**, including fatalities, injuries, evacuation costs, property damage, environmental cleanup, and track out of service."



Derailments of hazardous commodities are always costly in terms of dollars and sometimes costly in terms of human life.

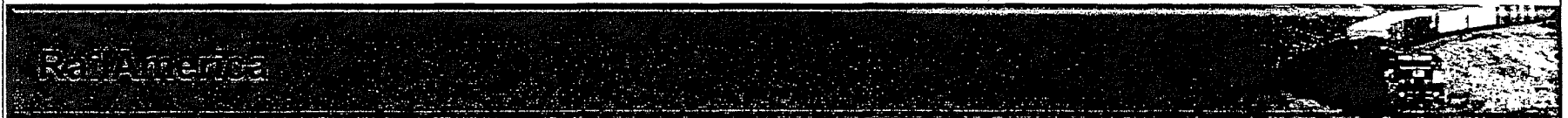
5

**Macdona, TX; June 28, 2004, 5:03AM (CDT);
Liquefied Chlorine, estimated total liability \$6.35M**

- Collision of UP and BNSF trains, derailing 4 UP locomotives, 19 UP cars and 17 BNSF cars including a UP pressure tank car containing liquefied chlorine.
- Chlorine gas immediately vaporized into a cloud engulfing a 700 ft. radius surrounding the accident scene.
- 4.5 hours later emergency responders were able to begin rescuing the people trapped within the cloud.
- Accident resulted in 3 deaths, 32 people injured, \$5.7M in equipment damage, and site cleanup costs of \$150,000. An estimated \$2-5M in civil lawsuits was settled by the UP.
- EPA settlement of \$500,000 awarded by DOJ.

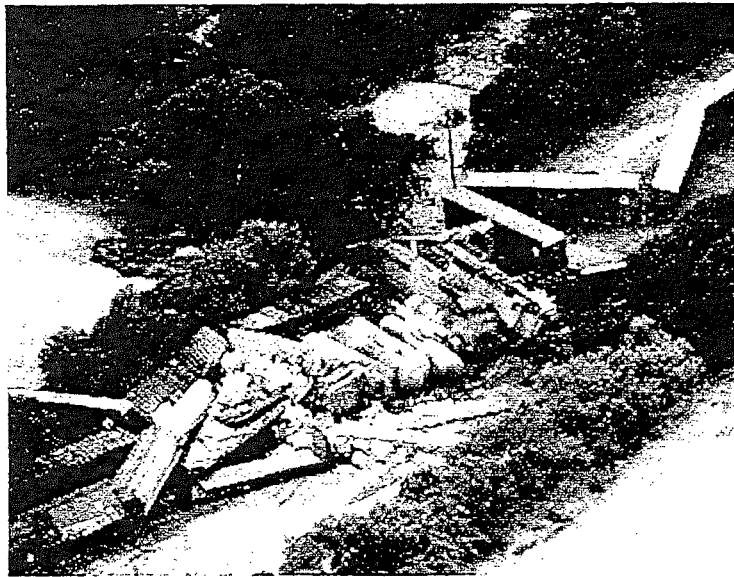
**New Brighton, PA; October 20, 2006, 10:41PM (EDT),
Non-TIH**

- Derailment of 23 out of 83 tank cars containing denatured ethanol, with 20 derailed tank cars releasing contents subsequently igniting and burning for 48 hours.
- Home and residences within a 7 block area were evacuated for 2 days.
- NS damage estimates were \$5.8M.



The danger associated with moving TIH/PIH commodities is widely recognized.

6



- "Although a statistically rare occurrence, the effects on public health from the release of hazardous substances during rail transportation are potentially catastrophic."¹
- "A daylight TIH release in a densely populated area could have catastrophic consequences."²
- "Large concentrations of chlorine gas can kill people within minutes. If inhaled at very high concentrations, chlorine breaks down in the lungs to form hydrochloric acid that burns lung tissue, causing pulmonary edema and essentially causing drowning as a liquid floods the lungs."³
- "Railroads can't obtain enough insurance to fully protect against the multi-billion dollar risks associated with TIH shipments."⁴

¹ Maureen Orr, "Public Health Risks of Railroad Hazardous Substance Emergency Events," *Journal of Occupational and Environmental Medicine*, 2001, Vol. 43.

² Lewis Branscomb, Mark Fagan, Philip Averswald, Ryan Ellis and Raphael Barclan, "Rail Transportation of Toxic Inhalation Hazards: Public Responses to the Safety and Security Externality," *Harvard Kennedy School, Belfer Center for Science and International Affairs discussion paper #2010-01*, February 2010.

³ *Ibid.*

⁴ Association of American Railroads, Policy and Economics Department, *Hazardous Transportation by Rail: An Unfair Liability* (Washington, DC, September 2009).



Most of the TIH/PIH traffic handled by RailAmerica properties is either anhydrous ammonia or chlorine. RailAmerica has the ability to set prices on about 58% of the traffic. 80% of the TIH/PIH traffic moves on eight roads – CFNR, ARZC, DGNO, IORY, HESR, TPW, CPDR and CFE.

7

Since 2007 the number of TIH/PIH movements have been reduced by over 50% and the average RPC has more than doubled.

Year	Units	Revenue		RPC
		Total		
2009	1,952	\$ 2,727,944	\$	1,398
2008	4,194	\$ 3,443,205	\$	821
2007	4,246	\$ 2,627,400	\$	619

2009

Handling Line Movements

Road	Units	Revenue		RPC	Primary Commodity
		Total			
CFNR	264	\$ 268,343	\$	1,016	Chlorine
ARZC	153	\$ 70,198	\$	459	Ammonia and Chlorine
DGNO	95	\$ 29,592	\$	311	Chlorine
TNER	50	\$ 6,825	\$	137	Ammonia
GEXR	48	\$ 21,603	\$	470	Ammonia
AGR	45	\$ 23,642	\$	525	Chlorine
CSO	43	\$ 19,893	\$	463	Chlorine
SOR	40	\$ 10,560	\$	264	Ammonia
KRR	34	\$ 7,650	\$	225	Ammonia
CBNS	29	\$ 27,548	\$	950	Sulfur Dioxide
SJVR	16	\$ 7,340	\$	459	Ammonia
MNA	2	\$ 532	\$	266	Sulfuric Acid and Ammonia
Subtotal	817	\$ 493,727	\$	604	55% - Chlorine 41% - Ammonia

ISS Movements

Road	Units	Revenue		RPC	Primary Commodity
		Total			
IOYR	434	\$ 876,970	\$	2,021	Ammonia
HESR	216	\$ 149,261	\$	691	Chlorine
TPW	173	\$ 240,789	\$	1,392	Ammonia
CPDR	131	\$ 509,160	\$	3,887	Ethylene Oxide
CFE	90	\$ 299,062	\$	3,323	Ammonia
MS	25	\$ 18,227	\$	729	Ammonia
NECR	23	\$ 54,281	\$	2,360	Chlorine
KYLE	20	\$ 54,922	\$	2,746	Ammonia
PCN	15	\$ 14,545	\$	970	Ammonia
CERA	8	\$ 17,000	\$	2,125	Ammonia
Subtotal	1,135	\$ 2,234,218	\$	1,968	21% - Chlorine 67% - Ammonia
Total	1,952	\$ 2,727,944	\$	1,398	35% - Chlorine 57% - Ammonia

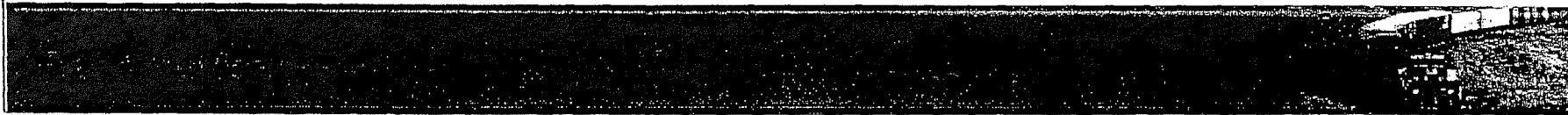
RailAmerica



Less than twenty customers ship almost all of RailAmerica's TIH/PIH traffic.

8

Customer	Road	Commodity	2009 Units
	IOFY	Ammonia	301
	CFNR	Chlorine	256
	HESR	Chlorine	186
	CPDR	Ethylene Oxide	130
	DGNO	Chlorine	64
	ARZC	Ammonia	63
	AGR	Chlorine	35
	SOR	Ammonia	28
	CBNS	Sulfur Dioxide	28
	ISRR	Ammonia	26
	CFE	Ammonia	23
	TNER	Ammonia	21
	KYLE	Ammonia	17
	PCN	Ammonia	15
	SJVR	Ammonia	8



After reviewing a number of options, our TIH/PIH team decided that the safest way to move TIH/PIH shipments was also the simplest solution.

9

SOP Recommendations

The team recommends that RailAmerica adopt a SOP of moving all TIH/PIH shipments in dedicated train service at no more than 10 MPH.

- At least one empty spacer car will be required between the locomotive and the TIH/PIH car(s).

The team recommends that a qualified RailAmerica mechanical employee inspect every TIH/PIH car before pulling the car from the interchange track.

The team recommends that RailAmerica employees accompany the shipment at all times, even if outside of a HTUA, that the shipment is on RailAmerica property and until the receiving entity acknowledges receipt of the shipment.

Legal Review

Do the above recommendations increase our exposure/liability, in the event of an incident?

Because of the varying operating conditions across all RailAmerica properties, those roads that move TIH/PIH commodities will have to create specific operating procedures.

- Some roads may choose to use "Go-Teams" to augment existing transportation crews.
- Roads will likely need advance notification from Class I railroads of movements of TIH/PIH commodities.
- Physical interchange procedures will have to be developed for each property
- In extreme situations, some roads may need additional locomotives.

RailAmerica



Obviously, by providing extra services RailAmerica will incur additional costs. To recover the cost of service the team proposes issuing road specific surcharges for those properties currently moving TIH/PIH commodities and system surcharges for those properties not moving TIH/PIH commodities.

10

Surcharge Recommendations

The team recommends that RailAmerica publish road specific \$/shift surcharges for the special train movement.

- \$/shift charges will be applied to single or multiple car movements.
- Charges would include locomotive, crew and fuel costs.

The team recommends that RailAmerica publish road specific daily rates for inspecting rail cars.

- Daily charges will be applied to single or multiple car movements.

The team recommends that RailAmerica publish road specific daily rates for employees accompanying a shipment.

- Daily charges will be applied to single or multiple car movements.

Surcharges will be published in RA 8008 series tariffs for each property and subject to RA 1000.

It is a given conclusion that our surcharges will be challenged in some public forum. For that reason the team recommends adhering to the following guidelines.

- All surcharges must be based on actual costs, for the individual road, and can not generate profit for the property.
- All surcharges must be applied consistently across all customers on a property.
- All surcharges must be thoroughly communicated.
 - Customers
 - Class I Partners
 - Government Agencies (?)
 - Shortline Organizations (?)

RailAmerica



For those RailAmerica properties that have pricing freedom, the team recommends that a standard pricing policy be applied to all new and renewing price documents.

11

The team recommends that RailAmerica publish all TIH/PIH rates in public Rule 11 tariffs.

Each tariff will contain standard liability language.

The team recommends that all rates be, at least, 250% of the most recent URCS(less locomotive, crew and fuel) cost.

The team recommends that rates have no term other than standard tariff publishing procedures.

Minimum 20 day notice to increase a rate and no notice required to decrease a rate.

Policy Statement

*Customers shipping TIH/PIH commodities
should be subjected to the same credit
policies as every other RailAmerica
customer?*



For those RailAmerica properties that do not have pricing freedom, the team recommends that we quickly approach our Class I partners and request the ability to price TIH/PIH commodities outside of the governing agreements and apply surcharges to TIH/PIH movements.

12

The team recommends that a letter requesting the ability to price all TIH/PIH movements as local moves to/from the interchange station.

RailAmerica will establish payment terms with the customer for the RailAmerica portion of the movement.

The team recommends that the letter be sent from John Giles or David Rohal to the CEO's of BNSF, UP, CN and NS.

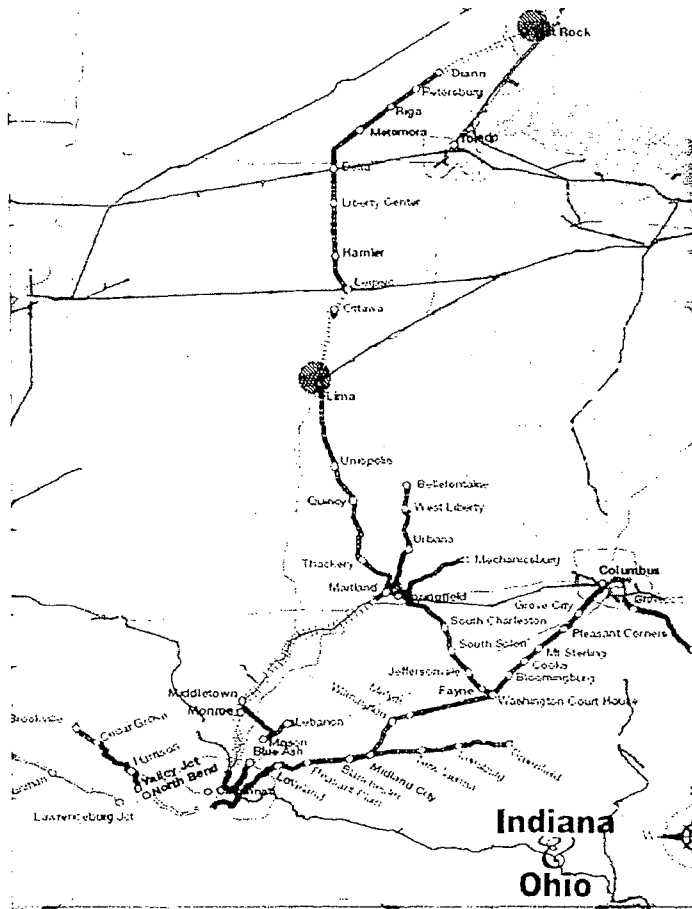
Copies of the letter should go to the relevant staffers.

The letters must also request the authority to apply our new surcharges.

Legal Review

*It is likely that some of our partners will say **NO**. Do we need to plan our course-of-action in advance of the response?*

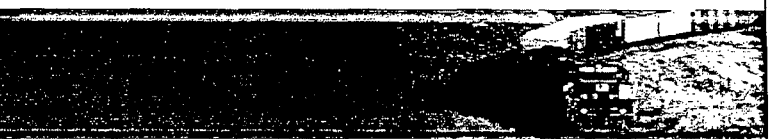
The TIH/PIH team has created a prototype TIH/PIH program for the safe handling of anhydrous ammonia on IORY.



13

The local IORY operating team developed an operating plan for the movement of anhydrous ammonia from PCI at Lima, OH to interchange with CN at Flat Rock, MI.

1. NS advance sent to IORY.
2. IORY Mechanical team member meets the NS crew at interchange track in Lima.
3. IORY Mechanical inspects car and signs NS chain of custody and waits with car.
4. Lima Switcher pulls car from NS interchange track to North End of Lima Yard and sets car over. Lima Switcher attends car.
5. Special Train crew moves locomotive to car and takes control of car.
6. Special Train crew moves car from Lima to Delta. MP 130 to MP 74 – 56 miles.
7. Crew one vans back to Lima.
8. Special Train crew number two goes on duty at Delta. Boards train and takes position of car / train.
9. Crew two moves car from Delta to Flat Rock. MP 74 to MP 18 – 56 Miles.
10. Crew runs light engine back to Delta.
11. Engine runs on "normal" freight train next night to Lima.



The finance team estimates that the cost of providing special train service from Lima, OH to Flat Rock, MI will be approximately \$2,951.

14

ASSUMPTIONS

Lima Switcher - 1 hr labor
Lima to Delta - 12 hrs labor
Delta to Flat Rock - 12 hrs labor
Flat Rock to Delta - 4 hours
Locomotive Power - 4 axle unit (engine returns back light)
Total one-way miles - 112

TRAIN COST

T&E Wages	\$783
Mechanical Wages	\$181
OT Wages (T&E)	\$448
Total Wages	\$1,412
PR Taxes	20.25%
Profit Sharing	\$47
Insurance	\$424
Percent of Labor Allocated	100%
Total Labor & Benefits	\$2,169

Locomotive Rent	\$138
Car Hire	\$0
Total Locomotive Rent	\$138

Gallons	89
Price Per Gallon	\$2.26
Total Fuel	\$200

Casualty & Insurance	\$118
Total Casualty & Insurance	\$118

Track Maintenance/Material	\$278
Locomotive Maintenance/Material	\$73
Total Material	\$351

Taxi	\$80
Joint Facilities	\$0
Overhead Expense	\$13
Total Other Expenses	\$93

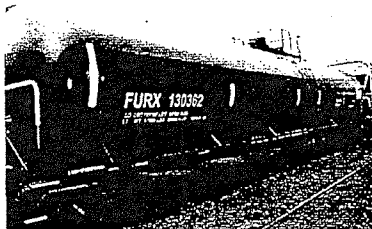
Est. Total Operating Expense	\$3,069
Est. Operating Expense (less C&I)	\$2,951



The actual movement would be managed by a new permitting process that would allow RailAmerica to plan and monitor discrete TIH/PIH movements. The business process will be managed by a new Optional Services tariff.

15

Optional Services Catalog -- TIH/PIH Permitting



PROTECTING OUR NEIGHBORS...

We want to show our great service but we are obligated to protect our neighbors and the communities where we live and work. We are obligated to move highly hazardous materials in the safest manner possible.

We believe that the safest way to move your TIH/PIH shipment is by dedicated train service that meets our very high standards.

Special Train Service
For every move of TIH/PIH commodities we will create a special, dedicated train service that will move your shipment safely and securely. We will have a dedicated train service that will move your shipment safely and securely.

Every TIH/PIH movement will move at reduced speeds with an optimal train configuration.

Freight Car Inspections
We want to make sure that every car is safe to move, and we will have a qualified inspection team to inspect every car before it is moved.

Inspection Fee
Inspection may include the cost of the inspection and the cost of the inspection fee.

IORY 9000

TIH/PIH Movement Instructions

Special Service Charges

Contact Information

Our top priority is to provide safe, reliable transportation for our customers. Part of that commitment is to protect the communities where we live and work. We are obligated to move highly hazardous materials in the safest manner possible.



ION

Without the information that they need to safely move their TIH/PIH commodities, they cannot be permitted to move their TIH/PIH commodities.

ION is a service that provides the information that they need to safely move their TIH/PIH commodities.

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Indiana & Ohio		TIH/PIH COMMODITY TRANSPORTATION PERMIT APPLICATION	
ION		COMMODITY NAME	
ION		STCC CODE	
MOVEMENT INFORMATION			
ORIGIN RAIL STATION	ORIGIN RAILROAD	COMPLETE RAIL ROUTE	
DESTINATION RAIL STATION	DESTINATION RAILROAD	DESTINATION STATION ON IORY	
DATE OF SERVICE	CAR NUMBER	CAR NUMBER	DATE THAT IORY IS REQUESTED TO TAKE POSSESSION
APPLICABLE RATE AUTHORITY		FREIGHT PRICE	
CUSTOMER INFORMATION			
CUSTOMER		CUSTOMER	
EMERGENCY CONTACT NAME		EMERGENCY CONTACT PHONE NUMBER	
SPECIAL INSTRUCTIONS			
IOY APPROVAL OF SHIPMENT		CUSTOMER REPRESENTATIVE MAKING APPLICATION	
NAME		NAME	
TITLE		TITLE	
DATE		DATE	
ESTIMATED MOVE DATE		PHONE	
		EMAIL	
PERMIT APPLICATION INSTRUCTIONS			
1. Application must be received by IORY, no less than, five business days prior to the date that IORY will be requested to take possession of the shipment at either a customer facility or at interchange with another carrier.			
2. All applications must be accompanied by a waybill and a Material Safety Data Sheet (MSDS) for the commodity listed on the waybill.			
3. An application must be filed for each individual shipment.			
4. By applying for a TIH/PIH Commodity Transportation Permit, the applicant agrees to conform to and be bound by all applicable industry and IORY tariffs governing the shipment of TIH/PIH commodities.			
5. By approving a TIH/PIH Commodity Transportation Permit, IORY does not commit to a specific date or service schedule for the movement of the shipment listed in the application.			
FAX COMPLETED APPLICATION TO -- (904) 200-0000			

These Documents Have Not Undergone
Legal Review

RailAmerica

Under the proposed operating plan, that allows for up to three TIH/PIH cars per special train, the customer would pay \$7,420 to move from Lima to Flat Rock.

16

	ONE CAR	TWO CARS	THREE CARS
TRANSPORTATION RATE ⁽¹⁾	\$ 742	\$ 1,484	\$ 2,226
SPECIAL TRAIN SURCHARGE ⁽²⁾	\$ 3,394	\$ 3,394	\$ 3,394
HANDLING SURCHARGE ⁽³⁾	\$ 600	\$ 1,200	\$ 1,800
TOTAL CHARGES TO CUSTOMER	\$ 4,736	\$ 6,078	\$ 7,420

(1)250% Of URCS

(2)115% Of Estimated Costs

(3)\$250 Administrative Fee Plus \$350 Inspection Fee

RAILAMERICA



We will designate a new position to manage and maintain and the new process. The position will be responsible for monitoring all TIH/PIH movements on RailAmerica properties.

17

Manager Special Services (Roles and Responsibilities)

Price movements of TIH/PIH using URCS.

Publish Rule 11 tariffs for the transportation of TIH/PIH commodities.

Create SOP's for the movement of TIH/PIH shipments with local operating teams.

Develop costs for special services with regional finance teams.

Publish surcharges for specific movements of TIH/PIH shipments.

Coordinate with Class I partners and customers the movement of TIH/PIH commodities.

Initiate movements of shipments with local RailAmerica operating teams.

Monitor TIH/PIH carloads on RailAmerica.

Coordinate communication strategy for customers, Class I's and local communities.

RailAmerica



The Manager Special Services will manage the shipment up to the time that the railroad takes physical control of the shipment. After that time the MSS will monitor and coordinate the movement and delivery with the railroad, customer and any interline parties.

18

NO LESS
THAN 5 DAYS
BEFORE
RECEIPT OF
SHIPMENT

MANAGER SPECIAL SERVICES PROCESS

1. Customer applies for transportation permit.
2. MSS confirms that a transportation rate exists.
3. MSS confirms that an operating plan exists for the movement.
 - A. If no operating plan exists MSS coordinates with railroad to create new operating plan.
 - B. MSS coordinates with finance department to create surcharges.
 - C. MSS publishes new tariff items.
4. MSS notifies railroad that customer wishes to initiate a movement.
5. MSS notifies destination customer or railroad that the railroad will be making a delivery.
6. MSS monitors all aspects of movement while on RA.

FUNCTIONAL
HAND-OFF

LOCAL OPERATING TEAM PROCESS

1. NS advance sent to IORY.
2. IORY Mechanical team member meets the NS crew at interchange track in Lima.
3. IORY Mechanical inspects car and signs NS chain of custody and waits with car.
4. Lima Switcher pulls car from NS interchange track to North End of Lima Yard and sets car over. Lima Switcher attends car.
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9. Crew two moves car from Delta to Flat Rock. MP 74 to MP 18 – 56 Miles.
10. Crew runs light engine back to Delta.
11. Engine runs on "normal" freight train next night to Lima.

DELIVERY TO
RAILAMERICA
DESTINATION

RailAmerica



Even with relatively few cars the program will have a significant revenue and earnings impact. Revenue will increase by almost \$7 million and margin will increase by almost \$2 million.

19

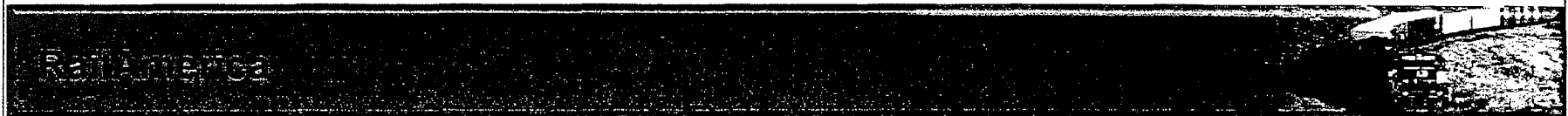
	UNITS	UNIT PRICE	REVENUE	MARGIN
UNITS	2,000			
TRAINS	1,700	\$ 3,000	\$ 5,100,000	\$ 765,000
FREIGHT		\$ 1,644	\$ 3,288,000	\$ 657,600
HANDLING FEE		\$ 600	\$ 1,200,000	\$ 1,000,000
PROGRAM TOTALS			\$ 9,588,000	\$ 2,422,600
CURRENT PROFIT				\$ 545,588
INCREMENTAL EARNINGS				\$ 1,877,012



We have an exhaustive communication effort, already underway.

20

TIMEFRAME		CONTACT GROUPS	
		GOVERNMENT	BUSINESS PARTNERS
IMMEDIATE	7-Jun	FRA - Jo Strang (Safety) James Snelafaine	CSX - Dean Placente James Snelafaine
	7-Jun	Congress - Oberstar (Staff) Cnamoers, Conlon & Hartzoff	GWR - John Hellman John Giles
	7-Jun	Senate - Rockefeller (Staff) Cnamoers, Conlon & Hartzoff	Watco - Rick Webb John Giles
	7-Jun	Congress - RA Congressmen (Staff) Cnamoers, Conlon & Hartzoff	Anacostia - Peter Gilbertson John Giles
	7-Jun		WLE - Larry Parsons John Giles
10-20 DAYS			OmniTrax - Michael Ogborn John Giles
			RRVW - Andy Thompson John Giles
			Riley McCarren John Giles
20 Days Prior To Implementation			
Immediately After Press Release			
20 Days After Initial Publication			



Attachment C

HIGHLY CONFIDENTIAL MATERIAL REDACTED

Attachment D

HIGHLY CONFIDENTIAL MATERIAL REDACTED