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February 27, 2012

Ms. Cynthia T. Brown
Chief of the Section of Administration, Office of Proceedings
Surface Transportation Board
395 E Street, S.W.
Washington, D. C. 20423

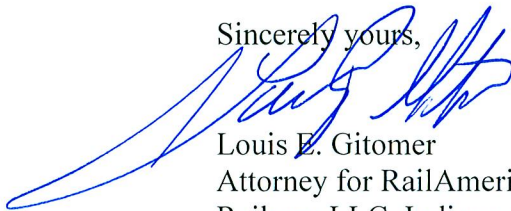
RE: **Finance Docket No. 35517, *CF Industries, Inc. v. Indiana & Ohio Railway Company, Point Comfort and Northern Railway Company, and Michigan Shore Railroad, Inc.***

Dear Ms. Brown:

Enclosed for e-filing is the Reply Statement by RailAmerica, Inc., Alabama Gulf Coast Railway LLC, Indiana & Ohio Railway Company, Point Comfort and Northern Railway Company, and Michigan Shore Railroad, Inc.

Thank you for your assistance. If you have any questions please call or email me.

Sincerely yours,



Louis E. Gitomer
Attorney for RailAmerica, Inc., Alabama Gulf Coast
Railway LLC, Indiana & Ohio Railway Company,
Point Comfort and Northern Railway Company, and
Michigan Shore Railroad, Inc.

Enclosure

BEFORE THE
SURFACE TRANSPORTATION BOARD

STB Finance Docket No. 35517

CF INDUSTRIES, INC.
v.
INDIANA & OHIO RAILWAY COMPANY, POINT COMFORT AND NORTHERN
RAILWAY COMPANY, AND MICHIGAN SHORE RAILROAD, INC.

REPLY OF RAILAMERICA, INC., ALABAMA GULF COAST RAILWAY LLC, INDIANA
& OHIO RAILWAY COMPANY, POINT COMFORT AND NORTHERN RAILWAY
COMPANY, AND MICHIGAN SHORE RAILROAD, INC.

VOLUME I - REPLY

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NORTHERN RAILWAY COMPANY,
AND MICHIGAN SHORE RAILROAD,
INC.

Dated: February 27, 2012

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COMPANY, AND MICHIGAN SHORE RAILROAD, INC.

Respondents¹ file this reply in accordance with the Surface Transportation Board's (the "Board") decision served on September 30, 2011. In response to CF Industries, Inc.'s ("CFI"), Dow Chemical Company's ("Dow"), American Chemistry Council's ("ACC"), Arkema, Inc.'s ("Arkema"), The Chlorine Institute, Inc.'s ("CII"), The Fertilizer Institute's ("FI"), and PPG Industries, Inc.'s ("PPG") (ACC, Arkema, CII, FI, and PPG are collectively referred to as "Complainants") opening evidence, Respondents assert that CFI, Dow, and Complainants

¹ Respondents are RailAmerica, Inc. ("RailAmerica"), Alabama Gulf Coast Railway LLC ("AGR"), Indiana & Ohio Railway Company ("IORY"), Point Comfort and Northern Railway Company ("PCN"), and Mid-Michigan Railroad, Inc. ("MMRR"). The Michigan Shore Railroad ("MSR") is an unincorporated division of the MMRR. AGR, IORY, PCN, and MSR are referred to as the "Respondent Railroads."

misrepresent the facts at issue regarding the TIH/PIH² Tariffs³, have the burden of proof that the Tariffs are unreasonable, and failed to show the Tariffs are an unreasonable practice.⁴

CFI & Complainants continue to ignore the plain language of the Tariffs (the only Respondent documents governing the movements) and rely on negotiating tools and revoked tariffs in an attempt to show that Respondent Railroads procedures are unreasonable. In furthering compliance with Federal Railroad Administration (“FRA”) rules, Respondents have taken to heart that “...parties are encouraged to go beyond the minimum regulatory requirements in establishing and implementing plans, rules, and procedures for safe transportation operations.” *Improving the Safety of Railroad Tank Car Transportation of Hazardous Materials*, 74 FR 1793 (January 13, 2009). Despite this language from the governing agencies, DOW, CFI, and Complainants continue to assert that additional safety measures are unreasonable simply because they are not specifically mandated by FRA, Pipeline Hazardous Materials Safety Administration (“PHMSA”), and the Transportation Safety Administration (“TSA”).

There are 3 practices that Complainants, CFI, or Dow claim are unreasonable: (1) train speed; (2) notice requirements; and (3) priority train service. With regard to these issues, the Tariffs require the following: (1) shippers are required to give notice “to [Respondent Railroad] upon tender of a car or cars containing TIH/PIH to a rail carrier for delivery to [Respondent Railroad];” (2) trains will travel at the appropriate speed for safe operation based on the conditions of the rail line, time of year, weather, and any other relevant factors deemed relevant

² TIH/PIH is used as the abbreviation for Toxic Inhalation Hazards and Poison Inhalation Hazards.

³ Tariffs refers to AGR 0900-1, IORY 0900-1, PCN 0900-1, and MMRR 0900-1, the tariffs at issue in this proceeding.

⁴ On Opening, Respondents requested that the Board declare that the numerous versions of the SOP are mere proposals and not tariffs or enforceable contracts because the movement of trains containing TIH/PIH are governed by the Tariffs and not the SOP.

by [Respondent Railroad] operating and/or safety personnel;” and (3) when a Respondent Railroad receives a car or cars, they will be put into priority trains. These trains will depart within the 48 hour period required by 49 CFR §174.14. “The priority train will also provide more expeditious service and safer transit to the receiver than handling the car or cars in the normal course of business that would require moving through yards, switching onto a regular train, and starting and stopping at different shippers along the route to the receiver.” See Tariffs Purpose Section. No more than 3 cars loaded with TIH-PIH commodities will be transported in the same priority train at any time, unless approved by the General Manager of the individual railroad. See Tariffs Item 1000 F-General Rules. In the attached Verified Statement of Gary Wolf provides an engineering analysis of the handling of priority trains compared to the typical handling of local freights trains and concludes that the use of priority trains complies with FRA rules and is safer than using typical local freight trains.

Nevertheless, CFI and Complainants misrepresent the Tariffs’ content regarding train speed, notice requirements, and priority trains to support their unreasonable practice claims.

CFI argues that “protocols” which it does not specifically define but seem to include the SOPs, canceled tariffs, and portions of existing Tariffs are designed to force TIH/PIH shippers off of the various rail systems. CFI pointedly ignores the actual Tariff language in an attempt to support its claims and argues that TIH/PIH trains must move at a reduced speed of 10 mph and that a shipper must provide a five-day prior notice requirement.⁵ Neither of these factual assertions is accurate.

⁵ See CF Industries, Inc., Opening Evidence at 6, 8.

Complainants maintain that a key element of the Tariffs requires that all priority trains be accompanied at all times by a Respondent Railroad employee. While the Tariffs do not include any language to that effect, if the train is being moved by Respondent Railroad, it would logically be accompanied by a Respondent Railroad's employees, the engineer and conductor. Respondent Railroads do not operate remote controlled trains. Complainants also rely on inaccurate statements about limited train speeds to support an argument about the safety of tank cars, when there are no train speed restrictions in the Tariffs. Respondents do not deny that when tank cars are manufactured in accordance with the governing regulations, the tank car structures are relatively secure. But Respondent Railroads have chosen to go beyond the minimum regulatory requirements and adopt Tariffs that provide for additional safety measures.

On Opening, Respondents requested that the Board declare that the numerous versions of the SOP are mere proposals and not tariffs or enforceable contracts because the movement of trains containing TIH/PIH is governed by the Tariffs and not the SOP. Yet, Complainants and CFI continue to refer to different parts of multiple SOPs and revoked tariffs to support their claims.

RESPONDENT RAILROADS' TARIFFS ARE REASONABLE

Railroads may establish any practice that is reasonable, and the burden is on the complainants or the petitioning party to prove that the practices are not reasonable. *See City of Lincoln v. STB*, 414 F.3d 858 (8th Cir. 2005), and *North American Freight Car Association, et al. v. BNSF Railway Company*, STB Docket No. 42060 (Sub-No. 1) (STB served January 26, 2007). Respondent Railroads Tariffs are a reasonable practice.

Notice Requirement

The Tariffs simply require advance notice that a TIH/PIH car is being sent to a receiver

on a Respondent Railroad's line. The purpose of the notice is to allow the Respondent Railroads to track the TIH/PIH car as it makes its way across the country and to be prepared to receive that TIH/PIH car when it arrives at interchange. As PPG has stated, it takes 10 minutes to fill out the notice and fax it.⁶ Having that information so that Respondent Railroads can track the TIH/PIH car gives the short line railroads, who have limited resources, the ability to plan and effectively utilize their resources. The minimal burden of having to fill out a form is far outweighed by the ability of the receiving railroad to know when a shipment is coming.

In *Canexus Chemicals Canada L.P v. BNSF Railway Company*, STB Docket No. 42131 (STB served Feb. 8, 2012) ("*Canexus*") the Board did not say that BNSF's notice requirement was unreasonable, just that it weighed in favor of finding an interchange point unreasonable when compared to an interchange point that did not require prior notices. Even so, Respondent Railroads notice requirement is unlike BNSF's notice requirement in *Canexus*. BNSF required notice, when interchange takes place at a smaller yard that was not heavily staffed, to be given to the yard ahead of time by the interchanging carrier. Respondent Railroads require that notice be sent at the time the cars are tendered to the originating carrier, so that Respondent Railroads can track the progress of the cars and be prepared for interchange. The burden on the shipper is minimal.⁷

Nor is there a five-day prior notice requirement as CFI claims. Shippers are required to give notice "to [Respondent Railroad] upon tender of a car or cars containing TIH/PIH to a rail carrier for delivery to [Respondent Railroad]."⁸ Because there is no five-day prior notice

⁶ See Exhibit C to Respondents Opening Statement.

⁷ Indeed, if shippers and their associations had engaged Respondents in dialogue when the SOP's were presented, Respondent Railroads would have, and will still, consider reducing the information required in order to further reduce the burden on the shippers, while allowing the Respondent Railroads to track TIH/PIH shipments and be ready to receive and deliver them.

⁸ See Tariffs Appendix A.

requirement, CFI's argument that notification is unreasonable is fatally flawed because it is attacking a practice that is not part of the Tariffs and does not exist.

Train Speed

There is no speed limit mandated under the Tariffs. The Tariffs specifically state that “[t]he train will travel at the appropriate speed for safe operation based on the conditions of the rail line, time of year, weather, and any other relevant factors deemed relevant by [Respondent Railroad] operating and/or safety personnel.” CFI asserts that it is Respondent Railroads policy to apply 10 mph train speeds to all Respondent Railroads by relying on an email that was sent out after the Tariff was published. A quick look at all Respondent Railroads TIH/PIH tariffs will show that despite this email less than 20% of the Respondent Railroads have implemented tariffs similar to those at issue here. More importantly, the email cannot amend the Tariff and it is the Tariff that controls the shipper/railroad relationship.⁹ Despite the cited email, although some of the original Tariffs may have had speed restrictions, there are no speed restrictions in the governing most recent Tariffs.

As Respondents stated on opening,¹⁰ assuming there are not additional track issues or other conditions, like standing water or ice, for example, a train delivering TIH/PIH can move at FRA designated speeds for that track. On AGR the train delivering TIH/PIH from interchange to Arkema will travel at 10 miles per hour because the track it is traveling over is FRA Class I track with a 10 mile per hour speed limit. On the IORY, MMRR, and PCN the track where the TIH/PIH shipments move is FRA Class II, except that there are slow orders on the MMRR

⁹ See *Newton Gum Co. v. Chicago B. & Q. R. Co.*, 16 I.C.C. 341 (tariffs are to be interpreted according to the reasonable construction of their language); *Goe. C. Speir & Co., Inc. v. Atlanta & W.P.R. Co.*, 151 I.C.C. 705 (the tariffs are to be construed according to their terms and the intention of the framers is not controlling); and *Kenner Truck Farmers' Assn. v. Illinois Central R. Co.*, 32 I.C.C. 1 (the tariffs must be applied according to the plain language employed).

¹⁰ Respondents Opening at 18.

causing it to handle TIH/PIH at 10 mph. On the New England Central Railroad Company (“NECR”)¹¹, another RailAmerica subsidiary, TIH/PIH trains travel at 25 miles per hour. Therefore, contrary to CFI’s arguments, there is nothing that mandates a maximum speed of 10 miles per hour. The Tariffs require speed appropriate to existing conditions, but there is no maximum speed restriction of 10 miles per hour to transport TIH/PIH commodities, as evidenced by the NECR operations.

Priority Trains.

With regard to priority trains, when a Respondent Railroad receives a car or cars, they will be put into priority trains. These trains will depart within the 48 hour period required by 49 C.F.R. §174.14. “The priority train will also provide more expeditious service and safer transit to the receiver than handling the car or cars in the normal course of business that would require moving through yards, switching onto a regular train, and starting and stopping at different shippers along the route to the receiver.” *See* Tariffs Purpose Section and Verified Statement of Gary Wolf. No more than 3 cars loaded with TIH-PIH commodities will be transported in the same priority train at any time, unless approved by the General Manager of the Respondent Railroad. *See* Tariffs Item 1000 F-General Rules.

Respondent Railroads set the car limit at 3 cars based on the historic shipments of AGR which shipped no more than three TIH/PIH cars in a train. This was not because AGR limited the number of TIH/PIH cars, but merely because it was the maximum number of TIH/PIH cars that AGR received. Respondent Railroads are still open to discussing with Dow, CFI, Complainants and others the limits on the number of TIH/PIH cars included in priority trains. While the Tariffs limit the TIH/PIH cars to 3 per train, the Tariffs also provide a mechanism for

¹¹ NECR has tariff similar to the Tariffs at issue here. *See* Exhibit X.

moving more than 3 cars per train, if such move is approved by the railroad's general manager.

{In the TPW instance, did the cars run together on in 3 trains of three?} Thus, if the shippers are willing to communicate with the railroads about their needs, the railroads can work to meet those needs.

Burden of Proof

Respondents do not carry the burden of proof, to show that the Tariffs are reasonable. Despite Dow, CFI and Complainants protestations to the contrary, the burden of proof for showing that the Tariffs are unreasonable falls squarely on them. In a declaratory order proceeding, which is not at the behest of a court, the burden of proof falls on the party requesting the declaratory order. *See City of Lincoln v. STB*, 414 F.3d 858 (8th Cir. 2005).

Dow, Complainants, and CFI assert that there is a comprehensive regulatory regime already in place that governs the safety of hazardous materials transported by rail and it is managed by the FRA, PHMSA, and the TSA. Because this comprehensive safety system exists and is administered by an agency other than the Board, Dow, Complainants, and CFI believe that the Respondents have the burden of proving under *Consolidated Rail Corp. v. ICC*, 646 F.2d 642, 648 (D.C. Cir. 1981) ("*Conrail*") that the additional safety measures are necessary.

While both here and in *Conrail*, the traffic at issue was highly dangerous that is where the comparison between the two proceedings ends. *Conrail* was decided in a different context and under a different statutory scheme.

Prior to the Staggers Act, in an investigation, the burden of proof was on the railroad. *Bituminous Coal, Hiawatha, Utah, to Moapa, Nevada*, 361 I.C.C. 923, 928 (1979). The Staggers Act shifted the burden of proof to suspend (or enjoin) a proposed rule or practice to the

protestant (here Dow, CFI, and Complainants). 49 U.S.C. §10707(c)(2) repealed. The requesting party in an investigation proceeding has had the burden of proof for over 30 years.

There are significant distinctions between the tariffs addressed in *Conrail* and here. First, the tariffs in *Conrail* were subject to regulation by FRA and the NRC. The Tariffs here are not subject to regulation by the NRC. The Board itself has acknowledged that *Conrail* was premised “on a statutory scheme predating the Staggers Act.”¹² Specifically, a pre-Staggers Act provision expressly placed the burden of proof on the carrier that proposed a rate or practice change that was suspended or investigated before it became effective. See 49 U.S.C. §10707(e) (1980). Unlike this petition for declaratory order or a complaint proceeding, *Conrail* involved tariffs filed in response to an Interstate Commerce Commission investigation, thus the statutory scheme demanded that the railroad carry the burden of proof.¹³ The decision in *Trainload* occurred nearly six months before the Staggers Act became law and was governed by pre-Staggers Act law.

Dow, CFI, and Complainants maintain that under *Conrail* the Respondents must show that the additional safety measures are necessary. In *Conrail*, the railroads were asking for additional regulations not required under the regulatory scheme. Unlike in *Conrail*, Respondent Railroads are not asking the Board to impose additional safety measures beyond what the FRA allows.

Under 49 C.F.R. Part 174 (the “Rules”) enforced by the FRA, the Respondent Railroads may impose additional safety conditions on their own. In the final rules for Improving the Safety of Railroad Tank Car Transportation of Hazardous Materials, FRA and PHMSA stated

¹² *North American Freight Car Association, et al. v. BNSF Railway Company*, STB Docket No. 42060 (Sub-No. 1) (STB served January 26, 2007) (“*North American*”).

¹³ See *Trainload Rates on Radioactive Materials, Eastern R.R.*, 362 I.C.C. 756, 757 (1980) (“*Trainload*”).

that "...parties are encouraged to go beyond the minimum regulatory requirements in establishing and implementing plans, rules, and procedures for safe transportation operations." 74 FR 1793 (January 13, 2009). Unlike in *Conrail*, the Rules also specifically provide for additional safety measures "[w]hen local conditions make the acceptance, transportation, or delivery of hazardous materials unusually hazardous, local restrictions may be imposed by the carrier " 49 C.F.R. §174.20(a). Thus, the Railroads may impose additional restrictions based on local conditions as long as it reports those conditions.

Based on the language of 49 C.F.R. §174.20 (a) the Rules are not exhaustive, but leave room for private industry to supplement the regulations based on line specific concerns. The need for additional restrictions is at the discretion of the railroads and the states. Therefore, even if the Staggers Act had not shifted the burden of proof to the shipper, *Conrail* would not control in this case.

Dow, CFI, and Complainants insist that Respondents must justify that the Tariffs are necessary under *Conrail*. But as discussed above, Dow, CFI, and Complainants carry the burden of proving that the priority train service and other aspects of the Tariffs are unreasonable.

Dow, CFI, and Complainants Have Not Shown that the Tariffs Constitute an Unreasonable Practice

Dow claims that because Respondents have not shown that the existing regulatory scheme is insufficient, any additional safety measures are unreasonable. CFI and Complainants, argue that Respondents have not met their burden under *Conrail* of providing justification for imposition of more stringent requirements. Specifically CFI and Complainants contend that Respondents must prove that the expected benefit is commensurate to the cost and that when compared to other safety measures they represent an economical means of achieving the safety

benefits.¹⁴ As discussed above, Dow’s, CFI’s and Complainants’ reliance on *Conrail* is misguided.

The Board, in *North America*, determined that it need not follow *Conrail* in determining what constitutes a reasonable practice.

[I]n section 10702, Congress did not limit the Board to a single test or standard for determining whether a rule or practice is reasonable; instead, it gave the Board “broad discretion to conduct case-by-case fact-specific inquiries to give meaning to those terms, which are not self-defining, in the wide variety of factual circumstances encountered.”

The Board reaffirmed its adherence to *North American* when it stated: “Whether a particular practice is unreasonable depends upon the facts and circumstances of the case. The Board gauges the reasonableness of a practice by analyzing what it views as the most appropriate factors.” *Arkansas Electric Cooperative Corporation—Petition for Declaratory Order* (STB Finance Docket No. 35305) (STB served Mar. 3, 2011) (“*Coal Dust*”) at 5. Dow, CFI, and Complainants have the burden of proving the practices under the Tariffs are unreasonable. Respondents do not have to prove that the practices under the Tariffs are reasonable. Nevertheless, the practices provided for in the Tariffs are reasonable because they do not interfere with the Respondent Railroads common carrier obligation, are not a burden on the shippers, and increase safety on the Respondent Railroads.

The practices under the Tariffs will not cause Respondent Railroads to violate their common carrier obligation. In the recent *Canexus* decision, the Board stated that the common carrier obligation created two interrelated requirements, one, the railroad must provide, in writing, a common carrier rate to any person that requests them and two, the railroad must provide rail service pursuant to those rates upon reasonable request. *Citing* 49 U.S.C. §11101(a)

¹⁴ Complainants Opening at 8, citing *Conrail* at 648.

and (b) and *Union Pac. R.R.—Pet. for Declaratory Order*, Finance Docket No. 35219, slip. op at 3-4 (STB served June 11, 2009).

Railroad Respondents agree that they have a common carrier obligation to quote rates and provide service for the transportation of TIH/PIH. The Tariffs do not prevent Dow from requesting a common carrier rate and they do not prevent Respondent Railroads from providing such service pursuant to those rates.

Dow claims that the priority train service places unreasonable preconditions and restrictions on rail service for certain shippers.¹⁵ The priority train service does not create unreasonable preconditions or restrictions on TIH/PIH movements. Aside from paying the rate for the shipment, the notice requirement is the only requirement on the shipper. Taking 10 minutes to fill out a form required by the railroad so that it knows a TIH/PIH car is on the way is not a burden. Indeed, it expedites delivery by allowing the receiving railroad to track the car number so “you can watch it come across country. When it’s a day out...you can start gathering the resources” (see Deposition of Harry Shugart at Page 41, lines 2-4, Exhibit F of the Opening Statement), such as arranging for personnel and equipment to meet the train at interchange for inspection as required by FRA, and ensuring that the crew and locomotive are available to operate the priority train, probably within 12 hours of receipt of the car in interchange, instead of waiting for the next available train, which may be several days where there is two or three day per week service. “That’s the purpose of it, we just need to know its coming” *Id.* at page 41 (lines 5-6).

CFI takes issue with RailAmerica applying priority trains on a system-wide basis without accounting for local conditions. RailAmerica does not apply priority trains on a system wide

¹⁵ Dow Opening at 7

basis. Of RailAmerica's 43 railroads, only 7 have priority trains as part of their tariffs. The Railroad Respondents are all shortline railroads and have varying local conditions. In handling TIH/PIH the railroads have the following characteristics: AGR travels 21 miles from CN interchange in Mobile, AL, milepost 873.5, to Arkema at Le Moyne, AL, milepost 852.5 on FRA Class I track; MMRR travels 37.5 miles from CSXT interchange at Waverly Yard in Holland, MI, milepost 23.6, to Bayer Crop Sciences on the Bayer Spur track, milepost 61.1 on FRA Class II track, which is subject to slow orders requiring 10 mph operations for TIH/PIH; PCN travels 13.3 miles from UP interchange at Lolita, TX, milepost 0, to the Simplot Plant at Point Comfort, TX, milepost 13.3 on FRA Class II track; and IORY travels 10.3 miles from the CSXT interchange at NA Tower, milepost 5.49, to Dow Chemical at Reading, OH, milepost 15.79 on FRA Class II track. None of the Respondent Railroads provide scheduled service. They all have a limited number of employees. **TALK ABOUT COST OF SPILL cannot afford a hazardous materials spill.**

CFI does not address whether the Respondent Railroads practices are unreasonable. Not once in its opening statement does CFI make the argument that Respondent Railroads actual practices are unreasonable. Rather, CFI asserts that the "protocols" are designed to ultimately force TIH/PIH shippers off of the Respondent Railroads' systems but primarily focuses on whether Respondent Railroads practices are necessary for safety.

Necessary and reasonable are not equivalent.

CFI argues that the "protocols" have significant impacts on shippers, Respondents disagree that the impacts are significant but even if there were significant impacts, CFI has not demonstrated that the impacts were unreasonable considering the inherent danger of the commodities being shipped. Two of the three "protocols" that CFI contends are unreasonable

practices (10 mph train speed and 5-day notification) are not included in the Tariffs and are not a rule that the Respondent Railroads seek to enforce.

Complainants, Dow, and CFI claim that priority train service decreases safety on the line but they do not provide any studies to support their claims. Instead they refer to Respondents internal emails which show an open dialog between operations and marketing personnel regarding the implementation of the Tariffs. CFI, pointing to internal Respondents emails discussing the safety of implementing priority trains (again, none of the Tariffs place limits on the speed TIH/PIH trains can travel) on the Carolina Piedmont Railroad (“CPDR”) argue that because CPDR thought priority trains would increase safety concerns on its lines, such safety concerns would apply across all RailAmerica Railroads. RailAmerica took into account CPDR’s concerns and CPDR did not implement priority trains on its lines.

Complainants assert that if Respondent Railroads want to make changes to the current safety scheme they should petition the FRA or PHMSA. Under the regulations currently in place, the Respondent Railroads do not need to seek modifications of tank car designs or of railroad operating procedures to increase safety measures on their rail lines. Under the Rules, Respondents do not have to seek authority from FRA or PHMSA to add safety measures of the kind at issue here. 49 C.F.R. §174.20(a). The Tariffs do not impose safety measures that conflict with those imposed by the regulatory agency at 49 C.F.R. Part 174. In fact, the Tariffs’ requirements are complementary to the Rules and assist the Respondent Railroads in complying with the Rules.

THIS PROCEEDING IS NOT AN APPROPRIATE FORUM TO ADDRESS THE RATES SET IN THE TARIFFS.

It has been recognized that there is “a conceptual overlap between railroads’ ‘practices’ and their ‘rates.’” *Union Pacific Railroad v. ICC* (“*Union Pacific*”), 867 F.2d 646, 649-650

(D.C. Cir. 1989). When CFI, Dow, and Complainants continues to argue that the purpose of the Tariffs is to increase profitability and not for safety purpose,¹⁶ it is difficult to believe that the true reason for the petition for declaratory order is to stop an unreasonable practice.

Despite there being no maximum speed limit but for FRA standards, CFI argues that the 10 mph speed limit substantially increases shippers' costs.¹⁷ CFI also argues that the 3 cars per train will require customers to buy additional service¹⁸, ignoring the fact that CFI could request that additional cars move in one priority train. Complainants assert that the priority train service was implemented "with a clear view towards how much additional revenue and profit could be obtained for RailAmerica."¹⁹ And Complainants argue that the priority train charges are a "subterfuge for a scheme designed and implemented to greatly inflate RailAmerica profits under the guise of improved safety measures." *Id.* Complainants mention rates and profits again on page 6 of their Opening. If the parties truly believe the purpose behind these safety measures is to unreasonably increase profits, they should have brought a rate reasonableness complaint asking the Board to find that the profits were in unreasonable.

While couching it in terms of an unreasonable "surcharge" Dow goes so far as to state that the priority train service "does much more than merely recover Defendants costs of providing" priority train service, it asserts that priority train service unreasonably acts a revenue enhancer. Dow relies on *Rail Fuel Surcharges*, STB Ex Parte No. 661 (STB served Jan. 26, 2007), to support its claim that the "surcharge" is an unreasonable practice rather than an unreasonable rate. What Dow claims as a "surcharge" here is not the same as the surcharge in *Fuel Surcharges*. The fuel surcharge was found to be unreasonable because it was a percentage

¹⁶ CFI Opening at 7, Dow Opening at 25, Complainants Opening at 3-4.

¹⁷ CFI Opening at 9.

¹⁸ CFI Opening at 9.

¹⁹ Complainants Opening at 2.

of the base rate and not tied to the actual attributes of the movement that directly affected the amount of fuel used. **What Dow is really complaining about here is a percentage over the actual costs of the move, to provide for profits or other intangible cost associated with the movement that the Respondent Railroads include in the base rate they quote to shippers.**²⁰ Thus, the percentage that Dow complains of is truly a rate and not a practice. If the parties believe that the rates for services are unreasonable, the proper forum is a complaint proceeding seeking a rate reasonableness inquire.

The Respondent Railroads continue to contend that in order for the Board to address the excessive cost issue raised by CFI, Dow, and Complainants, they are requesting the Board to “engage in rate regulation,” under the guise of a declaratory order, a practice proscribed by *Union Pacific*. The Board addressed a similar issue in *Cargill, Incorporated v. BNSF Railway Company*, STB Docket No. NOR 42120 (STB served January 4, 2011) at 6, and concluded that the “claim would necessarily focus on whether the level of the rate is justified, contrary to *Union Pacific*” and therefore dismissed the rate reasonableness element of the unreasonable practice complaint.

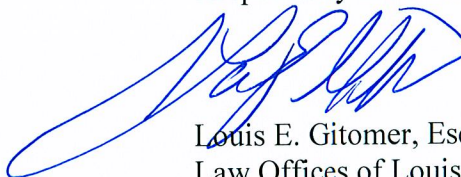
Respondents provide an example of the development of costs on the AGR for a priority train. [HIGHLY COFIDENTIAL TABLE SHOWING CALCULATION OF RATES AND COMPARING RATES TO 180% OF RVC]

²⁰ Shefelbine Deposition at 52-55.

CONCLUSION

Based on the evidence submitted, CFI, Dow, and Complainants have failed to show that the SOP is included in the Tariffs and that the actual Tariffs requirements are an unreasonable practice. Respondents respectfully request the Board to deny the relief sought by CFI, Dow, and Complainants in this proceeding.

Respectfully submitted,



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LLC, INDIANA & OHIO RAILWAY
COMPANY, POINT COMFORT AND
NORTHERN RAILWAY COMPANY,
AND MICHIGAN SHORE RAILROAD,
INC.

Dated: February 27, 2012

CERTIFICATE OF SERVICE

I hereby certify that on this date a copy of the foregoing document was served electronically and by first class mail postage pre-paid on

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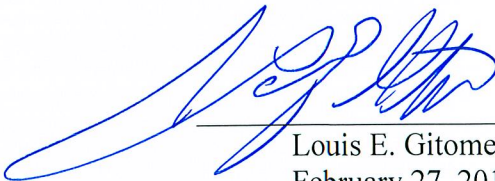
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Louis E. Gitomer
February 27, 2012

BEFORE THE
SURFACE TRANSPORTATION BOARD

STB Finance Docket No. 35517

CF INDUSTRIES, INC.
v.
INDIANA & OHIO RAILWAY COMPANY, POINT COMFORT AND NORTHERN
RAILWAY COMPANY, AND MICHIGAN SHORE RAILROAD, INC.

REPLY OF RAILAMERICA, INC., ALABAMA GULF COAST RAILWAY LLC, INDIANA
& OHIO RAILWAY COMPANY, POINT COMFORT AND NORTHERN RAILWAY
COMPANY, AND MICHIGAN SHORE RAILROAD, INC.

VOLUME II - EXHIBITS

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AND MICHIGAN SHORE RAILROAD,
INC.

Dated: February 27, 2012

EXHIBIT A-VERIFIED STATEMENT OF GARY WOLF

STB Finance Docket No. 35517

CF INDUSTRIES, INC.

v.

INDIANA & OHIO RAILWAY COMPANY, POINT COMFORT AND NORTHERN
RAILWAY COMPANY, AND MICHIGAN SHORE RAILROAD, INC.

VERIFIED STATEMENT OF GARY WOLF

I am Gary Wolf. I am the President of TÜV Rheinland Rail Sciences, Inc. ("TUV-RSI"). I have over 35 years' experience in investigation and analysis of train accidents and derailments. My resume is attached as Appendix B.

RailAmerica, Inc. ("RailAmerica") requested TUV-RSI to conduct a comprehensive study to assess the risk of potential derailments of trains handling toxic inhalation hazard/poisonous inhalation hazard (TIH/PIH) tank cars on the railroad subsidiaries of RailAmerica (the "Railroads"). The project objective is to quantify the change in derailment and product release risk for TIH/PIH shipments using new operating guidelines in Tariffs for TIH/PIH shipments as promulgated by the Railroads.

We used Tariff AGR 0900-2 as the basis for our study. As relevant to our study, AGR-0900-2 provides that (1) all TIH-PIH commodities will be moved in priority train service; (2) no more than 3 cars loaded with TIH-PIH commodities will be transported in the same priority train at any time, unless approved by the General Manager; and (3) the train will travel at the appropriate speed for safe operation based on the condition of the rail line, time of year, weather, and any other relevant factors deemed relevant by AGR operating and/or safety personnel.

The Analysis was performed utilizing the Train Operations Simulator ("TOS"), Derailment Predictor Model ("DPM"), LS-DYNA Finite Element Model ("FEM"), and statistical assessment to quantify the following results. The Analysis and work papers are contained in Appendix A.

TOS RESULTS

TOS results indicate stopping distances and coupler forces are less for priority trains versus typical local freight trains. The following table shows the speed of the train, the grade

that the train is traveling on, whether the train is engaged in emergency or regular braking, and the distance for a priority train to stop and for a local freight train to stop.

STOPPING DISTANCE TABLE

Speed (MPH)	Grade	Braking	Maximum Stopping Distance	
			Priority Train	Local Freight Train
10	-1%	Emergency	159 ft.	174 ft.
25	-1%	Emergency	719 ft.	792 ft.
10	-1%	Full Service	206 ft.	301 ft.
25	-1%	Full Service	920 ft.	1193 ft.

Maximum draft and buff forces are lower on priority trains versus typical local freight trains at either 10 mph or 25 mph while starting, stopping, cresting grade, negotiating sag, operating over undulating track, emergency braking, or service braking on either level, ascending, or descending grades.

DPM RESULTS

DPM results indicate that derailment damage is significantly less operating a 3 car priority train versus a typical local freight train. A typical local freight train derailing at 25 mph experiences 7 cars traveling 93 feet from POD, and 19 feet laterally from center line of track, assuming a 20° disengagement angle. A typical priority train derailing at 25 mph experiences 3 cars traveling 70 feet from POD and 14 feet laterally from center line of track, assuming a 20° disengagement angle.

A typical local freight train derailing at 10 mph experiences 2 cars traveling 37 feet from POD and 25 feet laterally from center line of track, assuming a 20° disengagement angle. A typical priority train derailing at 10 mph experiences 1 car traveling 12 feet from POD and 13 feet laterally from center line of track, assuming a 20° disengagement angle.

Simulation results are not sensitive to changes in disengagement angle or coupler type (shelf v. E coupler). Any time a car travels a shorter distance when it derails is the result of a safer operation.

FEM RESULTS

FEM results indicate the puncture performance of a chlorine tank car for side and end impacts at 10mph and 25mph for cars equipped with F-couplers. The F coupler was able to puncture the tank wall at 25 mph, for both types of impact. No puncture was recorded for both types of impact at 10mph.

STATISTICAL ANALYSIS

Statistical analysis of empirical data from the FRA Office of Safety (January 2001 - October 2011) shows the following:

Hazmat derailments are more likely to occur on main track rather than yard, siding, or industry tracks.

88% of main track hazmat derailments occur at speeds greater than 10 mph.

100 % of main track TIH/PIH derailments occur at speeds greater than 10 mph.

96% of hazmat main track derailments occur on train consists with more than 10 cars.

100% of main track TIH derailments occur on trains with greater than 10 cars.

CONCLUSION

Both the simulation analysis of derailment risk and the 10 year statistical analysis of TIH/Hazmat derailments show that moving TIH cars in a priority train of 3 cars and at a speed of 10 MPH will virtually eliminate the risk of derailment and the release of TIH product should a derailment occur. Conversely, moving these TIH cars in mixed freight trains at speeds of 25 MPH will increase potential risk for derailment and possible release due to tank puncture. Lower

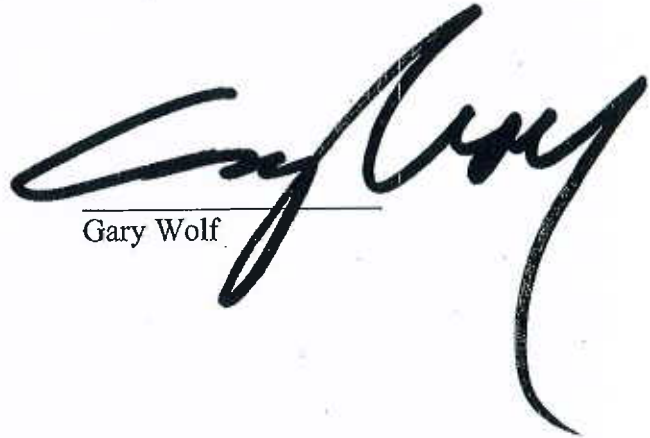
speed operation at 10 MPH reduces the severity of a derailment, reduces stopping distances required to prevent possible collision, reduces the in-train drawbar and slack action forces, and virtually eliminates the risk of puncture and product release. Details are provided in the Appendixes attached hereto.

Based on our analyses, I have reached three conclusions concerning the operation of TIH/PIH under Tariff AGR-0900-2. First, operation of a priority train under Tariff AGR-0900-2 complies with FRA rules. Second, the results of our studies confirm the benefits of avoiding the typical handling of rail cars in a local freight train, and instead placing TIH/PIH cars in a priority train. Third, it is clear that it is safer to use priority train service to handle TIH/PIH instead of continuing to use local freight trains to haul TIH/PIH.

VERIFICATION

I, Gary Wolf, verify under penalty of perjury under the laws of the United States that the foregoing is true and correct. Further, I certify that I am qualified and authorized to file this Verified Statement.

Executed on February 21, 2012.



Gary Wolf

APPENDIX A

Appendix B

APPENDIX A-ANALYSIS AND WORK PAPERS

TIH/PIH Tank Car Derailment Risk Assessment and Reduction

Prepared for:
RailAmerica

Prepared by:
***TÜV Rheinland
Rail Sciences, Inc.***

February 8, 2012

Discussion

- Rail America requested TÜV Rheinland Rail Sciences, Inc. (TUV-RSI) conduct a comprehensive study to assess the risk of potential derailments of trains handling toxic inhalation hazard/poisonous inhalation hazard (TIH/PIH) tank cars on Rail America.
- The project objective is to quantify the reduction in derailment and product release risk for TIH/PIH shipments using new operating guidelines for TIH/PIH shipments as promulgated by Rail America.
- Rail America AGR Tariff 0900-2 specifies :
 - All TIH-PIH commodities will be moved in priority train service.
 - No more than 3 cars loaded with TIH-PIH commodities will be transported in the same priority train at any time, unless approved by the General Manager.
 - The train will travel at the appropriate speed for safe operation based on the condition of the rail line, time of year, weather, and any other relevant factors deemed relevant by AGR operating and/or safety personnel.
 - Other operating and safety procedures.
- Analysis was performed utilizing the Train Operations Simulator (TOS), Derailment Predictor Model (DPM), LS-DYNA Finite Element Model (FEM), and statistical assessment to quantify the following results.

- TOS results indicate stopping distances and coupler forces are less for TIH versus typical local freight trains:
 - Maximum stopping distance at 10 mph , -1% grade, in emergency braking is less for TIH trains versus typical local freight trains, i.e., 159 ft. versus 174 ft.
 - Maximum stopping distance at 25 mph , -1% grade, in emergency braking is less for TIH trains versus typical local freight trains, i.e., 719 ft. versus 792 ft.
 - Maximum stopping distance at 10 mph , -1% grade, in full service braking is less for TIH trains versus typical local freight trains, i.e., 206 ft. versus 301 ft.
 - Maximum stopping distance at 25 mph , -1% grade, in full service braking is less for TIH trains versus typical local freight trains, i.e., 920 ft. versus 1193 ft.
 - Maximum draft and buff forces are lower on TIH trains versus typical local freight trains at either 10 mph or 25 mph while starting, stopping, cresting grade, negotiating sag, operating over undulating track, emergency braking, or service braking on either level, ascending, or descending grades.

- DPM results indicate that derailment damage is significantly less operating a 3 car TIH train versus a typical local freight train:
 - A typical local freight train derailling at 25 mph experiences 7 cars traveling 93 ft. from POD, 19 ft. laterally from CL of track, assuming a 20° disengagement angle.
 - A typical TIH train derailling at 25 mph experiences 3 cars traveling 70 ft. from POD, 14 ft. laterally from CL of track, assuming a 20° disengagement angle.
 - A typical local freight train derailling at 10 mph experiences 2 cars traveling 37 ft. from POD, 25 ft. laterally from CL of track, assuming a 20° disengagement angle.
 - A typical TIH train derailling at 10 mph experiences 1 cars traveling 12 ft. from POD, 13 ft. laterally from CL of track, assuming a 20° disengagement angle.
 - Simulation results are not sensitive to changes in disengagement angle or coupler type (shelf v. E coupler).
- FEM results indicate the puncture performance of a chlorine tank car for side and end impacts at 10mph and 25mph for cars equipped with F-couplers.
 - The F coupler was able puncture the tank wall at 25 mph, for both types of impact.
 - No puncture was recorded for both types of impact at 10mph.

- Statistical analysis of empirical data from the FRA Office of Safety (January 2001 - October 2011) shows:
 - Hazmat derailments are more likely to occur on main track rather than yard, siding, or industry tracks.
 - 88% of main track hazmat derailments occur at speeds greater than 10 mph.
 - 100 % of main track TIH derailments occur at speeds greater than 10 mph.
 - 96% of hazmat main track derailments occur on train consists with more than 10 cars.
 - 100% of main track TIH derailments occur on trains with greater than 10 cars.

Conclusion

- Both the simulation analysis of derailment risk and the 10 year statistical analysis of TIH/Hazmat derailments show that moving TIH cars in a dedicated train of 3 cars and at a speed of 10 MPH will virtually eliminate the risk of derailment and the release of TIH product should a derailment occur.
- Conversely, moving these TIH cars in mixed freight trains at speeds of 25 MPH will increase potential risk for derailment and possible release due to tank puncture.
- Lower speed operation at 10 MPH reduces the severity of a derailment, reduces stopping distances required to prevent possible collision, reduces the in-train drawbar and slack action forces, and virtually eliminates the risk of puncture and product release.
- See appendices for details.

Conclusion

- To summarize based on the analyses, three conclusions have been reached concerning the operation of TIH/PIH under Tariff AGR-0900-2:
 1. The operation of a priority train under Tariff AGR-0900-2 complies with FRA rules.
 2. The results of our studies confirm the benefits of avoiding the typical handling of rail cars in a local freight train, and instead placing TIH/PIH cars in a priority train.
 3. It is clear that it is safer to use priority train service to handle TIH/PIH instead of continuing to use local freight trains to haul TIH/PIH.

Appendices

- Appendix i TOS Analysis
- Appendix ii DPM Analysis
- Appendix iii LS-DYNA FEM Analysis
- Appendix iv Statistical Analysis

Train Operations Simulator (TOS) *Stopping Distance and Coupler Force Analysis*

Longitudinal (Coupler) Force Analysis

- Simulated two consists:
 1. Typical Local Freight (1817 Trailing Tons)
 - » 1 GP40
 - » 4 Empty Box Cars
 - » 4 Loaded Box Cars
 - » 3 Loaded TIH Tank Cars
 - » 5 Loaded Non-TIH Tank Cars
 - » 3 Empty Lumber Flat Cars
 2. TIH Train (428 Trailing Tons)
 - » 1 GP40
 - » 1 Empty Box Car
 - » 3 TIH Tank Cars (Loaded)

Stopping Simulations

- Both trains were simulated at 10 and 25 MPH.
- Full Service and Emergency stops
- Level, -1% and +1% grades.
- Extracted forces and stopping distances.
- Train handling:
 - Throttle in IDLE at start
 - Engine brake bailed off for local freight train, allowed to apply for TIH train.

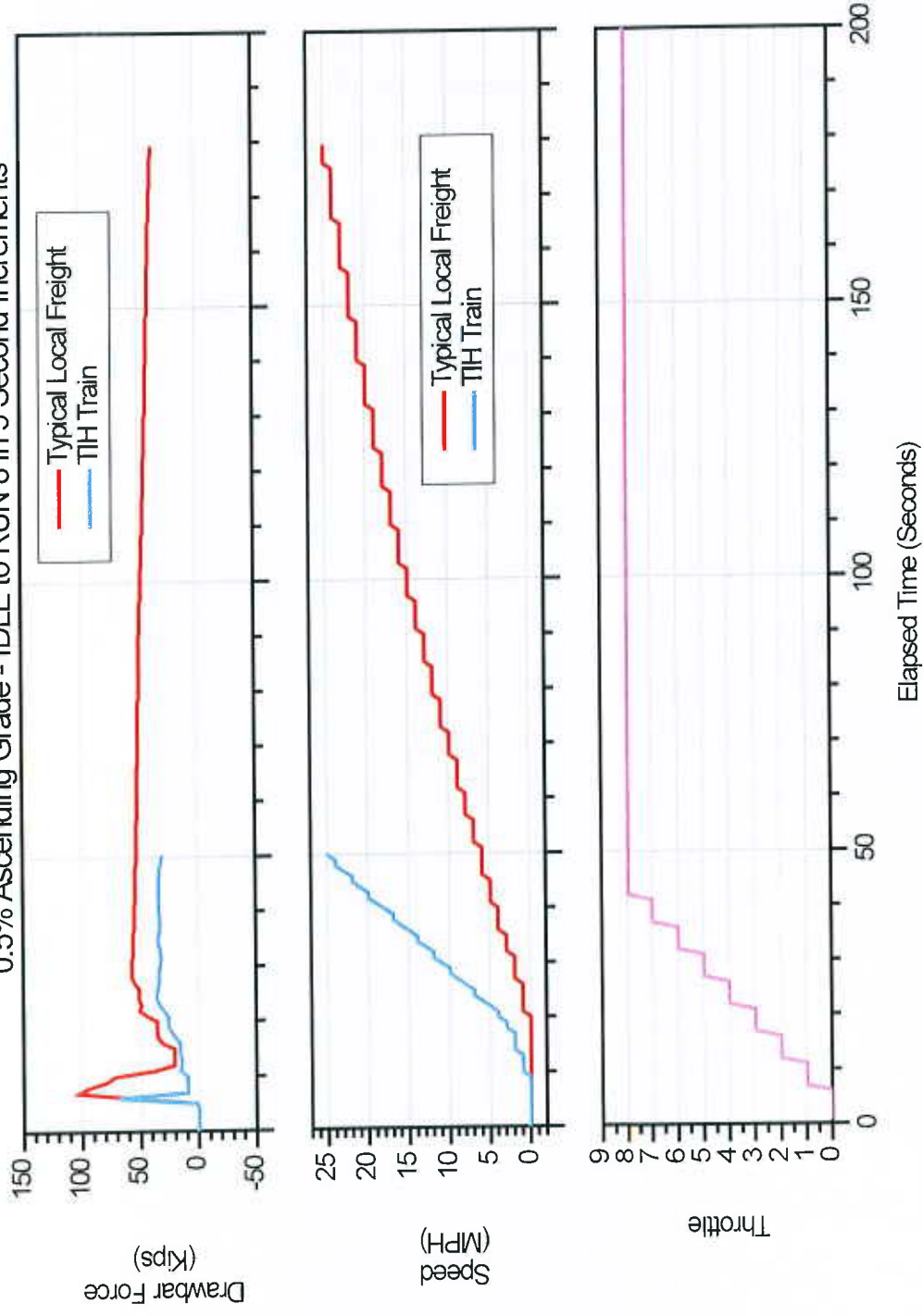
Stopping Simulation Results

			Typical Local Freight			TIH Train		
	Speed (MPH)	Grade (%)	Max Draft (Kips)	Max Buff (Kips)	Distance (Feet)	Max Draft (Kips)	Max Buff (Kips)	Distance (Feet)
Braking Type								
Emergency	10	-1	25	-39	174	0	-18	159
Emergency	10	0	113	-47	148	0	-34	127
Emergency	10	1	47	-38	116	0	-47	101
Emergency	25	-1	47	-38	792	0	-17	719
Emergency	25	0	30	-39	681	0	-33	582
Emergency	25	1	22	-27	549	0	-45	481
Full Service	10	-1	18	-32	301	0	-15	206
Full Service	10	0	36	-35	232	0	-31	153
Full Service	10	1	25	-33	164	0	-40	122
Full Service	25	-1	19	-30	1193	0	-14	920
Full Service	25	0	57	-39	972	0	-30	698
Full Service	25	1	29	-29	744	0	-40	566

Startup Simulations

- Both trains (Local and TIH Train) were simulated.
- Start from 0 MPH and IDLE.
- Increase throttle in 5 second increments until RUN 8 is reached.
- Continue until a speed of 25 MPH is achieved.
- Recorded maximum draft forces (buff forces were negligible). See slide 14.

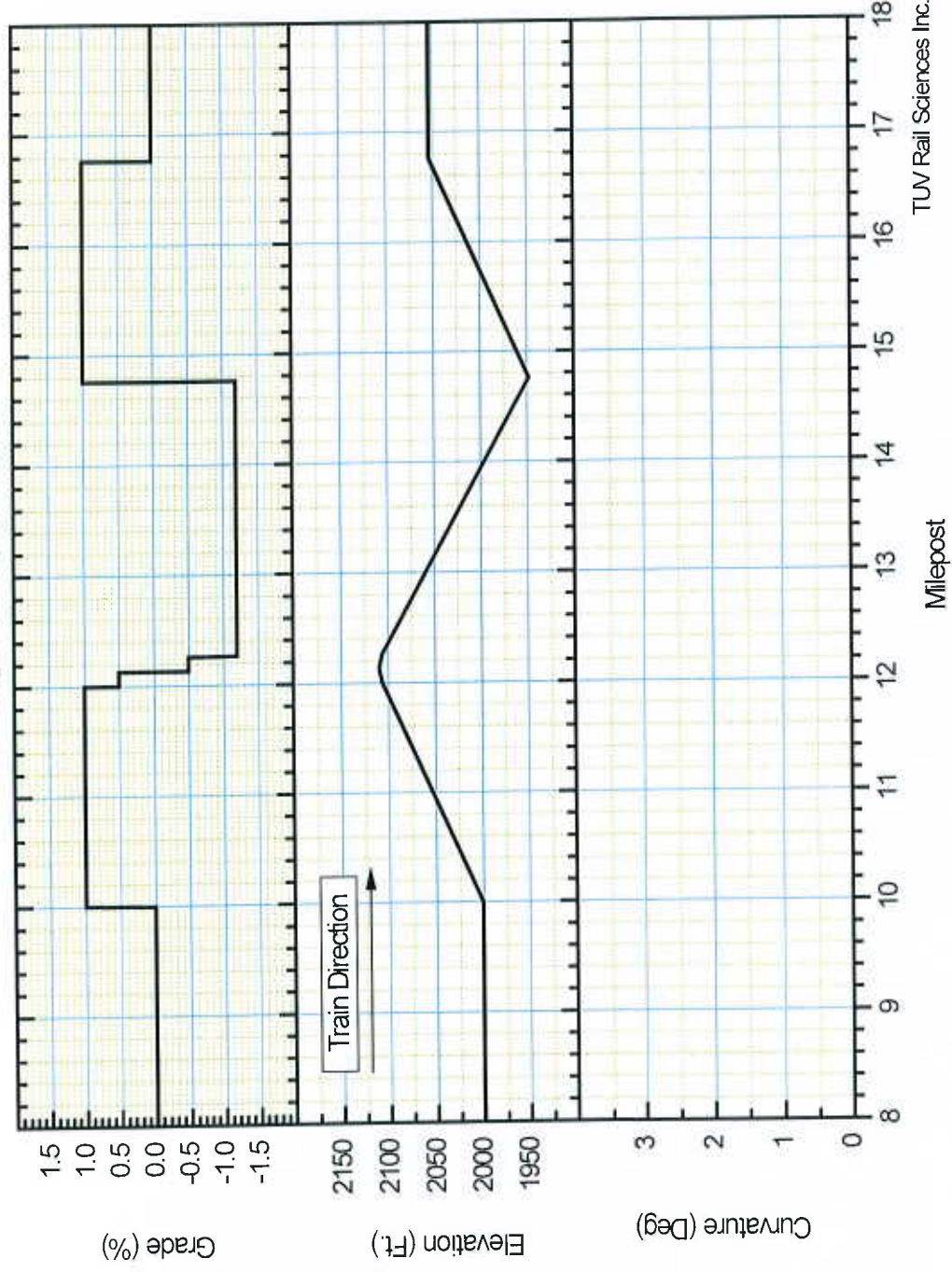
TIH Study Startup Force Comparison - Accelerate to 25 MPH 0.5% Ascending Grade - IDLE to RUN 8 in 5 Second Increments



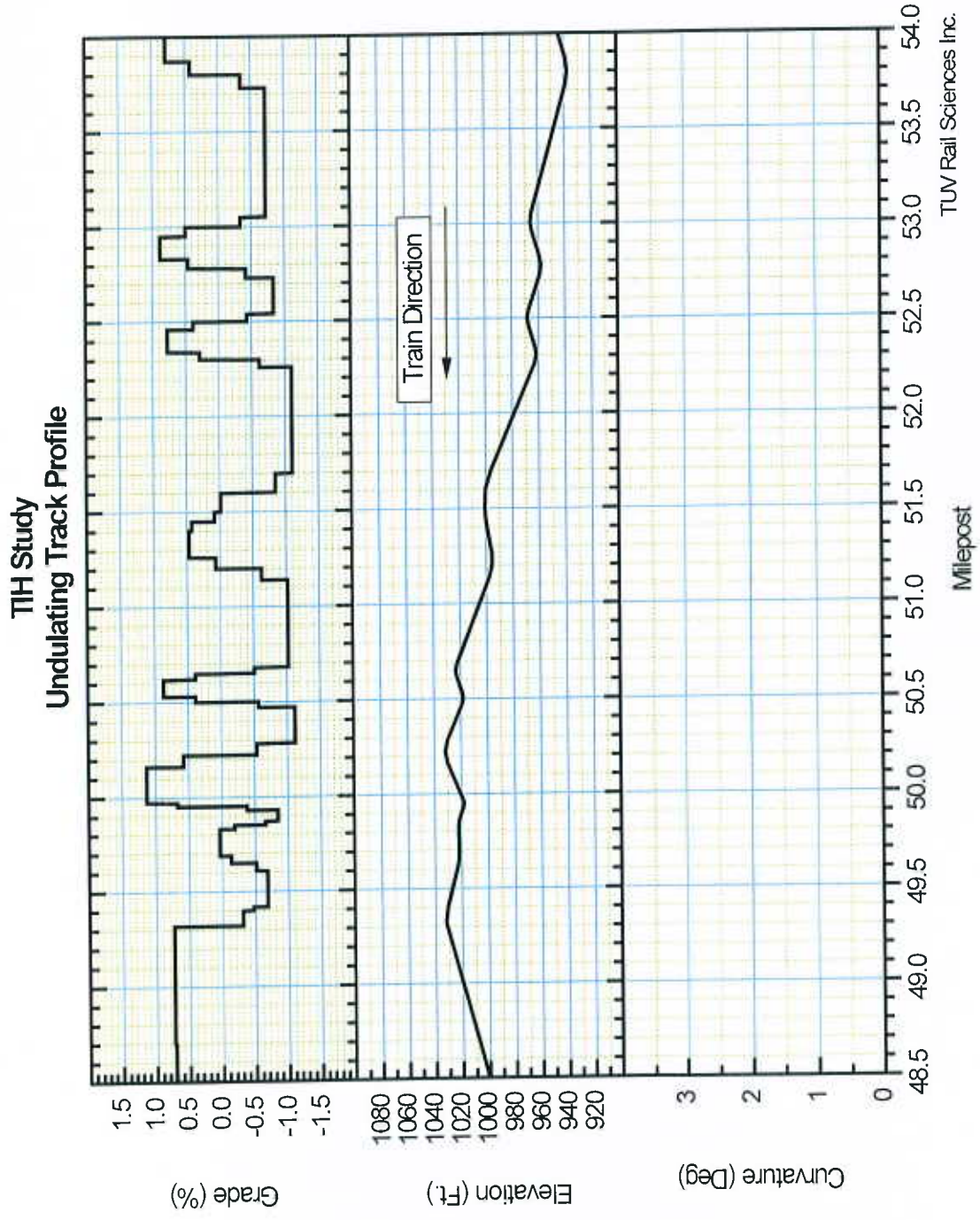
Over-the-Road Simulations

- Both trains (Local and TIH Train) were simulated.
- Speeds of 10 MPH and 25 MPH were maintained for both trains.
- Nominal train handling was used in all simulations.
- The maximum draft and buff drawbar force was extracted for each scenario.
- The following two slides (16 and 17) show the track files used in the simulations.
- Slide 18 shows the simulation results.

TIH Study
Cresting and Sag Track Profile



TUV Rail Sciences Inc.



Over-the-Road Simulation Results Cresting, Sag and Undulating Tracks

Train Handling	Speed (MPH)	Typical Local Freight		TIH Train	
		Max Draft (Kips)	Max Buff (Kips)	Max Draft (Kips)	Max Buff (Kips)
Cresting	10	44	-94	40	-70
Cresting	25	41	-45	47	-34
Sag Negotiation	10	65	-54	48	-25
Sag Negotiation	25	76	-28	32	-20
Undulating	10	76	-96	59	-54
Undulating	25	107	-82	36	-40

- TOS simulation results indicate:
 - Maximum stopping distance at 10 mph , -1% grade, in emergency braking is less for TIH trains versus typical local freight trains, i.e., 159 ft. versus 174 ft.
 - Maximum stopping distance at 25 mph , -1% grade, in emergency braking is less for TIH trains versus typical local freight trains, i.e., 719 ft. versus 792 ft.
 - Maximum stopping distance at 10 mph , -1% grade, in full service braking is less for TIH trains versus typical local freight trains, i.e., 206 ft. versus 301 ft.
 - Maximum stopping distance at 25 mph , -1% grade, in full service braking is less for TIH trains versus typical local freight trains, i.e., 920 ft. versus 1193 ft.
 - Maximum draft and buff forces are lower on TIH trains versus typical local freight trains at either 10 mph or 25 mph while starting, stopping, cresting grade, negotiating sag, operating over undulating track, emergency braking, or service braking on either level, ascending, or descending grades.

Derailment Predictor Model (DPM) *Analysis*

DPM Simulation Results

- Both trains (Local and TIH Train) were used.
- Derailment starts with locomotive.
- 10 MPH and 25 MPH.
- Two disengagement angles (default 11.5 and 20 degrees)
- Tested sensitivity to coupler type (was not sensitive in this case).
- Recorded distance of furthest derailed car from POD. (Center of car is at POD at start. Distance is from POD to center of car)
- Recorded distance of center of car from centerline of track.
- Recorded number of cars that were involved in the derailment.

DPM Simulation Results

		DPM Simulation Results					
Wheel		Typical Freight Train			TIH Train		
Initial Speed (MPH)	Disengagement Angle (Degrees)	Distance From POD (Feet)	Lateral Excursion (Feet)	Involved Cars	Distance From POD (Feet)	Lateral Excursion (Feet)	Involved Cars
25	11.5	98	10	7	74	11	3
10	11.5	42	17	1	14	8	1
25	20	93	19	7	70	14	3
10	20	37	25	2	12	13	1

- DPM results indicate that derailment damage is significantly less operating a 3 car TIH train versus a typical local freight train:
 - A typical local freight train derailling at 25 mph experiences 7 cars traveling 93 ft. from POD, 19 ft. laterally from CL of track, assuming a 20° disengagement angle.
 - A typical TIH train derailling at 25 mph experiences 3 cars traveling 70 ft. from POD, 14 ft. laterally from CL of track, assuming a 20° disengagement angle.
 - A typical local freight train derailling at 10 mph experiences 2 cars traveling 37 ft. from POD, 25 ft. laterally from CL of track, assuming a 20° disengagement angle.
 - A typical TIH train derailling at 10 mph experiences 1 cars traveling 12 ft. from POD, 13 ft. laterally from CL of track, assuming a 20° disengagement angle.
 - Simulation results are not sensitive to changes in disengagement angle or coupler type (shelf v. E coupler).

LS-DYNA Finite Element Model (FEM)

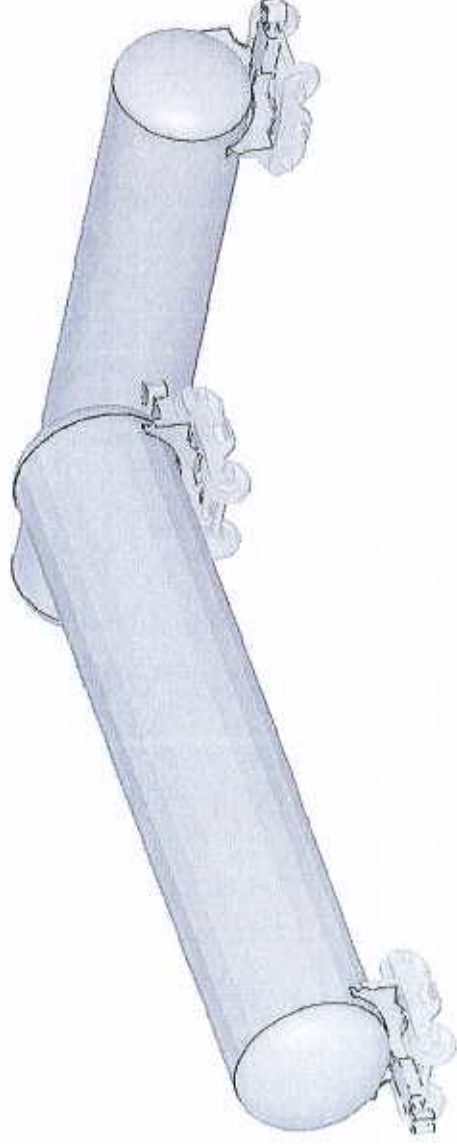
Analysis

CHLORINE Tank CAR PUNCTURE

IMPACT ANALYSIS

with

LS-DYNA





SUMMARY



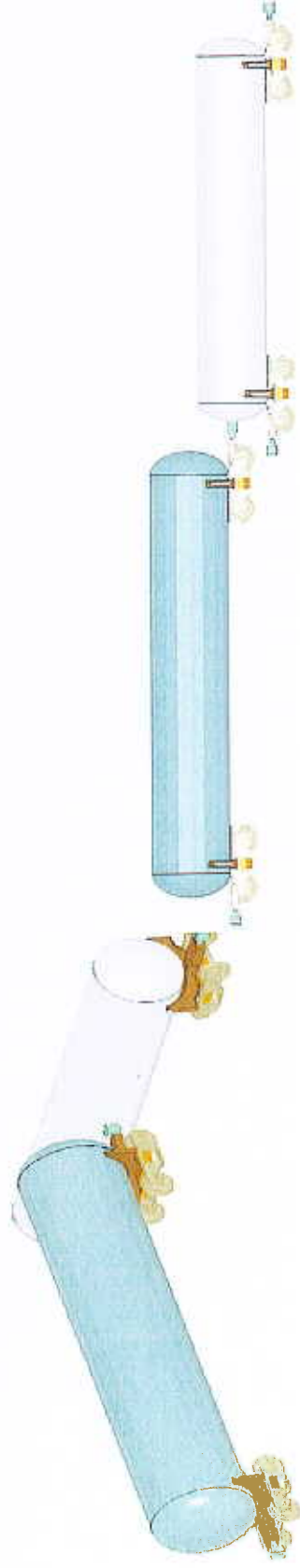
FE MODEL OVERVIEW



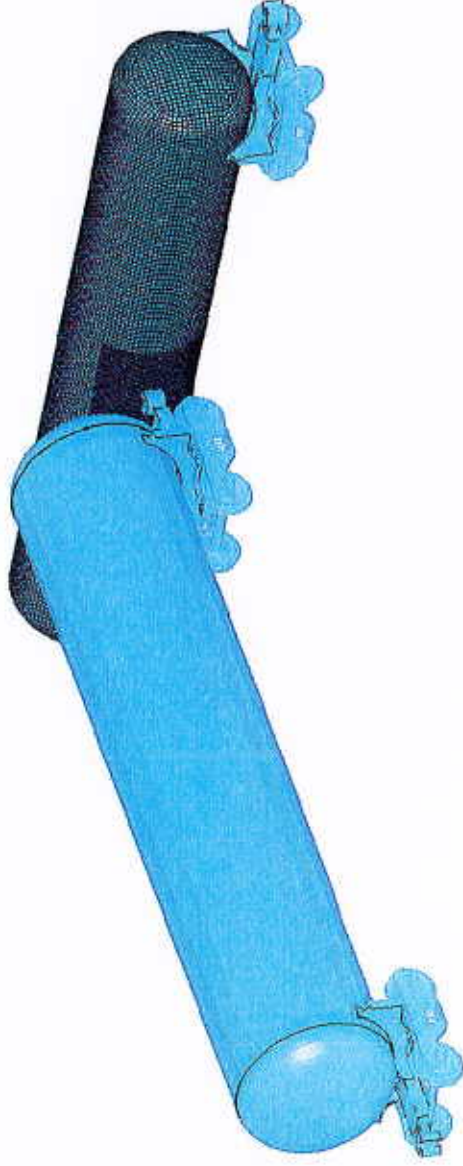
RESULTS

CHLORINE CAR PUNCTURE

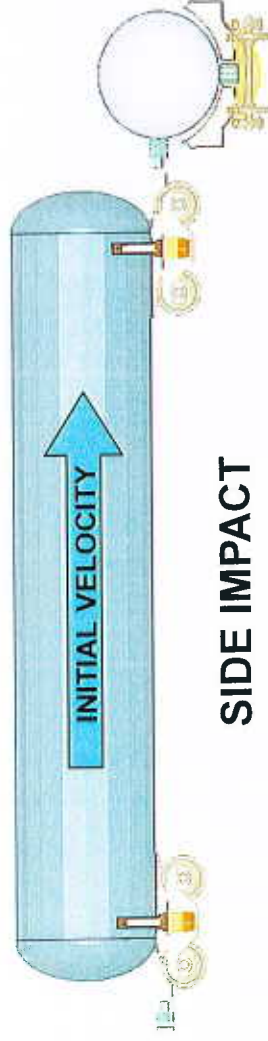
- ☐ A finite Element Model (FEM) was built to study the puncture performance of a chlorine tank car
- ☐ The cases of side and end impacts were examined at 10mph and 25mph for cars equipped with F-couplers
- ☐ The tank was modeled by a steel grade conforming to the requirements of the AAR spec TC128-B (M 128)
- ☐ The punctured tank was not pressurized, the lading was Chlorine
- ☐ The tare weight of the impacted car was 35 metric tons (77,741 lb.)
- ☐ Analysis indicated that the F coupler was capable of puncturing the wall of the tank car at a speed of 25mph, for both types of impact
- ☐ No puncture was recorded for both types of impact at 10mph



FINITE ELEMENT MODEL OVERVIEW



FINITE ELEMENT MODEL OVERVIEW



SIDE IMPACT

SIDE RUN003: IV=10 mph
SIDE RUN004: IV=25 mph



END IMPACT

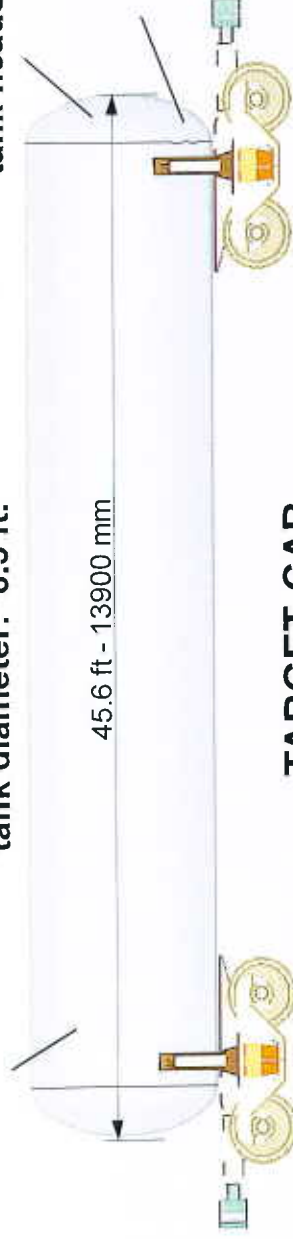
END RUN003: IV=10 mph
END RUN004: IV=25 mph

ANALYSIS CASES

FINITE ELEMENT MODEL OVERVIEW

tank shell: 13/16 in - 20.6375 mm
tank diameter: 8.5 ft.

tank heads: 0.7874 in - 20.00 mm



TARGET CAR

tare weight: 77,741 lbm - 35 metric tons
chlorine weight: 231,144 lbm - 105 metric tons
gross weight: 308,885 lbm - 140 metric tons
fluid volume: 19,043 gallons - 72,086 liters

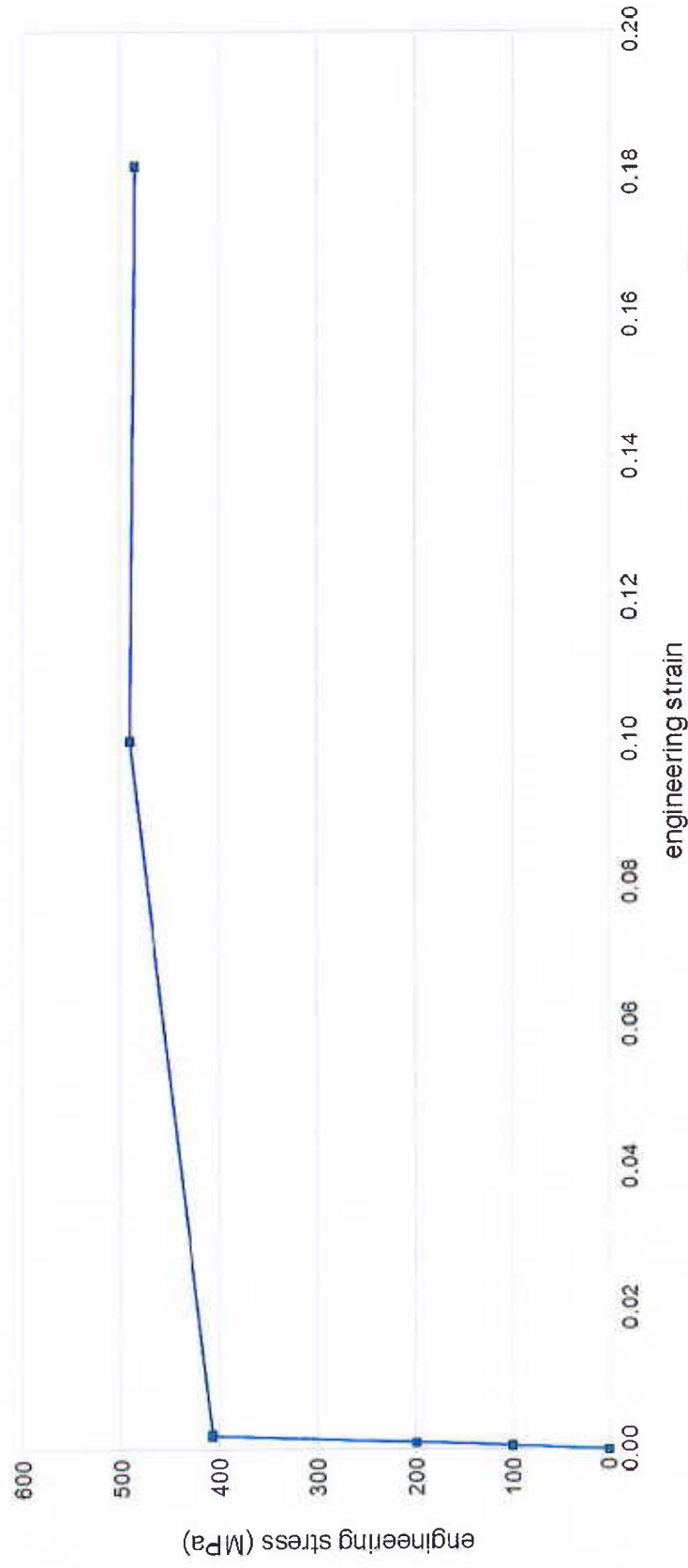


MOVING CAR

gross weight: 296,588 lbm - 134.53 metric tons

FINITE ELEMENT MODEL OVERVIEW

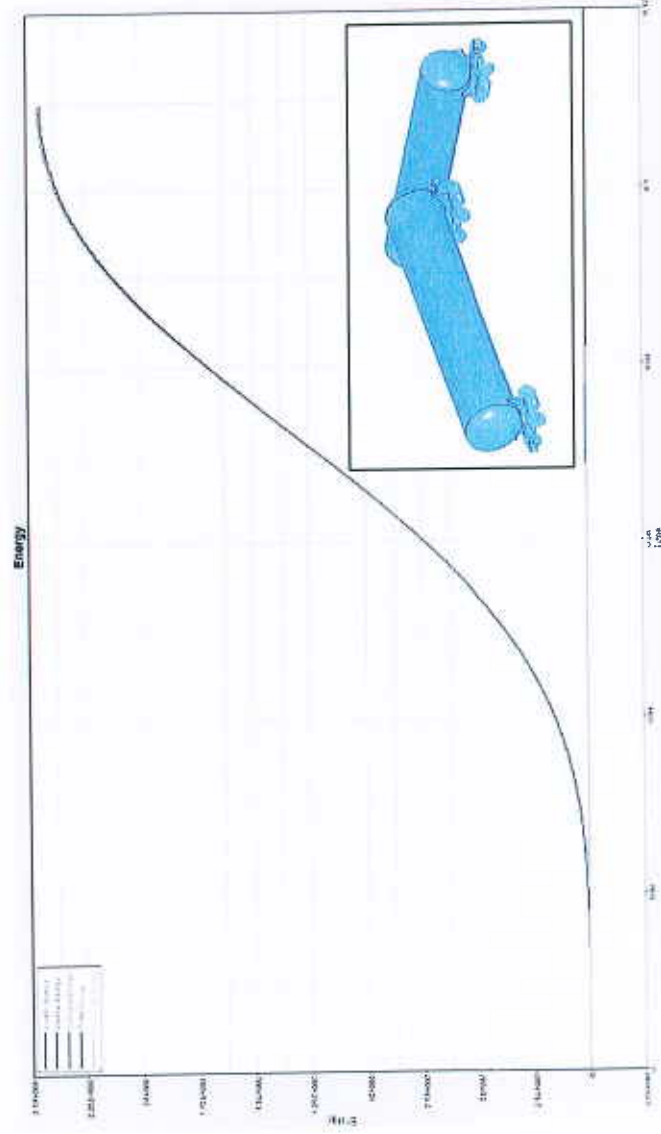
AISI 1526



TANK MATERIAL
AISI 1526 per AAR spec TC128-B (M
128)

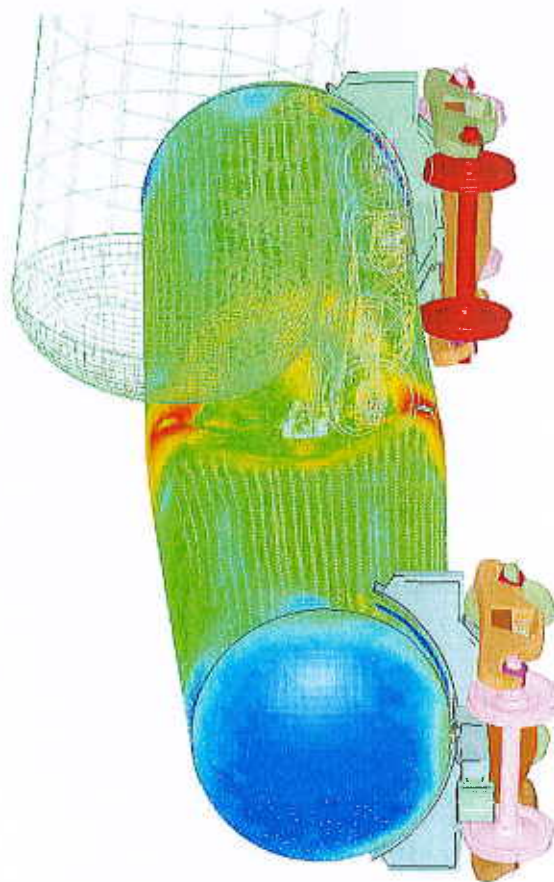


ANALYSIS RESULTS



ANALYSIS RESULTS

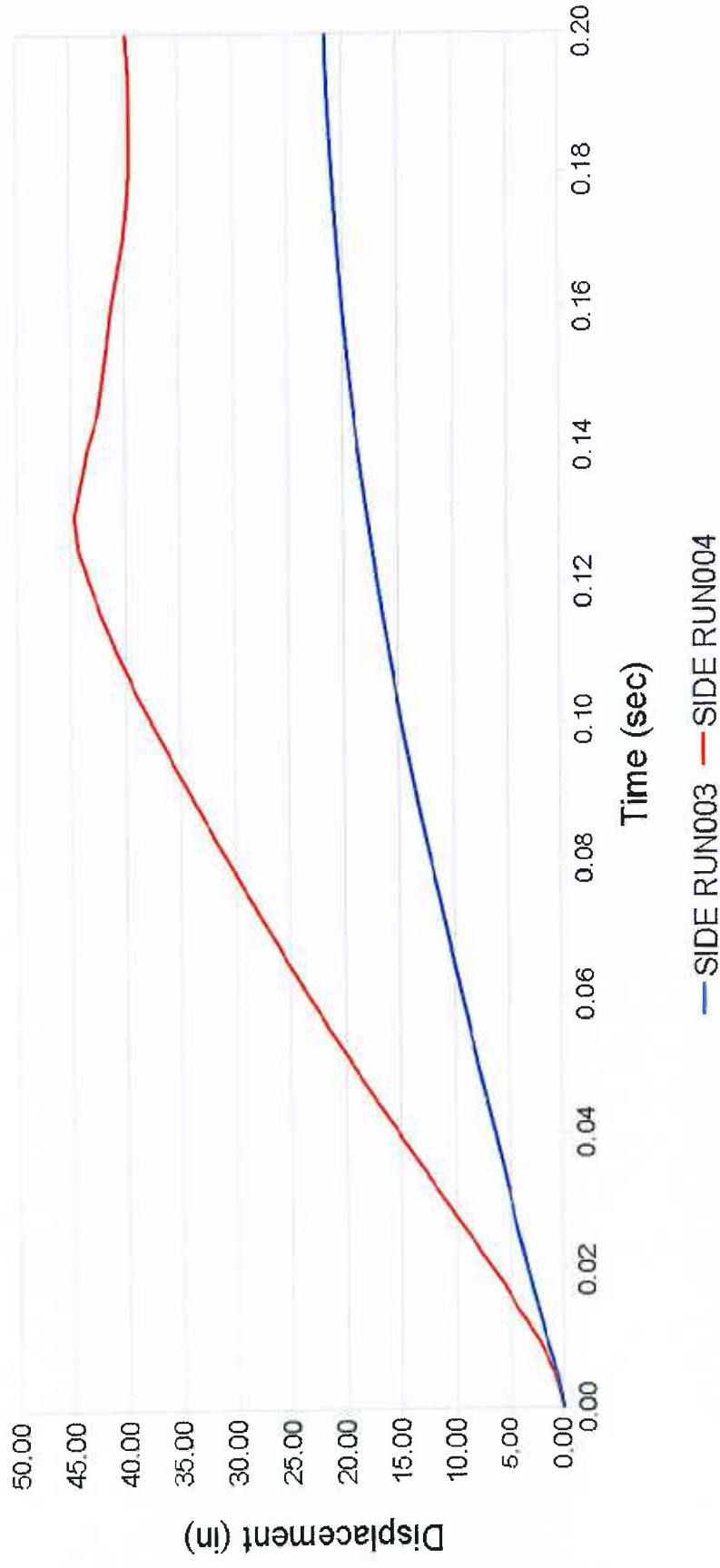
model	impact velocity (mph)	impactor	wall material	damage	absolute wall intrusion(in)	max impact force (lb)
side collision						
SIDE RUN003	10	tank car / F coupler	AAR TC120 Gr D	tank survived	21.46	540,030
SIDE RUN004	25	tank car / F coupler		tank punctured	44.73	959,316
end collision						
END RUN003	10	tank car / F coupler	AAR TC128 Gr B	tank survived	10.62	552,099
END RUN004	25	tank car / F coupler		tank punctured	26.83	1,226,373



SIDE-IMPACT COLLISION

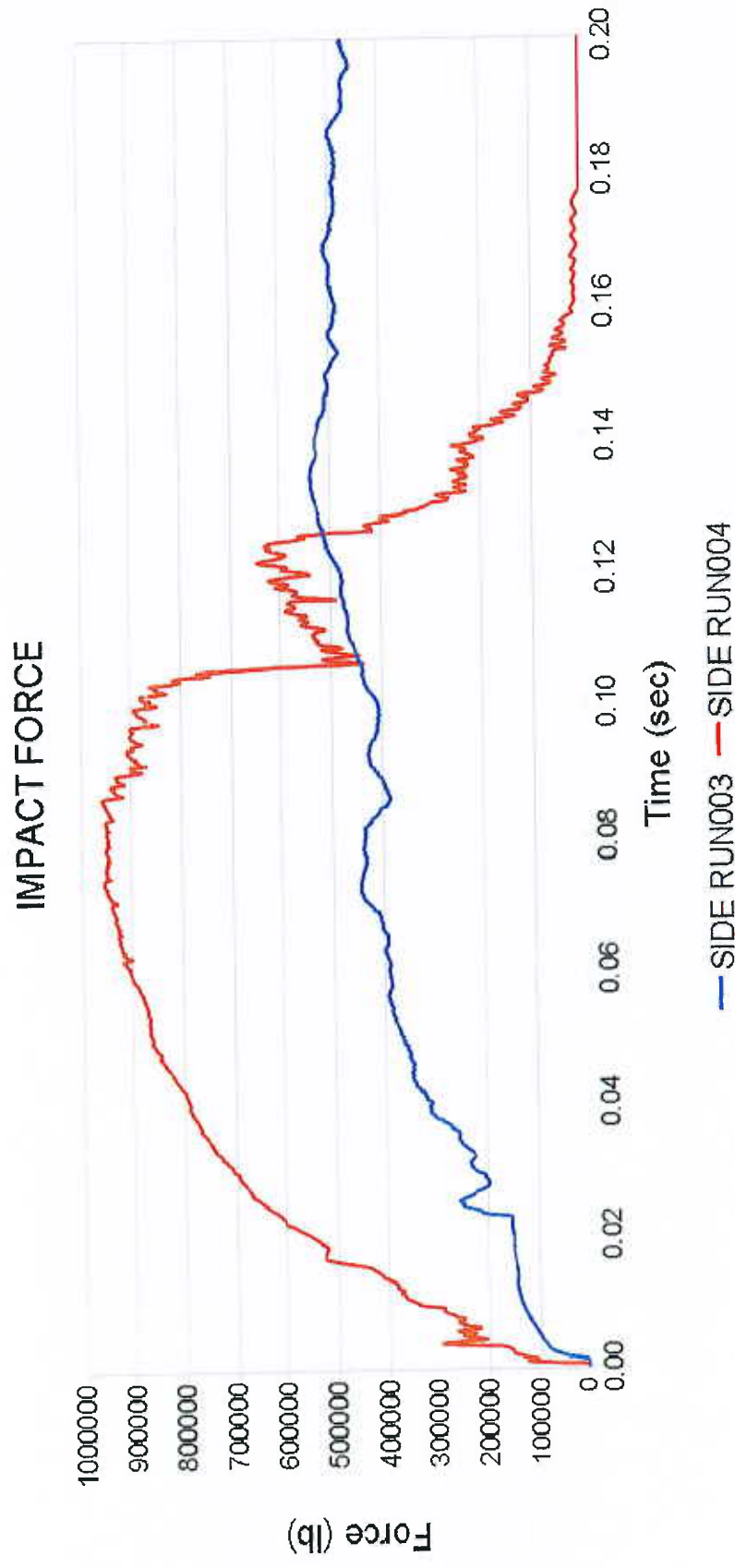
ANALYSIS RESULTS

ABSOLUTE WALL INTRUSION



SIDE RUN003 10 mph
SIDE RUN004 25 mph

ANALYSIS RESULTS



SIDE RUN003 10 mph
SIDE RUN004 25 mph

ANALYSIS RESULTS

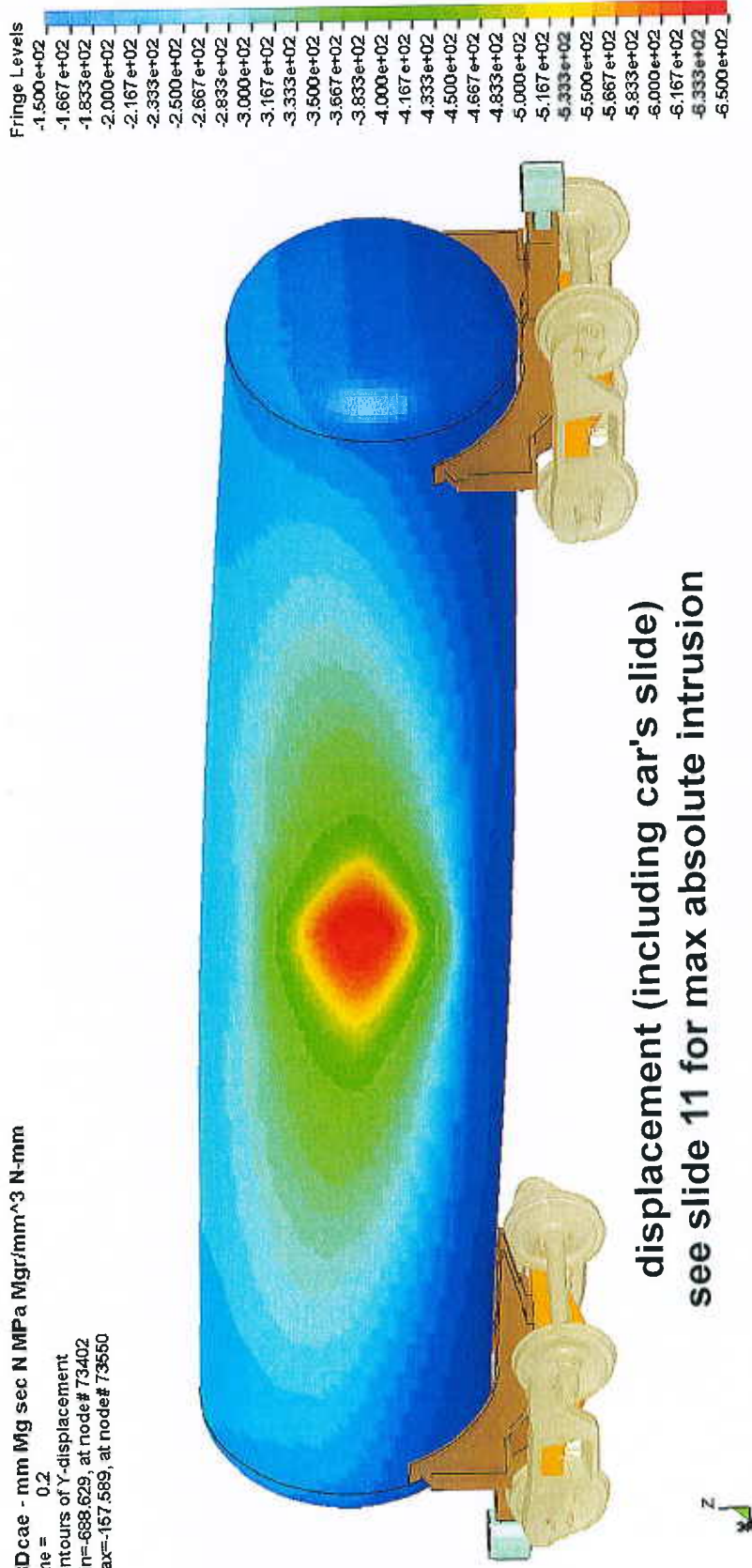
X3Dcae - mm Mg sec N MPa Mgr/mm^3 N-mm

Time = 0.2

Contours of Y-displacement

min=-.688.629, at node# 73402

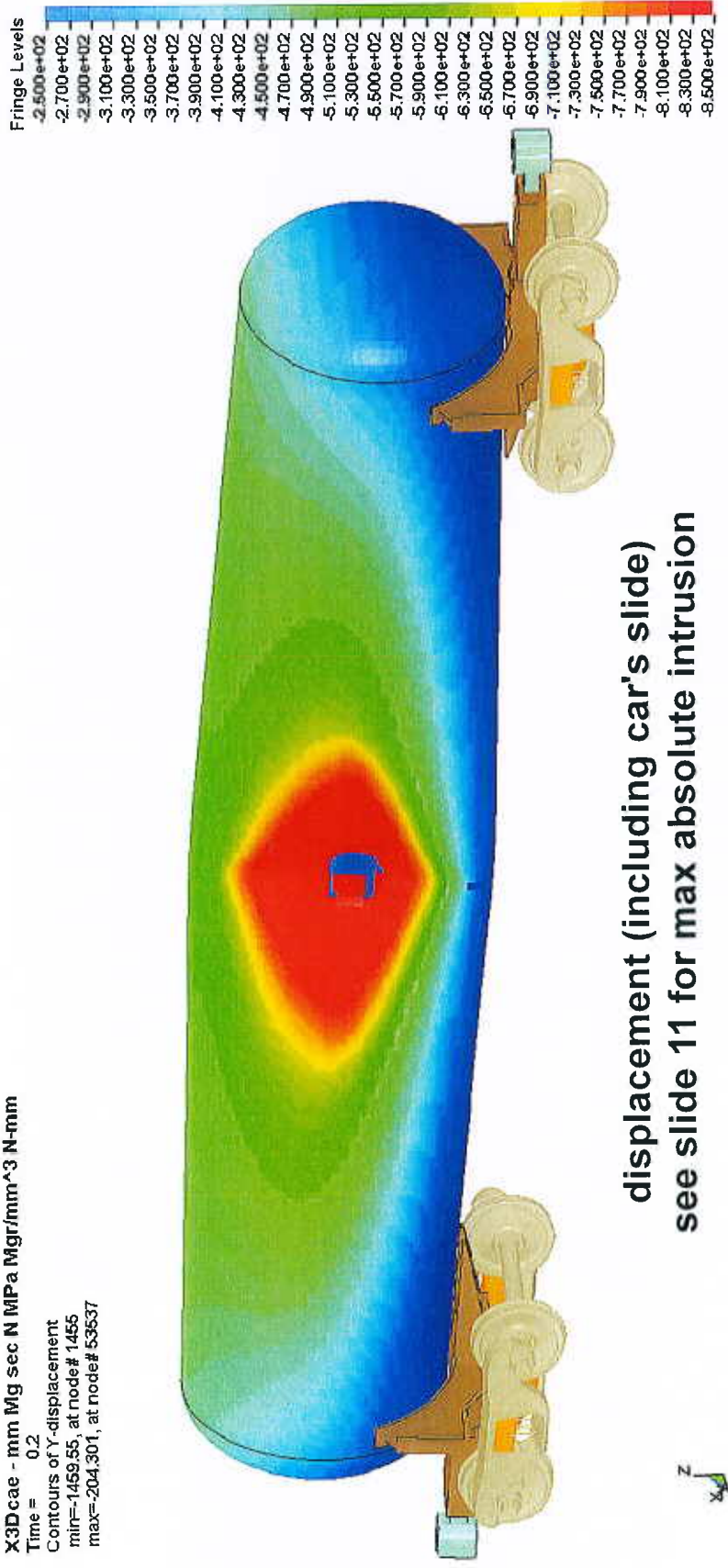
max=-.167.589, at node# 73560



SIDE RUN003 10 mph

ANALYSIS RESULTS

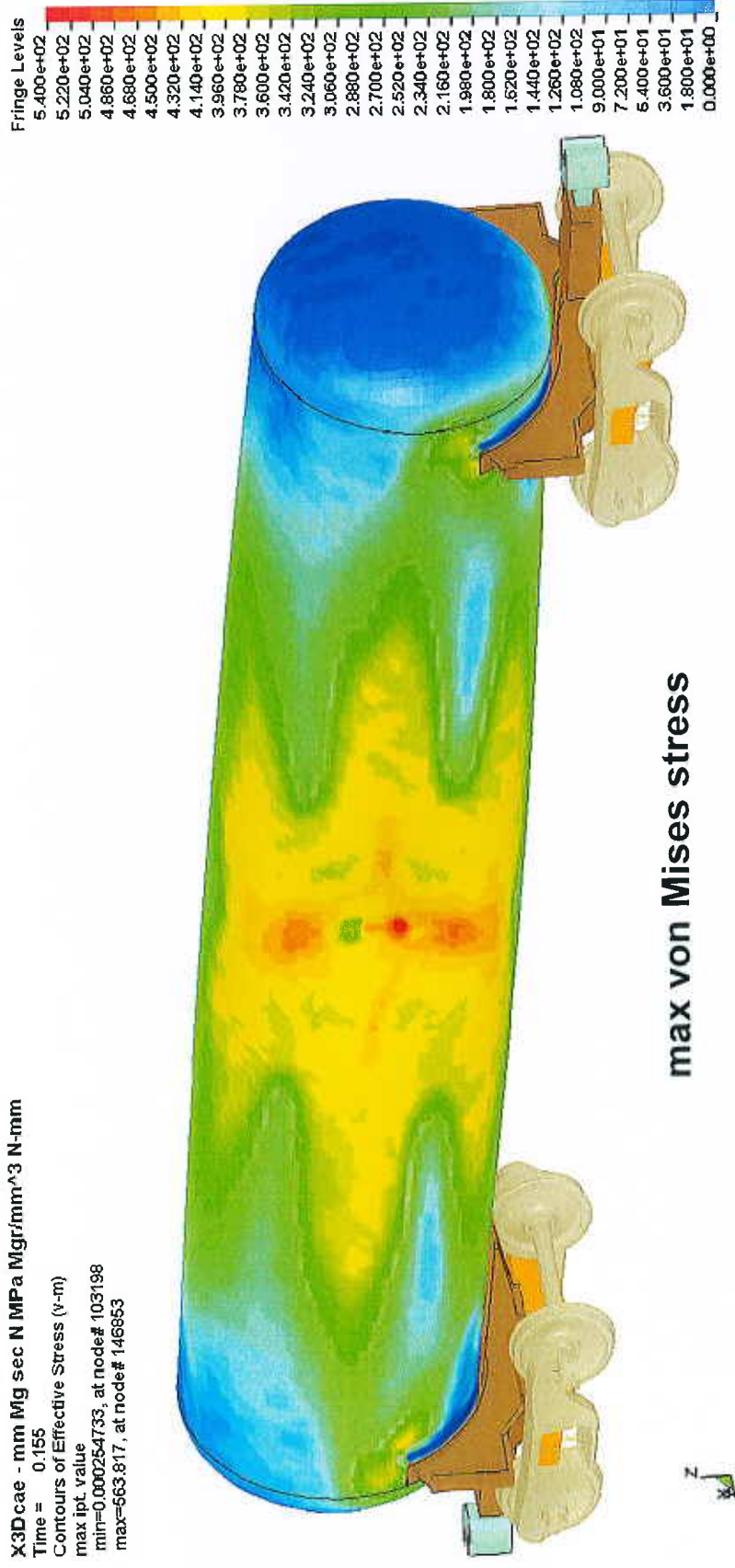
X3Dcae - mm Mg sec N MPa Mgr/mm³ N-mm
 Time = 0.2
 Contours of Y-displacement
 min=-1459.55, at node# 1455
 max=-204.301, at node# 53537



SIDE RUN004 25 mph

ANALYSIS RESULTS

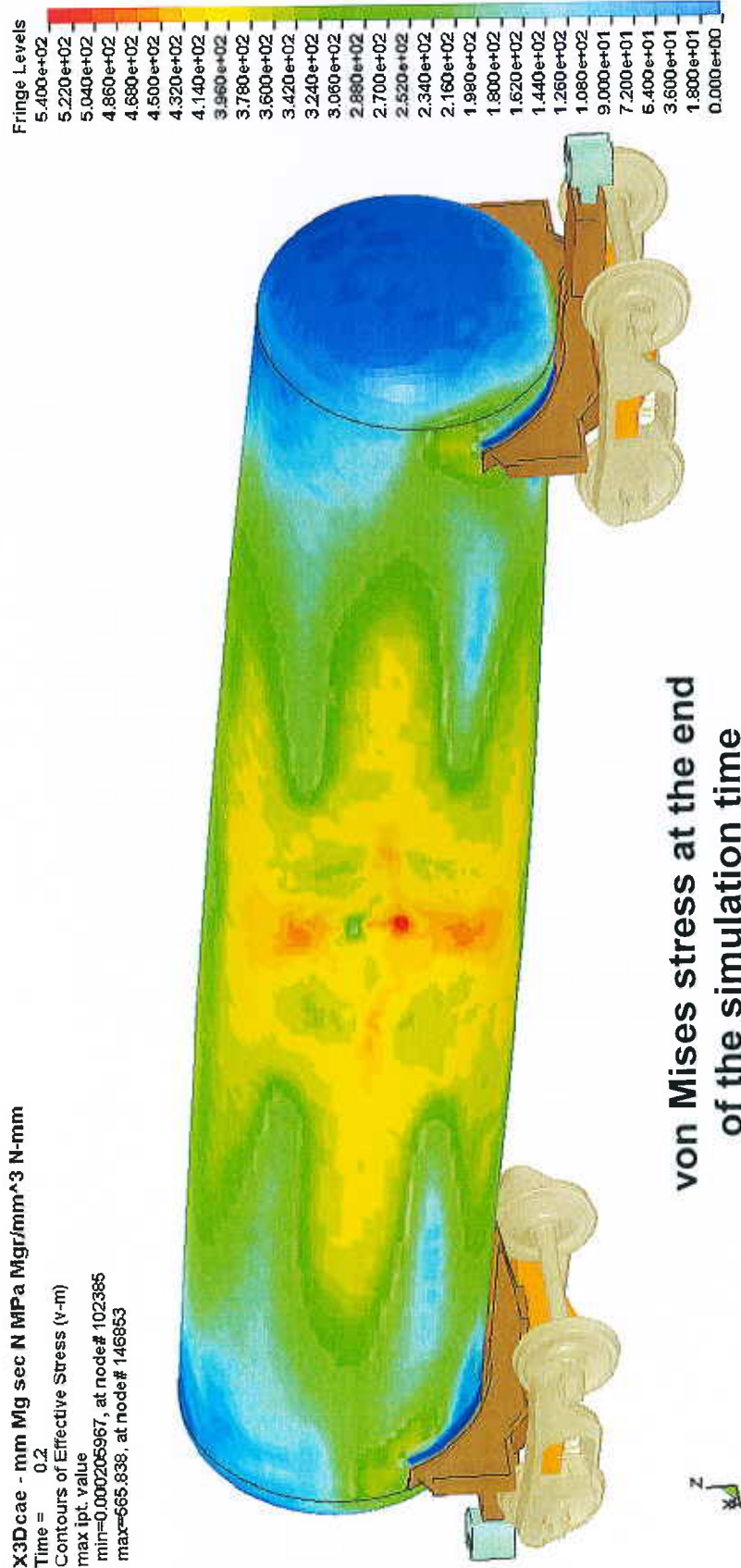
X3D cae - mm Mgr sec N MPa Mgr/mm³ N-mm
 Time = 0.155
 Contours of Effective Stress (v-m)
 max ip1. value
 min=0.000254733, at node# 103198
 max=563.817, at node# 146853



SIDE RUN003 10 mph

ANALYSIS RESULTS

X3Dcae - mm Mg sec N MPa Mgr/mm³ N-mm
 Time = 0.2
 Contours of Effective Stress (v-m)
 max ipt. value
 min=0.000205967, at node# 102385
 max=665.838, at node# 146863



SIDE RUN003 10 mph

ANALYSIS RESULTS

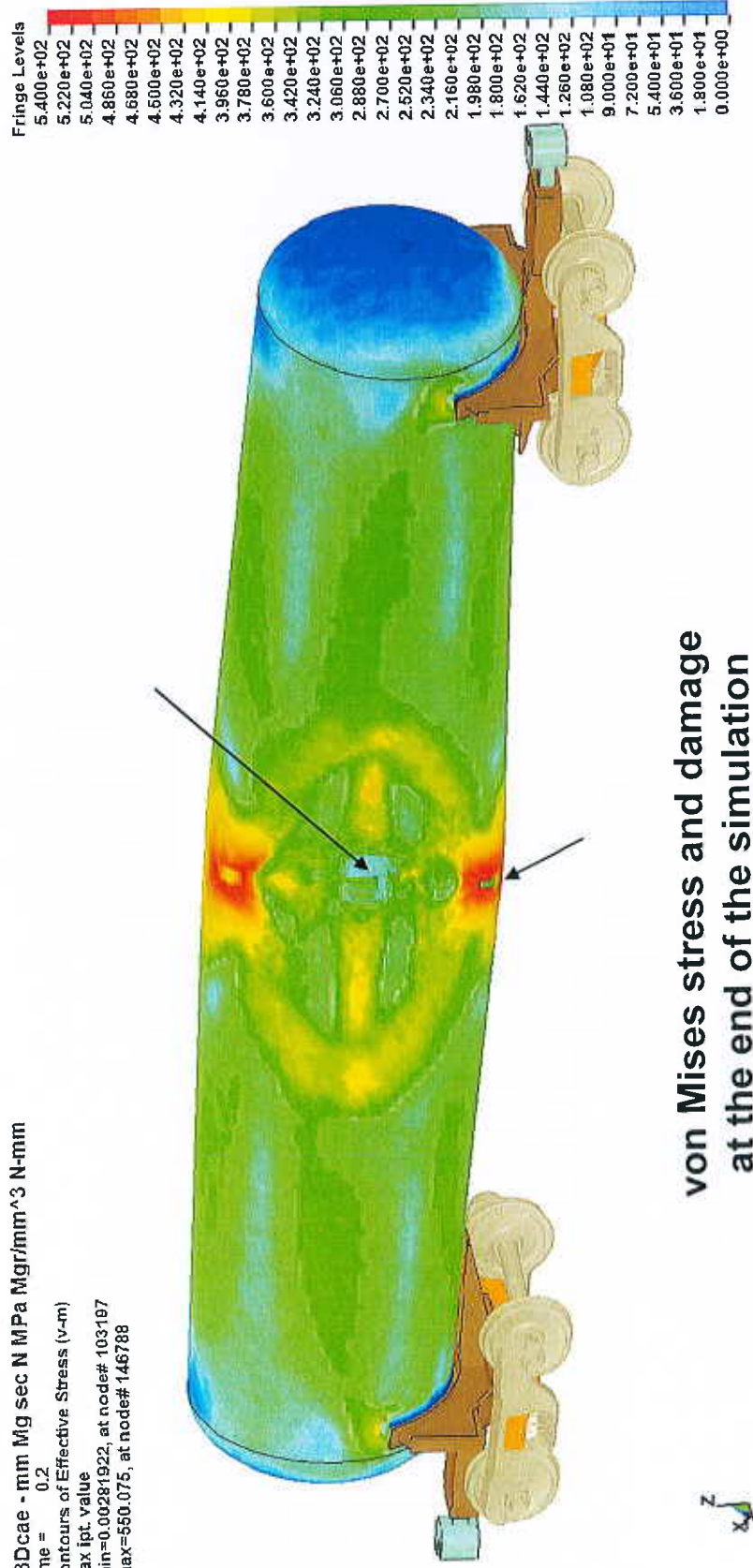
X3Dcae - mm Mg sec N MPa Mgr/mm³ N-mm
 Time = 0.094998
 Contours of Effective Stress (v-m)
 max 1st. value
 min=0.000498264, at node# 88486
 max=569.282, at node# 146892



SIDE RUN004 25 mph

ANALYSIS RESULTS

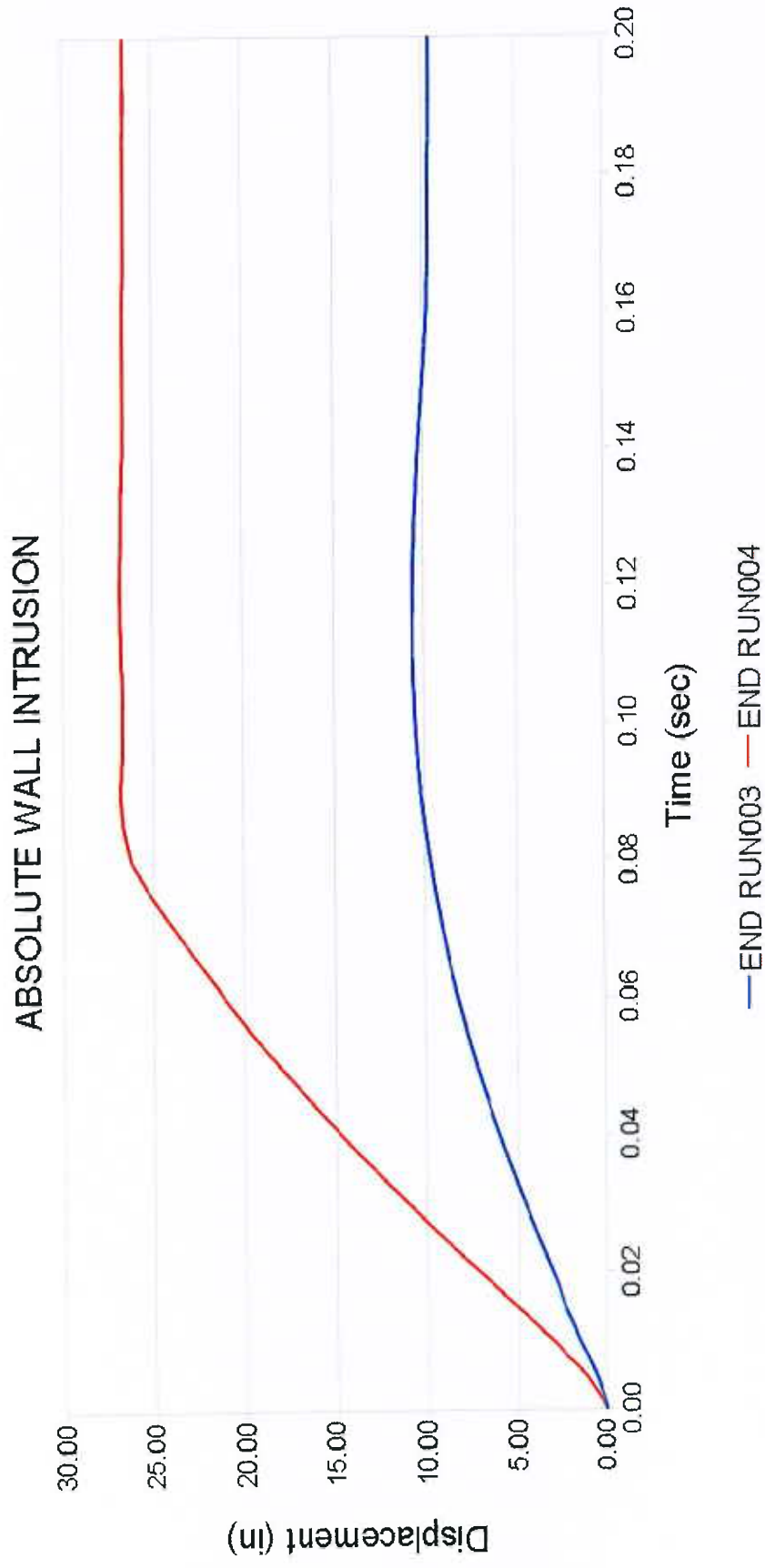
X3Dcae - mm Mg sec N MPa Mgr/mm³ N-mm
 Time = 0.2
 Contours of Effective Stress (v-m)
 max 1st. value
 min=0.00281922, at node# 103197
 max=550.075, at node# 146788



SIDE RUN004 25 mph

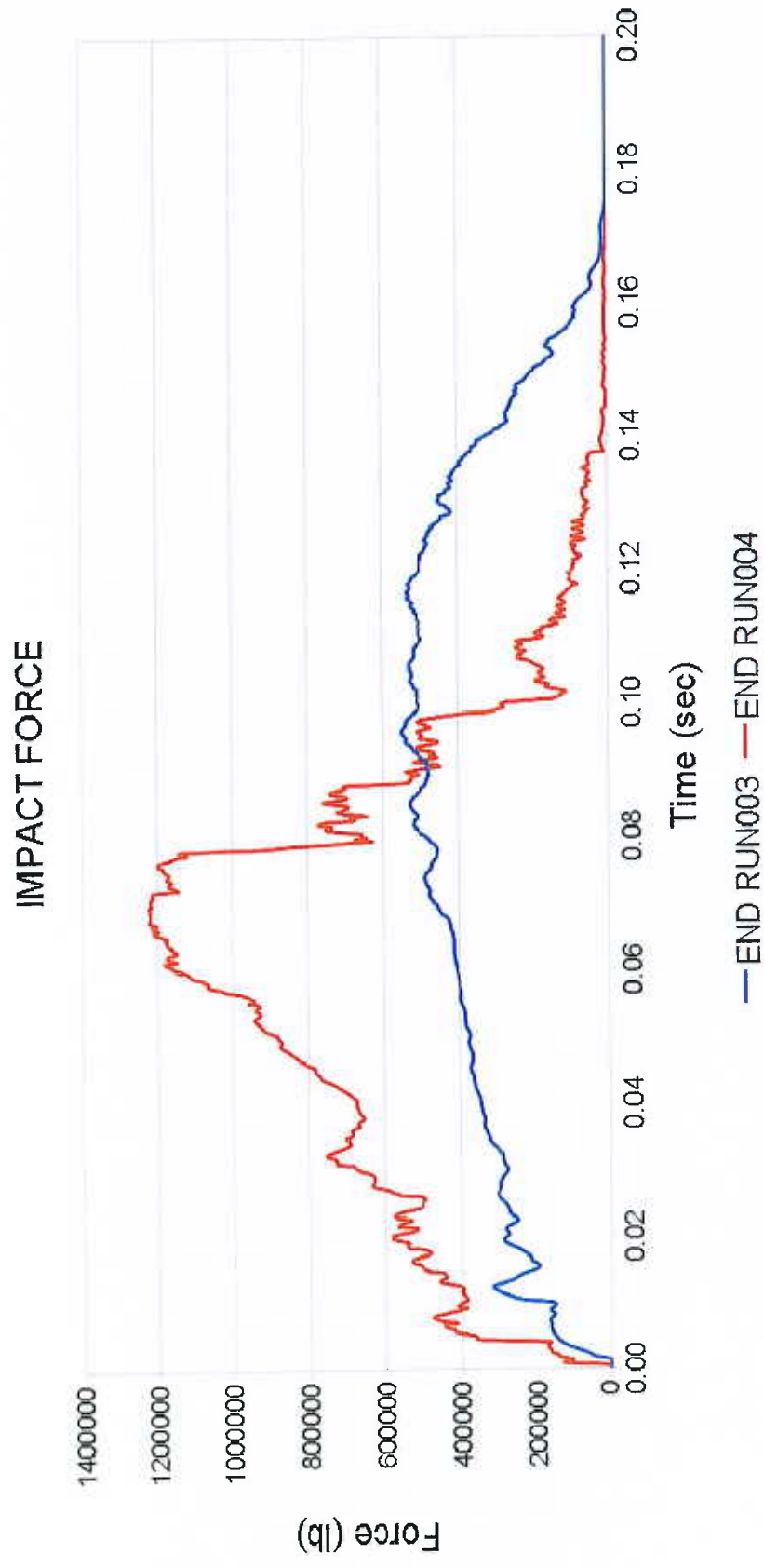
END-IMPACT COLLISION

ANALYSIS RESULTS



END RUN003 10 mph
END RUN004 25 mph

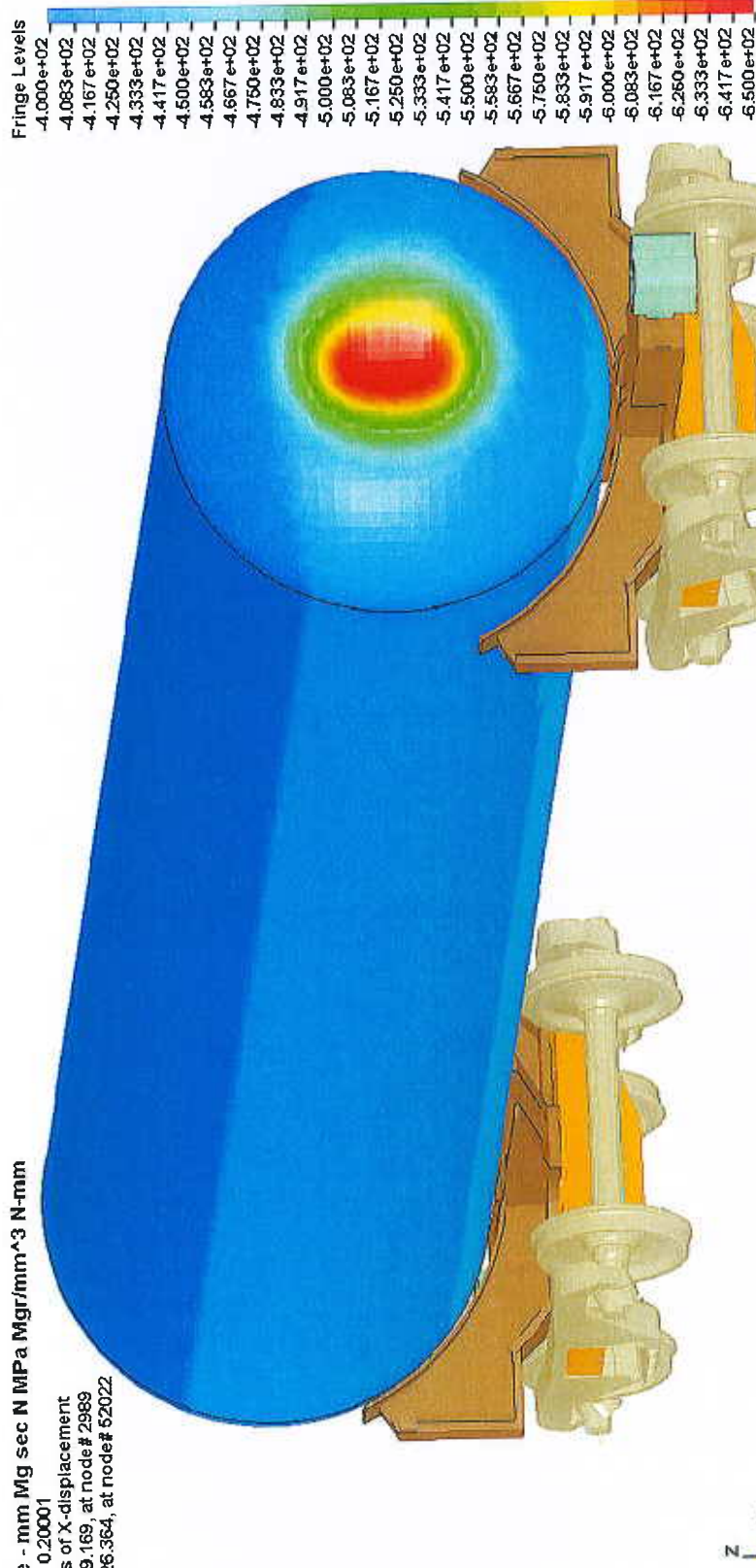
ANALYSIS RESULTS



END RUN003 10 mph
END RUN004 25 mph

ANALYSIS RESULTS

X3Dcae - mm Mg sec N MPa Mgr/mm³ N-mm
 Time = 0.20001
 Contours of X-displacement
 min=-689.169, at node# 2989
 max=-426.364, at node# 52022

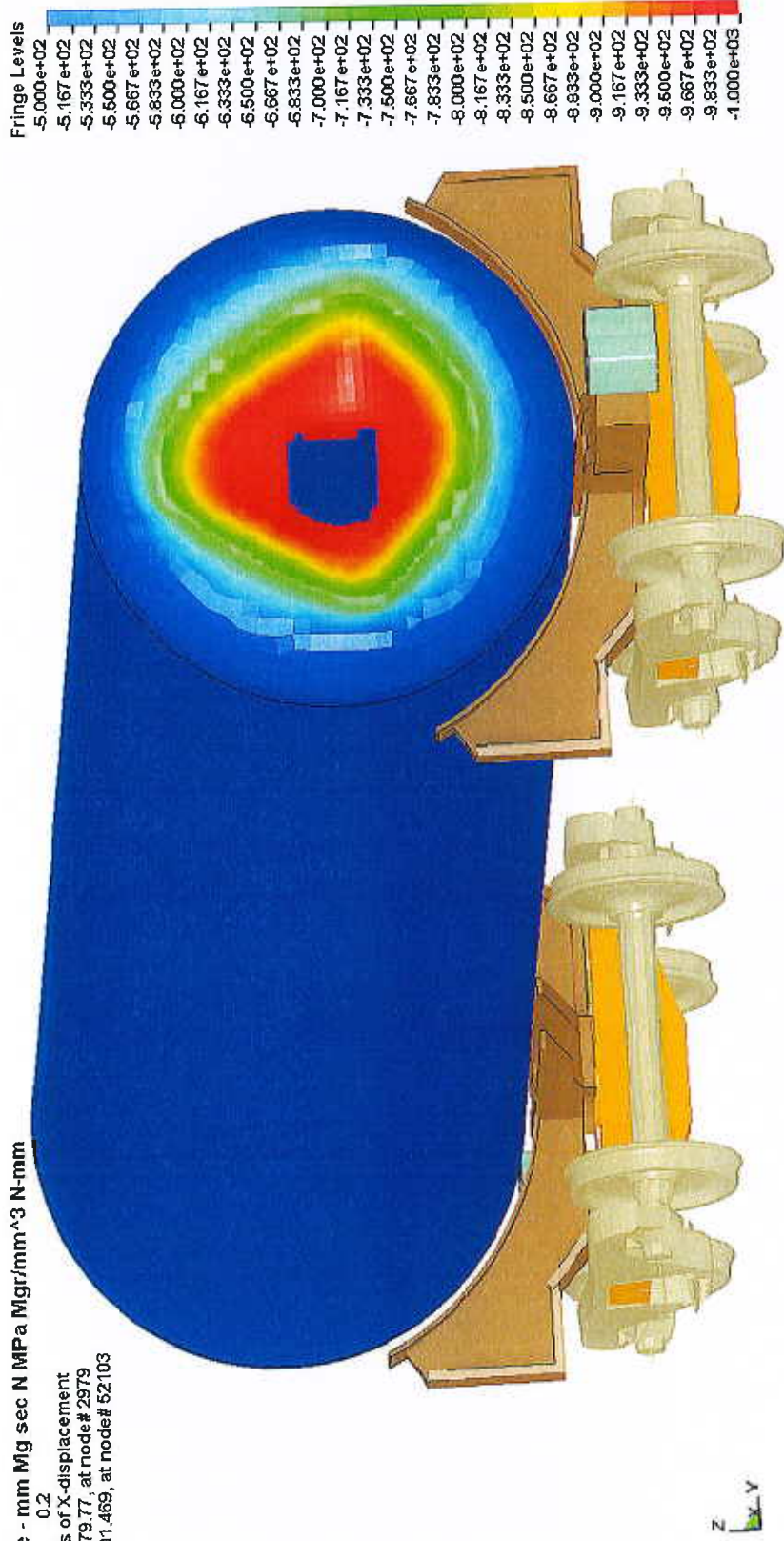


displacement (including car's slide)
 see slide 20 for max absolute intrusion

END RUN003 10 mph

ANALYSIS RESULTS

X3Dcae - mm Mgr sec N MPa Mgr/mm^3 N-mm
 Time = 0.2
 Contours of X-displacement
 min=-1479.77, at node# 2979
 max=501.469, at node# 52103



displacement (including car's slide)
 see slide 20 for max absolute intrusion

END RUN004 25 mph

ANALYSIS RESULTS

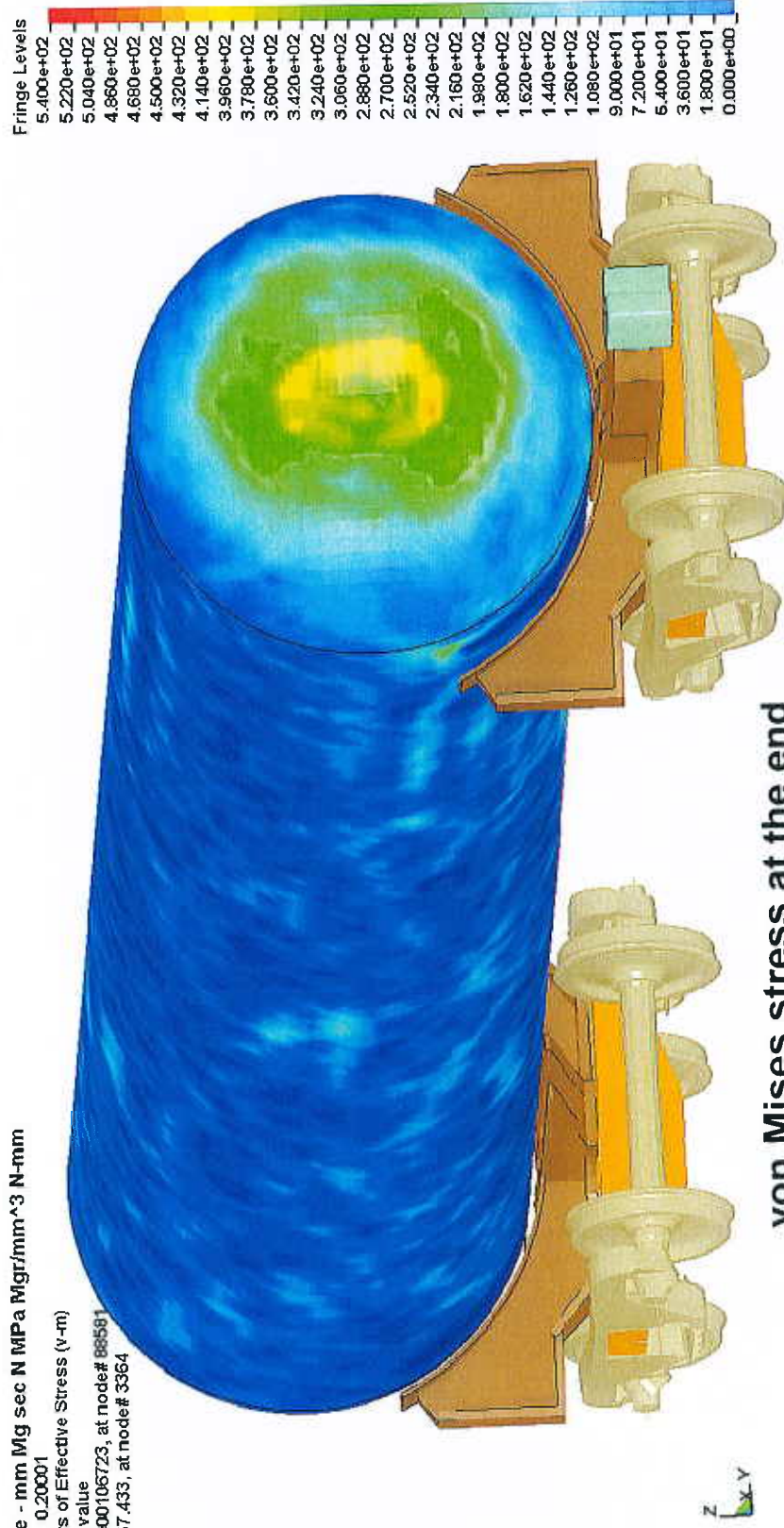
X3Dcae - mm Mgr sec N MPa Mgr/mm^3 N-mm
 Time = 0.084996
 Contours of Effective Stress (v-m)
 max ipt. value
 min=1.33038e-05, at node# 103270
 max=543.544, at node# 3432



END RUN003 10 mph

ANALYSIS RESULTS

X3D cae - mm Mgr sec N MPa Mgr/mm^3 N-mm
 Time = 0.20001
 Contours of Effective Stress (v-m)
 max ipt. value
 min=0.000106723, at node# 88581
 max=457.433, at node# 3364



von Mises stress at the end
 of the simulation time

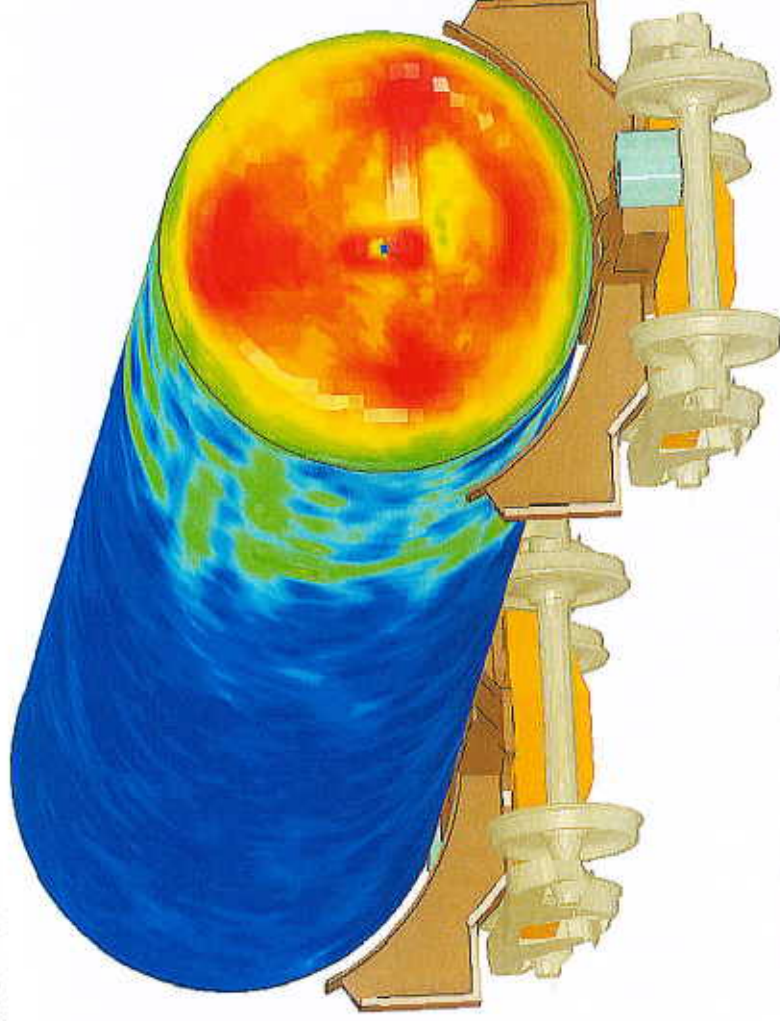
END RUN003 10 mph

ANALYSIS RESULTS

X3Dcae - mm Mgr sec N MPa Mgr/mm^3 N-mm
 Time = 0.07s
 Contours of Effective Stress (v-m)
 max 1st. value
 min=4.58515e-05, at node# 89282
 max=572.128, at node# 83953

Fringe Levels

5.400e+02
5.220e+02
5.040e+02
4.860e+02
4.680e+02
4.500e+02
4.320e+02
4.140e+02
3.960e+02
3.780e+02
3.600e+02
3.420e+02
3.240e+02
3.060e+02
2.880e+02
2.700e+02
2.520e+02
2.340e+02
2.160e+02
1.980e+02
1.800e+02
1.620e+02
1.440e+02
1.260e+02
1.080e+02
9.000e+01
7.200e+01
5.400e+01
3.600e+01
1.800e+01
0.000e+00



von Mises at first crack

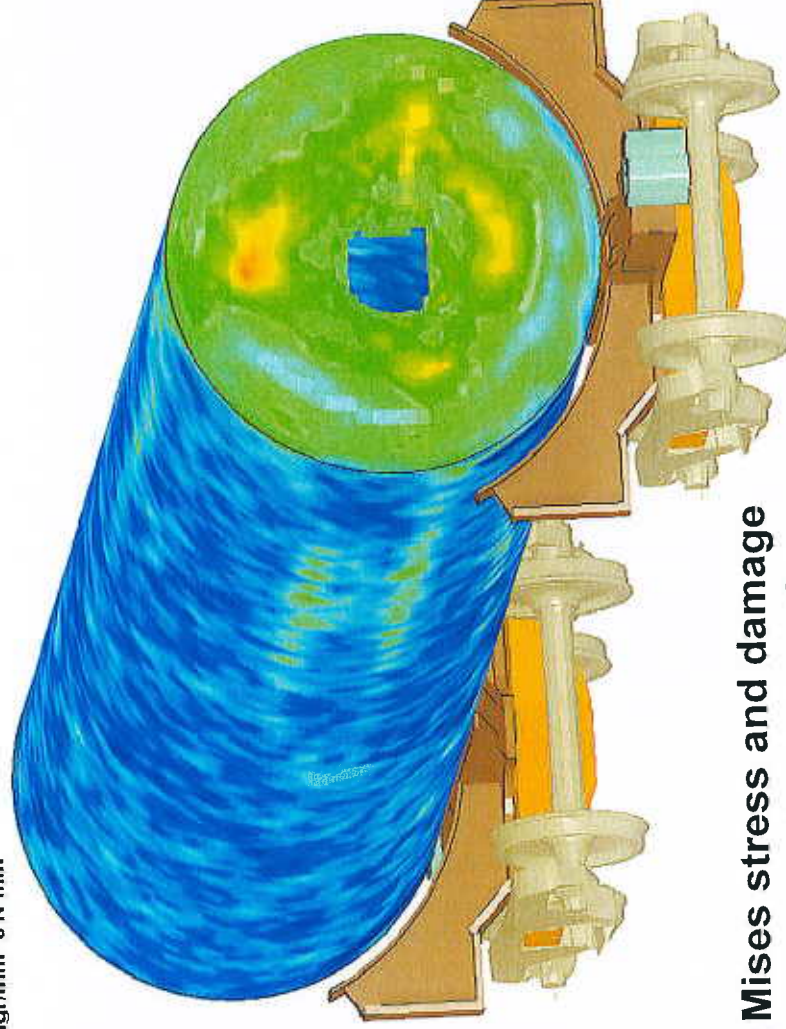
END RUN004 25 mph

ANALYSIS RESULTS

X3Dcae - mm Mgr sec N MPa Mgr/mm³ N-mm
 Time = 0.2
 Contours of Effective Stress (v-m)
 max ipt. value
 min=0.000207392, at node# 88675
 max=479.906, at node# 83461

Fringe Levels

5.400e+02
5.220e+02
5.040e+02
4.860e+02
4.680e+02
4.500e+02
4.320e+02
4.140e+02
3.960e+02
3.780e+02
3.600e+02
3.420e+02
3.240e+02
3.060e+02
2.880e+02
2.700e+02
2.520e+02
2.340e+02
2.160e+02
1.980e+02
1.800e+02
1.620e+02
1.440e+02
1.260e+02
1.080e+02
9.000e+01
7.200e+01
5.400e+01
3.600e+01
1.800e+01
0.000e+00

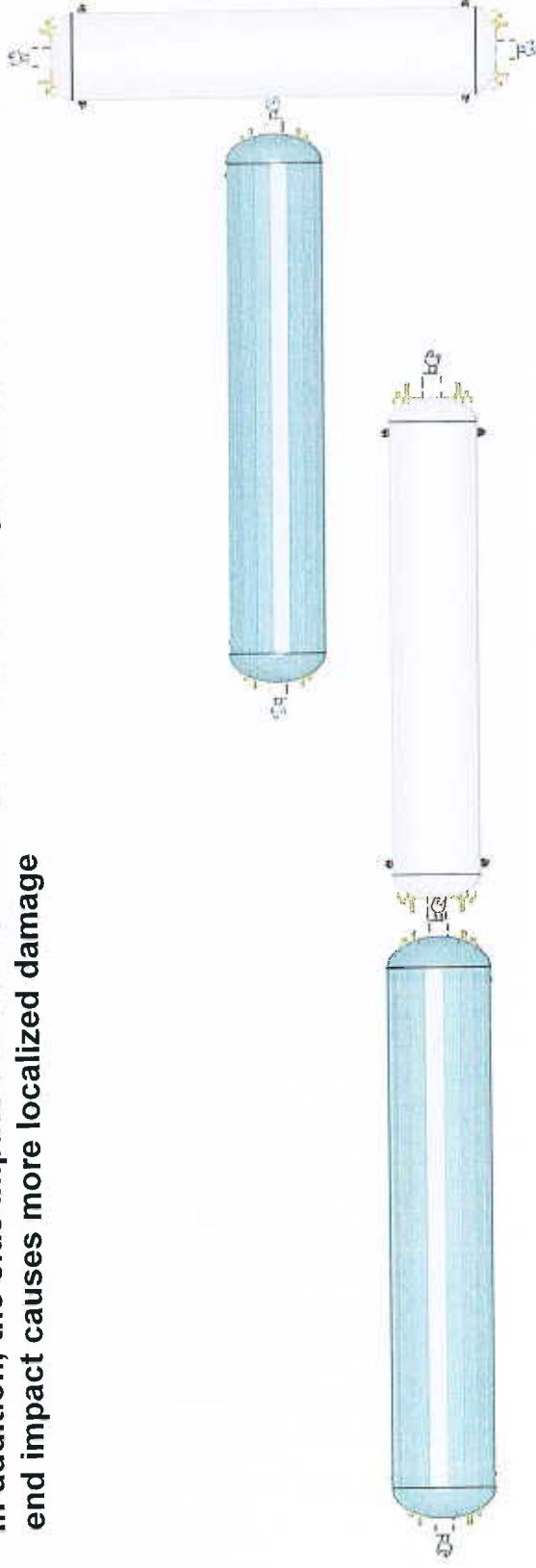


von Mises stress and damage
 at the end of the simulation

END RUN004 25 mph

CHLORINE CAR PUNCTURE

- A Finite Element Model (FEM) was built to study the puncture performance of a chlorine tank car
- The cases of side and end impacts were examined at 10mph and 25mph for cars equipped with F-couplers
- *Analysis indicated that the F coupler was able to puncture the tank wall at 25mph, for both types of impact*
- *No puncture was recorded for both types of impact at 10mph*
- In addition, the side impact causes visible deformation at a larger area of the tank while the end impact causes more localized damage



Statistical Analysis
Hazmat Derailments
2001 - 2011

Discussion

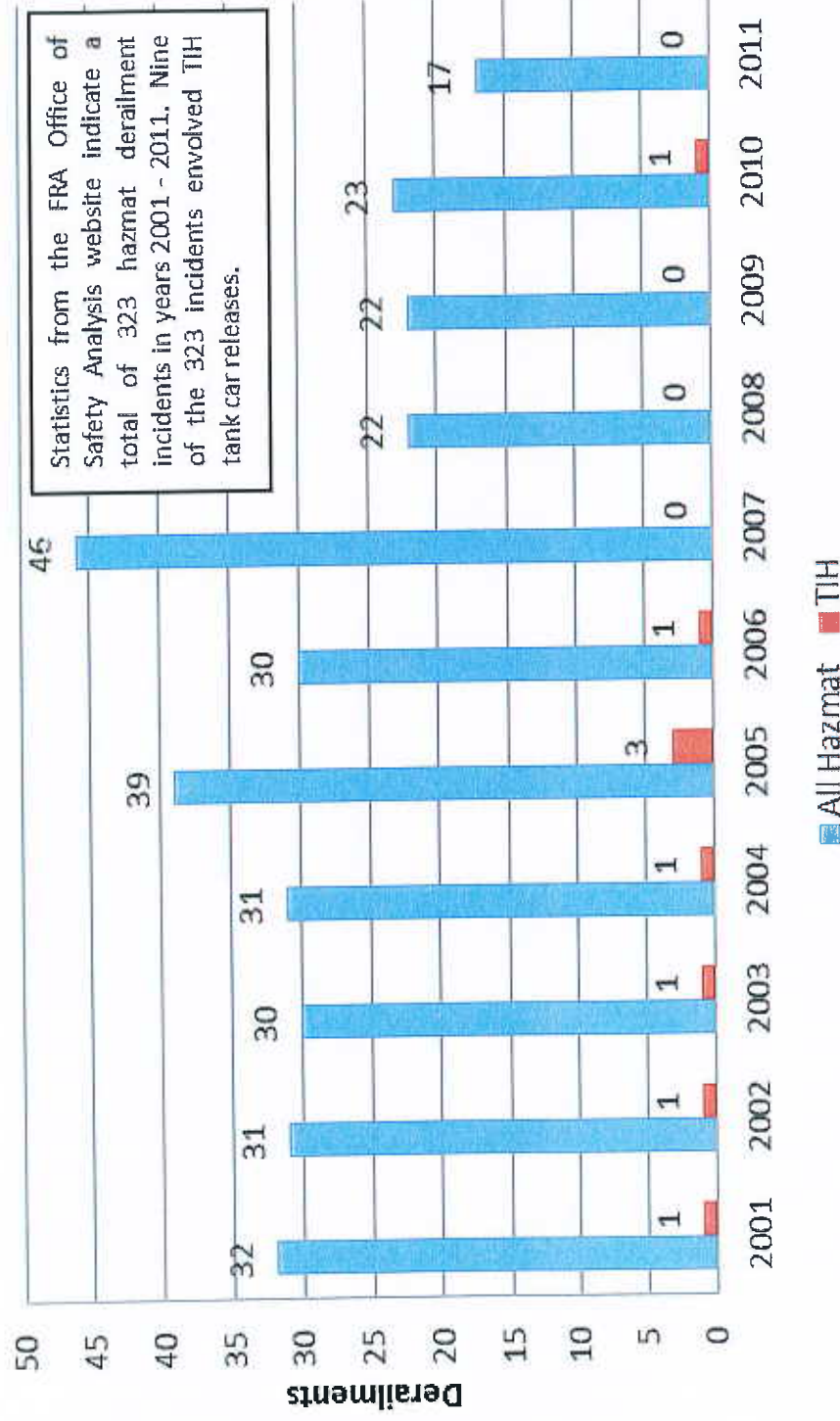
- Reportable accident statistics for all railroads operating in the USA from January 2001 through October 2011 (last month reported) were downloaded from the FRA Office of Safety Analysis, compiled, and analyzed for all hazmat (including TIH) derailments. This database provided detailed derailment information including speed, train size, track location, cause, hazmat cars, TIH releases, narrative information, etc., from accident reports required by the FRA.
- Internet searches of government agency sites did not indicate that Transport Canada maintained an accident database available to the public. No derailment statistics were found.

Discussion

- Additional investigations revealed limited availability of technical reports and publications pertaining to tank car puncture research sponsored by the FRA.
 - Paper at ASME/ASCE/IEEE 2011 Joint Rail Conference, March 16-18, 2011, “Semi-analytical Approach to Estimate Railroad Tank Car Shell Puncture”, David Y. Jeong, Yim H. Tang, A. Benjamin Perlman
 - Report, October 2009, “Engineering Studies on Structural Integrity of Railroad Tank Cars Under Accident Loading Condition”, David Y. Jeong, Yim H. Tang, M.L. Lyons, J.E. Gordon, O. Orringer, A. Benjamin Perlman
 - Both describe an ongoing development methodology to facilitate the calculation of puncture velocity of railroad tank cars
- The results of the statistical analysis of the FRA hazmat accident data are indicated on the following slides (56 – 61).

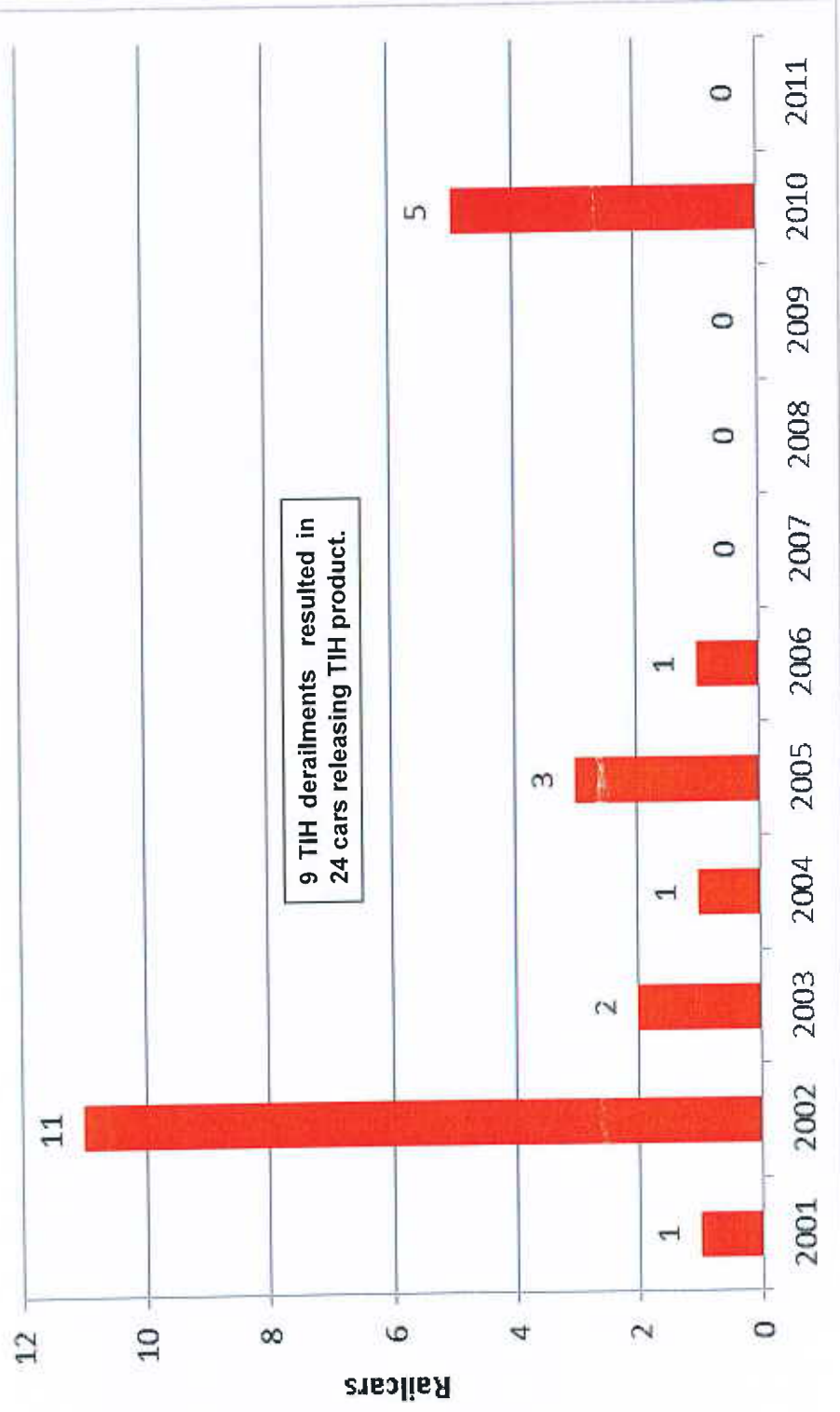
Hazmat Derailment Events

January 2001 - October 2011



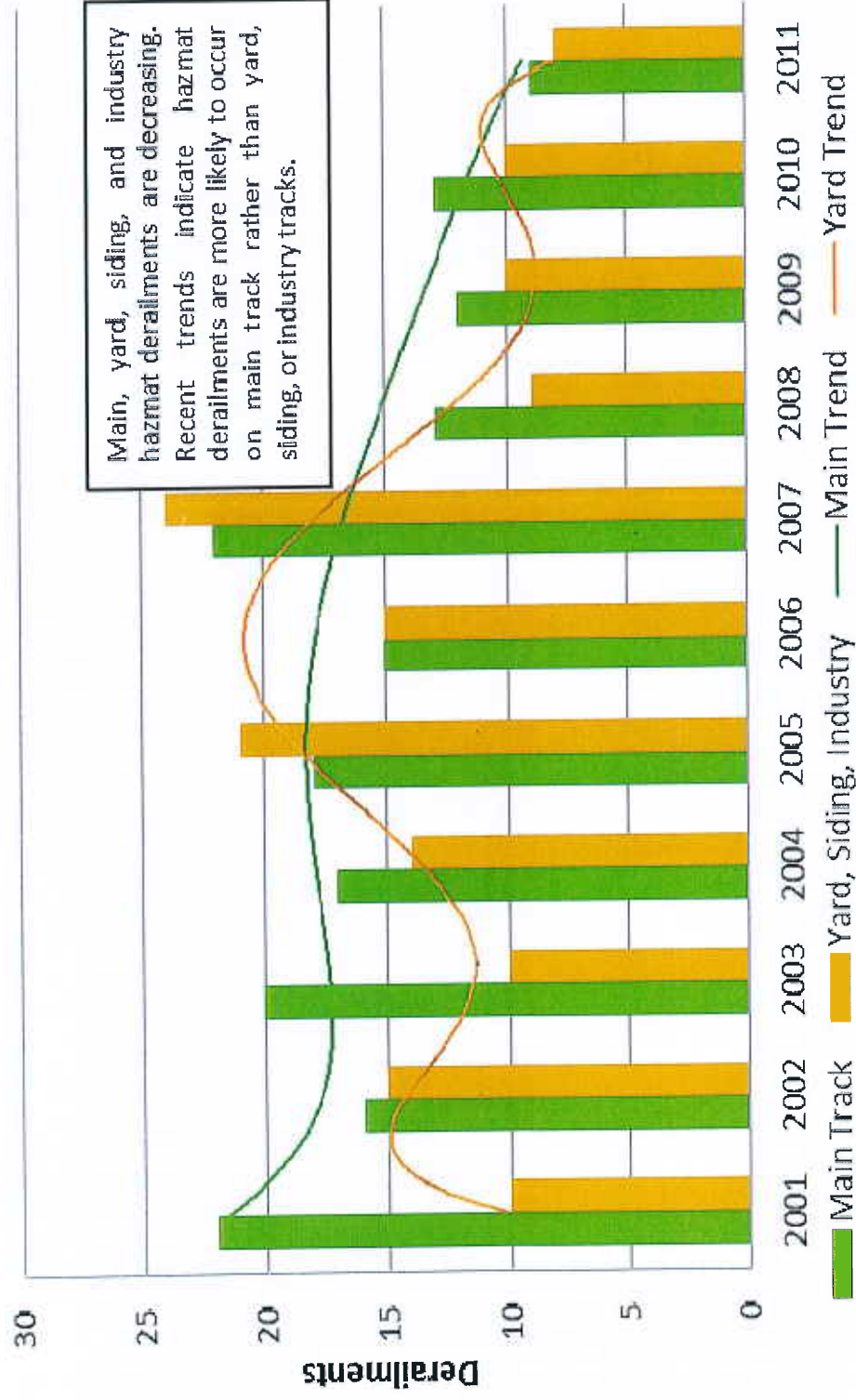
TIH Derailment Car Releases

January 2001 - October 2011

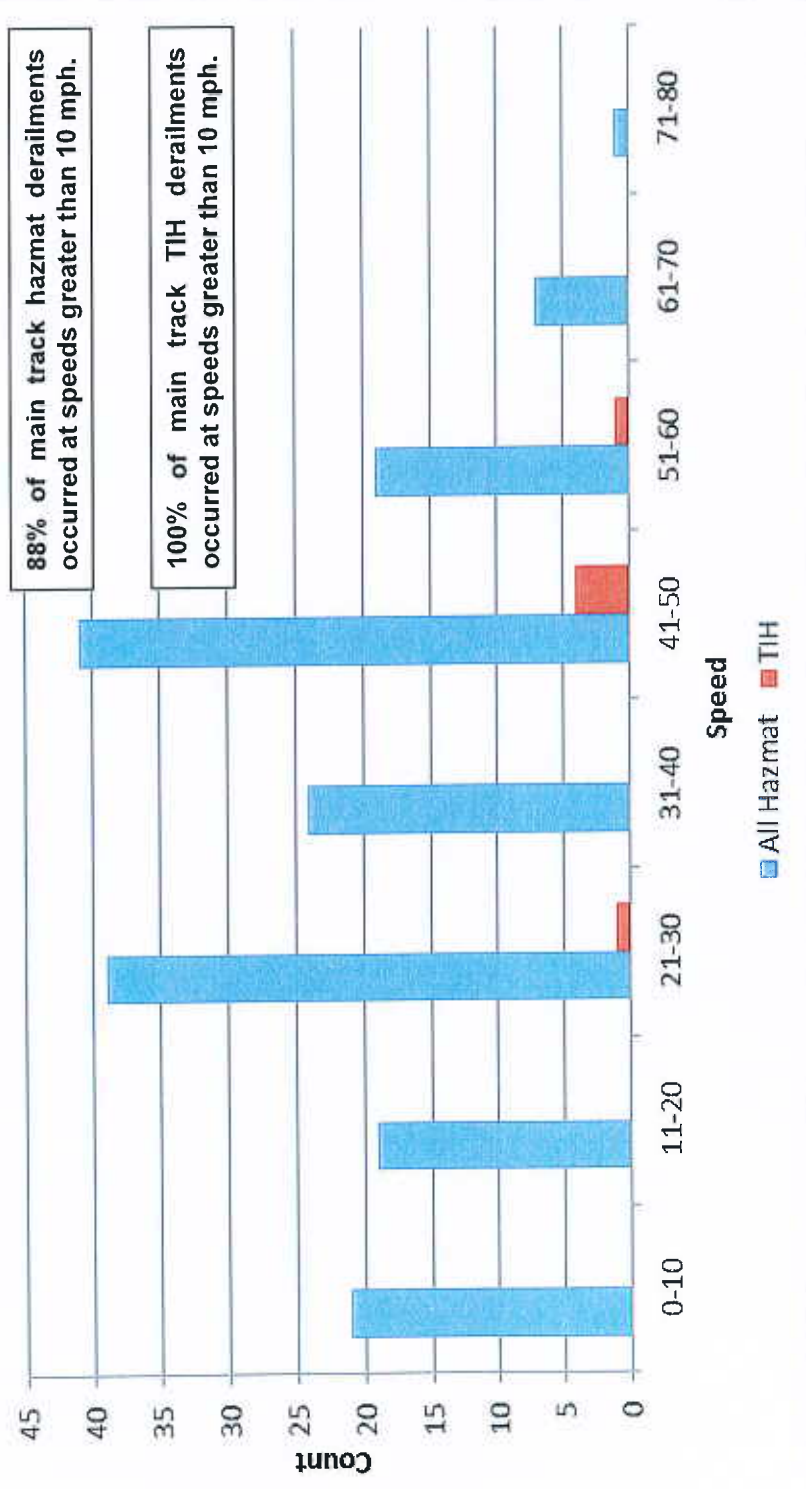


Hazmat Derailment Track Location

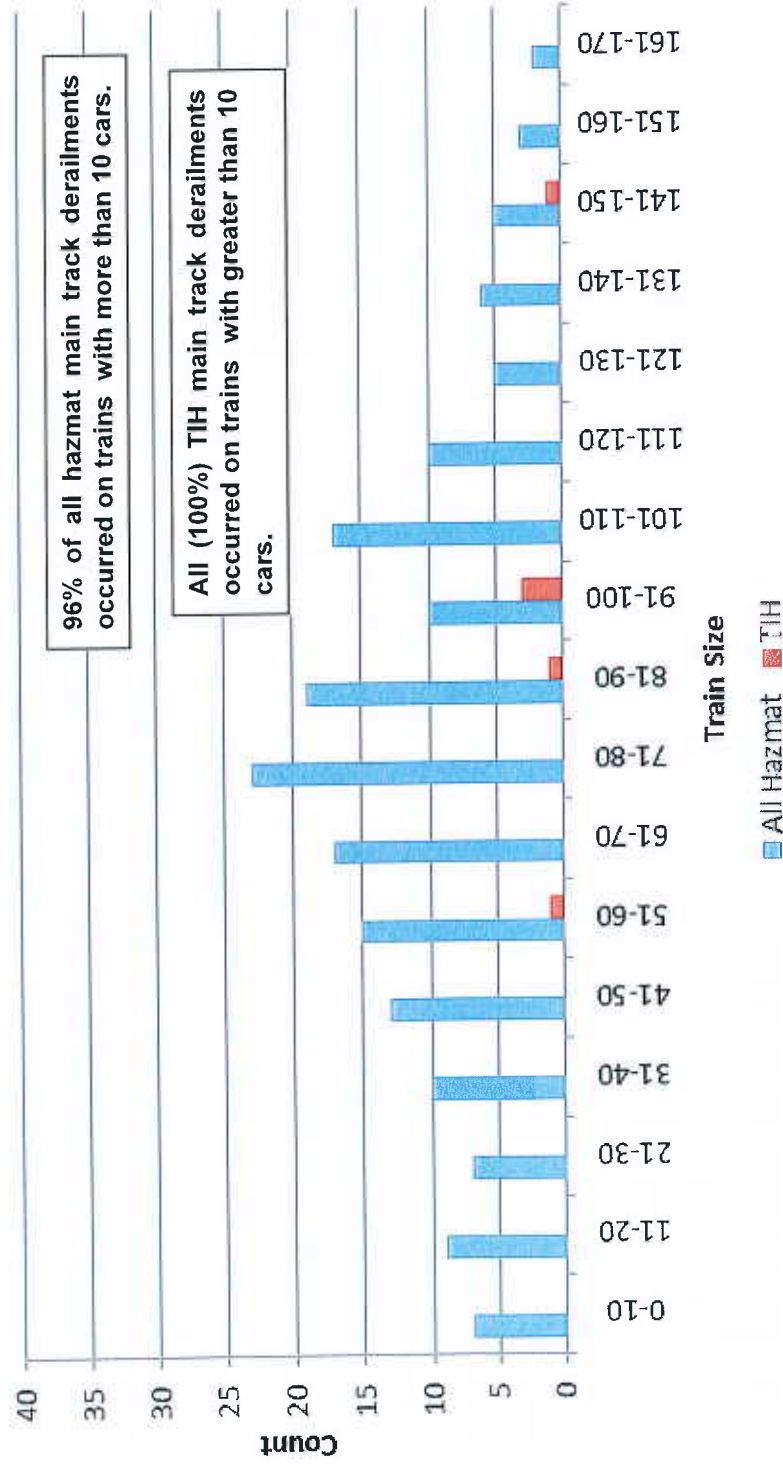
January 2001 - October 2011



Hazmat Derailment Events v. Train Speed Main Track January 2001 - October 2011



Hazmat Derailment Events v. Train Size Main Track January 2001 - October 2011



Conclusions

- The FRA Office of Safety Analysis database provided detailed derailment information including speed, train size, track location, cause, hazmat cars, TIH releases, narrative information, etc., compiled from reportable accident reports required by the FRA for all railroads operating in the USA from January 2001 through October 2011.
 - Nine of 323 hazmat derailments involved TIH tank cars. Sample size is too small to analyze independently. Thus the total hazmat derailment population was analyzed for risk correlation.
 - 88% of main track hazmat derailments occurred at speeds greater than 10 mph.
 - All main track TIH derailments occurred at speeds greater than 10 mph.
 - 96% of all main track hazmat derailments occurred on train consists with more than 10 cars.
 - All TIH main track derailments occurred on trains with greater than 10 cars.
- No derailment statistics were found for Transport Canada.

TÜV Rheinland Rail Sciences

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**411 N. Clarendon Ave.
Scottsdale, GA 30079
404-294-5300**

Omaha Office:

**7050 South 110th Street
Suite 200 LaVista, NE 68128
402-827-9328**

APPENDIX B-RESUME OF GARY WOLF

GARY P. WOLF

TUV-RAIL SCIENCES INC.

411 North Clarendon Ave.
Scottsdale GA 30079
(404) 294-5300

EDUCATION

- | | |
|--|-----------|
| <i>M. S. Industrial Management</i> , Georgia Tech, Atlanta, GA | 1971-1973 |
| Emphasis in areas of Operations Research, Quantitative Methods, Financial Analysis and Computer Simulation. Awarded Graduate Research Assistantship. | |
| <i>B. S. Electrical Engineering</i> , Ohio University, Athens, OH | 1967-1971 |
| Power major with emphasis on Machinery, Power Distribution, Control Systems. 4 years Varsity Basketball, NIT, NCAA Tournaments | |

SUPPLEMENTARY EDUCATION

- | | |
|---|------|
| ▪Heavy Haul Technical Conference, Calgary AB | 2011 |
| ▪Principles of Wheel/Rail Dynamics, Chicago IL | 2011 |
| ▪ARM Wheel Rail Seminar Chicago IL | 2011 |
| ▪AREMA Technical Conference, Orlando FL | 2010 |
| ▪High Speed Rail Conference, Champaign, IL | 2010 |
| ▪Principles of Wheel/Rail Dynamics, Chicago IL | 2010 |
| ▪ARM Wheel Rail Seminar, Chicago IL | 2010 |
| ▪Principles of Wheel/Rail Dynamics, Chicago IL | 2009 |
| ▪Progressive Railroad Wheel/Rail Interaction Seminar, Chicago IL | 2009 |
| ▪ARM Wheel/Rail Seminar, Chicago IL | 2008 |
| ▪Principles of Wheel/Rail Dynamics, Chicago IL | 2008 |
| ▪Amsted Rail Conference, Tucson AZ | 2007 |
| ▪Roller Bearing Symposium, ASME, Chicago IL | 2007 |
| ▪AAR Loss & Damage Conference, Nashville TN | 2007 |
| ▪Rail Vehicle Dynamics, Chicago IL | 2007 |
| ▪ARM Wheel/Rail Seminar, Chicago IL | 2007 |
| ▪VAMPIRE Technical Training, Omaha NE | 2007 |
| ▪Vampire Technical Conference, Chicago IL | 2006 |
| ▪ARM Vehicle Dynamics Seminar, Chicago IL | 2006 |
| ▪ARM Wheel/Rail Interface Seminar, Chicago IL | 2006 |
| ▪Track/Train Dynamics for the New Millennium, Chicago IL | 2006 |
| ▪Rail/Wheel Transit Seminar, Boston MA | 2005 |
| ▪VAMPIRE User Conference and Seminar, Chicago IL | 2005 |
| ▪ARM Wheel/Rail Interface Seminar, Chicago IL | 2005 |
| ▪ARM Vehicle Dynamics Seminar, Chicago IL | 2005 |
| ▪IAROO Technical Conference, Monterrey, Mexico | 2005 |
| ▪Rail/Wheel Transit Seminar, Baltimore, MD | 2004 |
| ▪Vampire Vehicle Dynamics Seminar. Chicago IL | 2004 |
| ▪2004 Southeastern Rail-Highway Safety Conference & Workshop", Atlanta GA | 2004 |
| ▪ARM Wheel/Rail Interface Seminar, Chicago | 2004 |
| ▪ARM Vehicle Dynamics Short Course | 2004 |
| ▪Global Rail Accident Investigation Forum, London England | 2003 |
| ▪International Heavy Haul Conference, Dallas TX | 2003 |
| ▪VAMPIRE Vehicle Dynamics Seminar, Atlanta | 2002 |
| ▪VAMPIRE Training Seminar, Derby England | 2002 |
| ▪AREMA Technical Conference, Chicago IL | 2001 |
| ▪ARM Wheel Rail Interface Seminar, Chicago | 2001 |

▪AREMA Technical Conference, Dallas, TX	2000
▪ARM Wheel Rail Interface Seminar, Chicago IL	2000
▪Heavy Axle Load Seminar, ASLRRRA , Pueblo CO	1999
▪International Heavy Haul Assc. Wheel/Rail Seminar, Moscow Russia	1999
▪NTSB International Symposium on Transportation Recorders, Washington DC	1999
▪ARM Wheel Rail Interface Seminar, Chicago IL	1998
▪ARM Wheel Rail Interface Seminar, Chicago IL	1997
▪AAR Research Review, Pueblo CO	1997
▪LOCOTROL Training Seminar, Melbourne, FL	1997
▪ARM Wheel Rail Interface Seminar, Chicago IL	1997
▪ARM Rail Grinding Seminar, Chicago, IL	1996
▪Distributed Power Systems Seminar, Melbourne, FL	1996
▪Workshop on Heavy Axle Loads, AAR/TTC Pueblo CO	1995
▪Wheel/Rail Lubrication Seminar, Kansas City, MO	1994
▪Freight Car Trucks for the 21st Century, Univ. of Illinois	1994
▪High Performance Freight Train Braking, University of Illinois	1992
▪Workshop on Heavy Axle Loads, TTC/IHHA, Pueblo CO	1990
▪Operation, Maintenance & Economics of Freight Train Air Brake Systems, Univ. of Illinois	1990
▪Rail Vehicle Dynamics Short Course, AAR, Chicago IL	1989
▪Traffic Accident Analysis and Reconstruction, George Washington University	1988
▪Locotrol Technical Seminar, Harris Corp., Melbourne FL	1988
▪Train Energy Model (TEM) /RECAP Seminar, Chicago IL	1987
▪Mechanical Basic Freight Car Training	1987
▪Norfolk Southern Operating Rules Training	1986
▪Train Dynamics Analyzer (TDA) Seminar, Freightmaster, Ft. Worth	1986
▪Norfolk Southern Locomotive Engineer Training	1985
▪Diesel Locomotive Electrical and Mechanical Systems, Chattanooga TN	1983
▪FAST Engineering Conference, Denver CO	1981
▪Track/Train Dynamics Conference, Chicago IL	1979
▪Southern Railroad Locomotive Engineer Training Program	1978
▪AAR Seminar on Longitudinal Train Dynamics and Use of Track/Train Dynamics Simulation Models, Chicago IL	1977

WORK EXPERIENCE

1987 - Present

TUV-RAIL SCIENCES, INC., Atlanta, GA

President

Founder of independent railway consulting firm specializing in the application of Advanced Analytical Techniques for the solution of railway operational problems. Rail Sciences Inc.'s areas of expertise include accident and derailment analysis, failure and metallurgical analysis, vehicle dynamics, operations planning and analysis, line capacity and schedule feasibility, computer model development, economic analysis, locomotive engineer training, instrumentation and testing, track inspection and mechanical inspections.

NORFOLK SOUTHERN CORPORATION, Atlanta, GA

1987

Applications Manager, Operations Research Department

Directly responsible for execution of all Track/Train Dynamic Studies. Supervise other O. R. and Senior O. R. Analysts on a project basis, including development of project plans, implementation, and analysis phase, and final presentation of results. These projects include Line Capacity Analysis, Network Simulation, Locomotive/Car Distribution, Dispatching Optimization, Route Rationalization, Economic Analysis of New Freight Car/HPIT Technology, and Assessment of A. T. C. S. Technology.

SOUTHERN RAILWAY/NORFOLK SOUTHERN CORPORATION, Atlanta, GA

1976-1986

Senior Operations Research Analyst, Operations Research Department

Responsible for use and application of Track/Train Dynamic Simulation Models such as TOS, DTAM, TDA, and QLTS. Models are used to study cause and prevention of derailments, crossing accidents, injury claims, and train handling problems. Also perform studies and make calculations of Train Braking capabilities for use in Signal Spacing and Crossing Accident cases. Participate in field testing and validation of New Locomotive and Freight Car Technology. Also utilize TPC and TEM Models for generalized studies such as fuel consumption, running time and tonnage ratings.

Qualified as Locomotive Engineer and periodically perform such duties. Frequently called upon to testify as Expert Witness in outside litigation and company investigations. Develop and present in-house training programs on THR Tape Interpretation, Train Handling Techniques, and Accident Investigation.

SOUTHERN RAILWAY COMPANY, Atlanta, GA	1973-1976
Industrial Engineer , Industrial Engineering Department	
SOUTHERN RAILWAY COMPANY, Atlanta, GA	1970
Student Mechanical Engineer , Mechanical Engineering Department	
CINCINNATI GAS & ELECTRIC COMPANY, Cincinnati, OH	Summer
Student Engineer , Power Distribution Division	1968, 1969

PROFESSIONAL ACTIVITIES

▪ American Society of Mechanical Engineers, General Committee	1989-Present
▪ American Railway Engineering and Maintenance Association,	1989-Present
▪ Member, NUCARS Users Advisory Committee	1988-2001
▪ Vice-Chairman, Train Simulation Advisory Committee, AAR-TTD Research Program	1987
▪ Chairman-Derailment Investigation Committee, AAR Track/Train Dynamics Research Program	1986-1987
▪ AAR Track/Train Dynamics Implementation Officer	1984-1987
▪ Member, Air Brake Association	1982-Present
▪ Member, Railway Fuel and Operating Officers Association. Elected Regional Consultant in 1983; elected to Executive Committee, 1985.	1979-1988
▪ International Association of Railway Operating Officers, Regional Consultant, Vice-President, Elected President 2006	1988- Present
▪ Member, American Railway Engineering Association	1974-1976

PUBLICATIONS / PRESENTATIONS

- "Simplified Derailment Simulation analysis using On-Line VAMPIRE", International Association of Railway Operating Officers, Minneapolis MN, 2011 (Co-authored with Cory Hogan)
- "Real Time Derailment Risk Assessment Using Vehicle and Track Fault Monitoring With Dynamic Simulation over Long Corridors", International Rail Safety Conference, Melbourne Australia, 2011 (Co-authored with Cory Hogan)
- "Derailment Analysis", Wheel/Rail Interaction Principles Seminar, Chicago IL 2011
- "New Tools and Techniques for Analyzing Derailments", North American Rail Summit, Montreal Canada 2010
- "5 Common Train Handling Mistakes and How to Prevent Them", International Association of Railway Operating Officers, Montreal Canada 2010
- "Using Modern Technology to Solve Derailments", Wheel/Rail Interaction Principles Seminar, Chicago IL 2010
- "Using Dynamic Simulation Modeling to Predict the Impossible", International Association of Railway Operating Officers", Chicago IL 2009
- "Things that go bump in the Turnout – Turnout Maintenance on Heavy Haul and Transit Applications", Wheel/Rail Interaction Principles Seminar, Chicago IL 2009 (co-authored with Matthew Dick)

- “Lowering Derailment Risk with Improved Track and Vehicle Performance/Maintenance Standards”, Wheel/Rail Interaction Heavy Haul Seminar, Chicago, IL 2009
- “Current Modeling Issues with Track Geometry Car Data”, VAMPIRE Technical Conference, Chicago IL, 2008 (co-authored with Matthew Dick, Cory Hogan, Jack Chislett)
- “Derailment Risk Prediction and Maintenance Planning based on Actual Track and Vehicle Performance Measurements”, ASME RTD/ASCE/IEEE Conference, Wilmington DE, 2008 (Co-authored with Matthew Dick)
- “Computational Analysis of Coupler Force and Train Speed Influences on Curving Resistance”. ARM Conference, Chicago IL 2008 (Co-authored with Matthew Dick and Jack Chislett)
- “Truck Hunting Theory, Causes, & Symptoms”, Amsted Rail Conference, Tuscon AZ, 2007
- “A New Generation of Locomotive Training Simulators”, International Association of Railway Operating Officers, Chicago IL, 2007
- “Understanding the Measurement of Shock and Vibration Damage Parameters”, AAR Loss and Damage Conference, Nashville TN, 2007
- “Service Environment Failure Modes”, ARM Seminar, Chicago IL 2007
- “Effect of Track Geometry Variation on Derailment Potential”, ARM Seminar, Chicago, IL 2007
- “Tools and Technique for Optimizing the Wheel/Rail Interface”, Interface Journal, 2007
- “New AAR Rules for Freight Car Trucks”, Interface Journal 2007
- “Derailment Issues and Concerns”, AARS, South Carolina, 2006
- “Wheel Climb and Frog Related Derailments”, Interface Journal 2006
- “VAMPIRE Analysis of Vehicle Dynamics at Multiple Speeds using Track Geometry Data over large Distances”, VAMPIRE User Conference, Chicago IL 2006
- “Analysis and Inspection of Switch Point Derailments”, Interface Journal, 2006
- “Curve Superelevation – Problems and Solutions”, Interface Journal, 2006
- “Remote Control Locomotive (RCL) Pullback Transponder Placement Analysis”, IAROO 2005, Chicago IL (Co-authored with Warren Egan)
- “The Truck Bolster Bowl – Is it a Bowl or a Bearing?”, Interface Journal, 2005
- “Effect of Wheel & Rail Profile on Vehicle Performance”, ARM, Chicago IL 2005
- “Basic Track Geometry Measurements & Parameters”, ARM Principles Seminar, Chicago IL, 2005
- “Rail Vehicle Suspension Parameters”, ARM Principles of Wheel/Rail Interaction Conference, Chicago IL 2005
- “Vehicle Side Bearings – Function, Performance & Maintenance”, Interface Journal, 2005
- “Principles of Wheel/Rail Friction Management”, IAROO Technical Conference Monterrey Mexico
- “Causes and Prevention of Track Buckling”. Interface Journal, 2005
- “Harmonic Rock and Roll Derailments – Causes and Prevention”, Interface Journal, 2005
- “Modern Analytical Derailment Investigation Techniques”, Georgia Society of Professional Engineers, 2004
- “Wide Gage Derailments – Symptoms, Causes, and Prevention, Parts 1 & 2.”, Interface Journal, 2004
- “Principles of Rail/Wheel Friction Management”, ARM Rail Transit Seminar, Baltimore MD, 2004
- “Derailment Investigation and Prevention – Investigation Procedures and Tools for Modern Investigation”, American Short Line RR Association”, San Antonio Texas, 2004
- “Causes, Results, and Prevention of Truck Warp”, Interface Journal, 2004
- “Innovative Uses of VAMPIRE”, VAMPIRE Dynamics Seminar, Chicago IL 2004
- “Rail Cant and it’s effect on Derailment Potential”, Interface Journal, 2004
- “Derailment Investigation & Prevention”, American Association of RR Superintendents Annual Meeting, Napa CA 2004
- “Rail Vehicle Dynamics”, ARM Seminar on Wheel/Rail Mechanics, Chicago IL 2004
- “Rail Cant and it’s Effect on Derailment Potential”, ARM Wheel/Rail Interface Seminar, Chicago IL 2004
- “Why Investigate? Introducing the benefits of Improved Investigation Techniques”, Global Rail Accident Investigation Forum, 2003, London England
- “Using Parametric Simulation to Optimize Suspension Design”, American Society of Mechanical Engineers (ASME) Rail Transportation Division”, Washington DC 2003 (co-authored with G.W. Rosenberger, P.E. Klauser, George Binns)
- “Top of Rail Friction Control: Test Results and Strategies”, IAROOA 2003, Chicago IL
- “Evaluating Effects of Top of Rail Friction Modifier, Different Rail Profiles, and Alternate Curve Elevations on Track Lateral and Vertical Forces”, ARM Rail/Wheel Interface Seminar, Chicago IL, 2003 (Co-authored with S.G. Atkinson)

- "Use and Validation of VAMPIRE Vehicle Dynamics Model, VAMPIRE North American Users Conference, Atlanta GA, 2002, (Co-authored with G.W. Rosenberger)
- "Commingling of Roadrailer Service", IAROOA, 2002, Chicago (Co-authored with John Quilty and Frank P. Hernandez, TFM)
- "Alaska Railroad Safety Audit & Derailment Risk Assessment", IAROOA, 2001
- "Heavy Haul Railroading from Around the World", Pittsburgh Air Brake Club, 2001
- "Empty Tank Car Derailments – Causes and Analysis", IAROOA, September 2000
- "Derailment Analysis Techniques" Presented to AAR Mechanical Conference, Mexico City, Mexico, July 2000 (Co-authored with Moises Mendoza, RSI)
- "An Integrated Approach to a Comprehensive Wheel/Rail Management System", ARM Infozone, Chicago IL 2000
- "Dynamic Response of High Speed Rail Vehicles over Perturbed Track", Connections 2000 Rail/Wheel Interface Seminar, Chicago IL, May 2000 (Co-authored with Foster Peterson, RSI and Jon Jaemby, TTX)
- "Field Investigation and Analytical Analysis of Gold Creek and Canyon Derailments on Alaska Railroad" (Proprietary), Presented to State of Alaska Legislative Assembly, Juneau Alaska, January 2000
- "Issues and Concerns of 286,000 lb. Cars from a Practical Perspective", American Short Line and Regional Railroad Workshop on Heavy Axle Loads, Pueblo CO, November 1999
- "Deployment of AC Power: Effect on Train Operations and Track Structure", International Association of Railway Operating Officers Association, Chicago IL, 1999
- "Application and Validation of the Automated Truck Performance Measurement System (ATPMS) to Four Heavy Haul Rail Lines", International Heavy Haul Association Wheel/Rail Interface Conference, Moscow, Russia, June 1999 (Co-authored with F. Peterson, RSI, Norm Hooper, BC Rail, & Byron Hartt, QCM)
- "Issues with Event Recorder Technology for Railway Accident Reconstruction", Invited Speaker to NTSB International Symposium on Transportation Recorders, Washington DC, May 1999
- "The Relationship Among Operating Procedures, Track Geometry, Rail Profile, and Rail Wear Rates", Rail/Wheel Interface Seminar, Chicago IL, May 1999 (co-authored with Foster Peterson)
- "Distributed Power - Issues, Concerns, and Benefits", Transportation Research Board (TRB), Washington DC, January 1999
- "An Analytical Approach to Derailment Risk Assessment", International Association of Railway Operating Officers, Chicago IL, September 1998, (Co-authored with Andy Dykes, Ph. D.)
- "Optimizing Curve Superelevation to Reduce Rail Wear and Maintenance", Rail/Wheel Interface Seminar, Chicago IL, May 1998 (co-authored with Foster Peterson)
- "Effect of Rail Wear, Rail Profile, and Rail Lubrication on Wheel Climb and Rail Rollover Derailments", Rail/Wheel Interface Seminar, Chicago IL, May 1998
- "Strategic Issues for Optimizing Train Dispatching Decisions", INFORMS, Railroad Applications Special Interest Group, Institute for Operations Research and Management Sciences, Montreal, Que, April 1998
- "Application and Validation of the Automated Truck Performance Measurement System", American Society of Mechanical Engineers, (ASME) The Institute of Electrical and Electronic Engineers (IEEE), Philadelphia PA, April 1998 (co-authored with Foster Peterson)
- "Best Practices for Derailment Prevention", Railway Age, April 1998
- "Derailment Prevention: Early Detection is the Key", Railway Age, February, 1998
- "New Strategies for Derailment Prevention", Railway Age, December 1997
- "Modern Derailment Investigation Techniques", American Society of Mechanical Engineers, Atlanta Ga December 1997
- "Automated Wayside Measurement of Wheelsets to Monitor Lateral Loadings", Rail/Wheel Interface Seminar, Chicago IL, May 1997
- "Automated Truck Performance Measurement Technology", International Association of Railway Operating Officers, Chicago IL, September 1997
- "Optimizing Locotrol Train Performance", GE-Harris Distributed Power Seminar, Melbourne, FL, February 1997 (co-authored with Foster Peterson)
- "AC Traction Power Update", International Association of Railway Operating Officers, Chicago, IL September 1996
- "Rail Grinding, Rail Lubrication, & Lateral Rail Restraint - Effect on Gage Spreading and Rail Rollover from a Practical Viewpoint", Roadmasters and B&B Association, Chicago, IL September 1996
- "Technical Train Issues - Stop Distance Calculations and Event Recorders", American Bar Association, Orlando, FL 1996

- "The Effect of Rail Grinding & Rail Lubrication on Wheel / Rail Forces and Truck Warp", Advanced Rail Management Rail Grinding Seminar, Chicago, IL April 1996
- "Operational Considerations with Locotrol - Line Capacity, Track Loading Forces & Train Marshalling", Harris Distributed Power Systems Seminar, Melbourne, FL 1996
- "Rail Rollover/Gage Widening Derailments: Symptoms, Causes, and Prevention", International Association of Railway Operating Officers, Chicago IL September 1995
- "Final Report - Derailment of AAR FAST HAL Train, Section 25 of HTL", AAR, March 1995, Proprietary & Confidential
- "Spent Fuel Cask Car Derailment Probability Assessment" Department of Energy, Savannah River Site; Proprietary & Confidential, VECTRA Services, August 1995 (co-authored with J.S. Chislett)
- "Train Make-up Analysis", Vehicle Track Systems IO Officers Meeting, Pittsburgh, PA May 1995
- "Improving Heavy Haul Asset Management through Line Capacity and Train Performance Models", International Heavy Haul Association, Omaha NE, June 1994 (co-authored with P. E. Klauser)
- "Human Factors Analysis In Derailment Investigation", International Association of Railway Operating Officers, Chicago IL, September 1994
- "Train Operation & Energy Simulator Validations, AAR IO Meeting, Ft. Worth, TX 1994
- "Track Related Derailment Causes", Roadmasters and Maintenance of Way Association, Chicago IL 1994
- "Third Generation Computer Models for Strategic Rail Operations Planning", World Congress on Railway Research, Paris France, 1994 (co-authored with P.E. Klauser)
- "Derailment Concerns on Mixed Passenger and Freight Rail Corridors", Railway Age Conference on Mixed Freight and Passenger Service: The Potential, the Problems, Washington DC 1994
- "Double Stack Derailment Causes," International Association of Railway Operating Officers, September 1993.
- "Locomotive Engineer Certification Update Panel," International Association of Railway Operating Officers, September 1993.
- "Double Stack Dynamics Task Force - Its Findings and Recommendations," Co-authored with R. A. Cartwright and R. R. Newman, Car Department Officers Association, September 1993.
- "TTX/RTTX Derailment Study: Impact and Static Squeeze Tests," Co-authored with P. E. Klauser, Proprietary for TTX Corp., August 1993.
- "Final Report - Testing, Evaluation & Recommendations - Curving Performance of 125 Ton DS Cars," DDTF Task Force, February 1993.
- "New Wheels = Better Performance," IAROOA Manifest, 1993.
- "Derailment Investigation for Supervisors," American Association of Railroad Superintendents, Kansas City, MO, January 1993.
- "Development and Application of an Advanced Microprocessor Based Line Capacity and Train Scheduling Model," Third International Conference on Computer Aided Design, Manufacture and Operation in the Railway and Other Advanced Mass Transit Systems, Comrail '92, Washington, DC, Co-authored with R. W. Baugher, 1992.
- "Derailment Procedures for Supervisors," International Association of Railway Operating Officers, 1992.
- "Derailment Investigation Using NUCARS-Validation Through Reality," NUCARS User Group Meeting, Chicago Heights, IL, 1992.
- "Event Recorders: Past and Present," National Association of Railroad Trial Counsel, 1992.
- "Derailment Cause Finding Seminar," AAR Track Train Dynamics Implementation Officers, Chicago 1991.
- "Short Time Ratings and Minimum Continuous Speed," International Association of Railway Operating Officers Annual Proceedings, 1991.
- "Truck Warp Test Results," Co-Authored with B. E. Smith TTC, DDTF Task Force, December 1991.
- "Constant Contact Side Bearing Characterizations," DDTF Task Force, October 1991.
- "125 Ton Double Stack Derailment Prevention, Truck Turning Moment Test Results," Co-Authored with Robert Martin TTC, DDTF Task Force, June 1991.
- "Empty Tank Car Derailment Analysis and Prevention," International Association of Railway Operating Officers, 1990.
- "Data Gathering Techniques," American Railway Engineering Association, Committee 32-Systems Engineering, Toronto Canada, August 1989.
- "Double Stack Derailment Analysis," Track/Train Dynamics I.O. Meeting, 1988.
- "Innovative Engineering Concepts for Unit Train Service: The Slackless Drawbar Train and Continuous Center Sill Trough Train," 4th International Heavy Haul Conference, Brisbane Australia, September 1989 (co-authored with K. C. Kieres).

- "NUCARS Model Applications," TTD Meeting, Chicago, IL, 1988.
- "Validation of the Train Energy Model (TEM)," Track/Train Dynamics I.O. Meeting, 1987.
- "The Locomotive Independent Brake-Friend or Foe?" Railway Fuel and Operating Officers Association Annual Proceedings, 1987.
- "The Use of Locomotive Event Recorders and Computer Simulation in Accident Investigation," National Association of Railroad Trial Counsel (NARTC) Annual Meeting, 1987.
- "Shoving-Do's and Don'ts," RF&OOA Manifest, May-June 1987, Vol. XXVIII, No. 1.
- "Simulation: A Tool for Controlling the Transportation Operating Plan," International Railway Congress Association (IRCA), Copenhagen, Denmark, 1987.
- "Design, Application and Testing of Slackless Drawbars on Norfolk Southern," Track/Train Dynamics spring I.O. Meeting, Chicago, IL, 1987.
- "Vertical Lift Derailments," AAR Track/Train Dynamics I.O. Meeting, Vancouver, Canada, 1986.
- "Fuel Conservation for the Train Dispatcher," Annual Proceedings of Railway Fuel and Operating Officers Association, 1986.
- "Control That Slack-At High Speed or Low Speed," two-part article in RF&OOA Manifest, Jan/Feb and Mar/Apr 1986, Vol. XXVII, No's 1 and 2.
- "Causes and Prevention of Low Speed Derailments," Annual Proceedings of Railway Fuel and Operating Officers Association, 1985 (co-authored with J. Thiverge, CN Rail).
- "Simulation: A Tool for Railroad Operations," Annual Proceedings of American Association of Railroad Superintendents, 1985.
- "Computer Simulation in Train Operations," Annual Meeting of American Council of Railroad Women, 1984.
- "Application of Track/Train Dynamic Computer Simulation Models," AAR Longitudinal Train Dynamics Seminar, June 1981.
- "Manual Calculations-Freight Train Stopping Distances," Annual Proceedings of Railway Fuel and Operating Officers Association, 1980.

**EXHIBIT B-TARIFFS OF AGR, IORY, AND PCN
(EXCLUDING ITEM 1020 LIST OF COMMODITIES)**



AGR TARIFF 0900-3

ORIGINALLY EFFECTIVE: April 29, 2011

EXPIRES: April 28, 2012

COMMODITIES: All TIH-PIH Commodities as defined by AAR Circular No. OT-55-Series (Series "L" attached).

ORIGIN: When from connections at all AGR interchange points; rule 11 applies.

DESTINATION: To all AGR served stations.

ROUTE: AGR

PURPOSE: TIH-PIH are inherently dangerous commodities and require special handling. AGR must provide safe transportation for TIH-PIH in accord with existing rules. To that end, AGR has developed a program imposing minimal additional burdens on the shippers. AGR's program starts with notification from a shipper that a car is being forwarded for delivery to AGR. AGR is requiring the pre-notification so that it can verify that the recipient will be able to receive the car or cars when it is delivered, arrange to have an inspector available when the car or cars are received by AGR, arrange to have locomotives and crews available when the TIH-PIH car or cars arrive for interchange to AGR. Before accepting a TIH-PIH car or cars, AGR will inspect that car or cars to make sure of compliance with the requirements of 49 CFR 174.3. Once AGR accepts a car or cars it will put the car or cars into a priority train to immediately deliver the car or cars to the receiver. This train will depart within the 48 hour period required by 49 CFR 174.14, usually much sooner. The priority train will also provide more expeditious service and safer transit to the receiver than handling the car or cars in the normal course of business that would require moving through yards, switching onto a regular train, and starting and stopping at different shippers along the route to the receiver. The train will travel at the appropriate speed for safe operation based on the conditions of the rail line, time of year, weather, and any other relevant factors deemed relevant by AGR operating and/or safety personnel. It is AGR's belief that the transfer of TIH-PIH cars to a priority train will enhance the efficiency of the use of the TIH-PIH equipment fleet by expediting delivery to the destination.

Item 1000 - General Rules:

- A. Not subject to Rule 24 of tariff STB-UFC-6000 Series. Any services not covered by the charges in this document are subject to the rules and provisions of the 6006-series, & 6007- series Charge Catalogs. This Rate Authority can be cancelled upon 20 days notice. Reverse application applies only on rejected shipments moving back toward original origin via reverse route. Each shipment hereunder shall be tendered to Carriers on a Uniform Straight Bill of Lading. AGR-T-0900-series must be shown on all bills of lading tendered for shipment. Except when specifically provided herein, rates do not include switching charges at origin or destination. Shipments shall be billed accounting Rule 11.

- B. Upon tender of a car or cars containing TIH-PIH to a rail carrier for delivery to AGR in interchange for delivery to the receiver, the shipper shall give notice of the shipment to AGR by providing AGR a copy of the Notice attached as Appendix A hereto. The Notice must be completely filled out and tendered to AGR by the instructions specified on the bottom of Appendix A. AGR shall use the Notice to track the car in order to be able to comply with the regulatory requirements once the car or cars arrive for interchange to AGR.
- C. Upon placement of the car or cars containing TIH-PIH upon the interchange track to AGR, a mechanical inspector shall inspect the car or cars as required by 49 CFR 174.9 to make sure that the car or cars comply with the requirements of 49 CFR 174.3.
- D. After the inspection, AGR will notify the recipient of the arrival of the car or cars and the estimated time of delivery.
- E. All TIH-PIH commodities will be moved in priority train service.
- F. No more than 3 cars loaded with TIH-PIH commodities will be transported in the same priority train at any time, unless approved by the General Manager.

Item 1001 – Procedure on Delivery and Placement of Cars:

Receiver shall be prepared to receive carloads of TIH-PIH commodities immediately upon notification of availability at destination by AGR. There will no free time granted to receiver once notification takes place. Charges will begin at 12:01AM the morning after notification to the receiver or the first day of deliverable service, whichever occurs first.

If a receiver or receiving location is unable to accept a TIH-PIH commodity carload when it is first tendered after notice and available for delivery, and AGR must then hold the car(s) in its rail facilities, a charge of \$1,000 per car, per day or portion thereof will be assessed until the car or cars are placed at the billed destination.

Item 1020 is a list of STCC codes that fall under the category of TIH-PIH and will be applicable in assessment of the daily charge and handling.

Item 1003 – Procedure on Unsafe or Improperly Loaded Cars:

When a car is deemed unsafe based on the criteria below or for failure to comply with 49 CFR 174.3, a penalty of \$10,000 may be assessed to the Shipper:

- A car is overloaded, imbalanced or has a shifted load.
- A car is spilling, leaking, or dusting.
- A car containing TIH-PIH commodities or residue is identified moving on AGR for which shipping instructions were not regulatory compliant.

Item 1005 – Procedure on any Major Adjustment for TIH-PIH Cars:

When AGR provides any of the following tasks to a TIH-PIH car or cars, a charge equating to actual cost plus 25% (minimum \$1,000) will be assessed to the party requesting or requiring these services:

- A car needs readjusting, reducing, loading, or unloading of a shipment.
- Repair or cleaning equipment, or clean-up of leaked/spilled materials.
- Applying sprays or suppressants to the shipment or contents.

Item 1007 – Procedure on Unsafe Condition at Customer Facility

Where at AGR's sole discretion, safe railway operations are not possible because of an extreme condition or practice including, but not limited to the conditions below, train service will be suspended until the condition is rectified to the satisfaction of AGR's safety/environmental staff.

A CONDITION OR PRACTICE LIKELY TO CAUSE: PERMANENT DISABILITY; LOSS OF LIFE OR BODY PART; EXTENSIVE LOSS OF STRUCTURE, EQUIPMENT OR MATERIAL; OR REPEATED/OR MULTIPLE UNRESOLVED CONDITIONS OR PRACTICES THAT MAY HAVE A SAFE WORK-AROUND.

Item 1009 - Loss or Damage

No claim for physical loss or damage to any one shipment transported hereunder shall be made or filed by receiver for amounts of \$250.00 or less. Any claims should be filed with the destination AGR.

Item 1011 - Fuel Surcharge

Shipments are not subject to Fuel Surcharge Tariffs.

Item 1013 – Rate

Notwithstanding any other rate provisions for transportation of a TIH-PIH car on AGR, the rate shall be for:

- One car \$15,000 Per Car
- Two cars \$7,000 Per Car
- Three or more cars \$5,000 Per Car

APPENDIX A

NOTICE OF SHIPMENT OF TIH-PIH

	TIH/PIH COMMODITY TRANSPORTATION NOTICE			
	COMPANY PROVIDING NOTICE:			
	COMMODITY NAME:			
MOVEMENT INFORMATION				
ORIGIN RAIL STATION:		ORIGIN RAILROAD:		COMPLETE RAIL ROUTE:
DESTINATION RAIL STATION:		DESTINATION RAILROAD:		ORIGIN STATION ON AGR: DESTINATION STATION ON AGR:
WAYBILL/ROL DATE:	WAYBILL/ROL NUMBER:	CAR INITIAL:	CAR NUMBER:	DATE AGR IS REQUESTED TO TAKE POSSESSION:
APPLICABLE RATE AUTHORITY:			FREIGHT PAYOR:	
CUSTOMER INFORMATION				
CONSIGNEE:			CONSIGNOR:	
EMERGENCY CONTACT NAME:			EMERGENCY CONTACT PHONE NUMBER:	
SPECIAL INSTRUCTIONS				
TPW INFORMATION FOR SHIPMENT			CUSTOMER REPRESENTATIVE GIVING NOTICE	
NAME:			NAME:	
TITLE:			TITLE:	
DATE:			DATE:	
ESTIMATED MOVE DATE:			PHONE:	EMAIL:
ADDITIONAL INFORMATION FOR CUSTOMER				
1. Notice must be delivered to AGR upon tender of a car or cars containing TIH/PIH to a rail carrier for delivery to AGR. 2. All notices must be accompanied by a waybill and a Material Safety Data Sheet (MSDS) for the commodity listed on the waybill. 3. A notice must be filed for each individual shipment. 4. By sending the notice for shipment, the customer agrees to conform to and be bound by all applicable industry and AGR tariffs governing the shipment of TIH/PIH commodities. 5. By receiving the notice, AGR does not commit to a specific date or service schedule for the movement of the shipment listed in the application.				
EMAIL COMPLETED APPLICATION TO: MarketingServices@trakamerica.com or FAX TO: 904-256-0463				

Indiana & Ohio

IORY TARIFF 0900-2

ORIGINALLY EFFECTIVE: May 6, 2011

EXPIRES: May 5, 2012

COMMODITIES: All TIH-PIH Commodities as defined by AAR Circular No. OT-55-Series (Series "L" attached).

ORIGIN: When from connections at all IORY interchange points; rule 11 applies.

DESTINATION: To all IORY served stations.

ROUTE: IORY

PURPOSE: TIH-PIH is inherently dangerous commodities and requires special handling. IORY must provide safe transportation for TIH-PIH in accord with existing rules. To that end, IORY has developed a program imposing minimal additional burdens on the shippers. IORY's program starts with notification from a shipper that a car is being forwarded for delivery to IORY. IORY is requiring the pre-notification so that it can verify that the recipient will be able to receive the car or cars when it is delivered, arrange to have an inspector available when the car or cars are received by IORY, arrange to have locomotives and crews available when the TIH-PIH car or cars arrive for interchange to IORY. Before accepting a TIH-PIH car or cars, IORY will inspect that car or cars to make sure of compliance with the requirements of 49 CFR 174.3. Once IORY accepts a car or cars it will put the car or cars into a priority train to immediately deliver the car or cars to the receiver. This train will depart within the 48 hour period required by 49 CFR 174.14, usually much sooner. The priority train will also provide more expeditious service and safer transit to the receiver than handling the car or cars in the normal course of business that would require moving through yards, switching onto a regular train, and starting and stopping at different shippers along the route to the receiver. The train will travel at the appropriate speed for safe operation based on the conditions of the rail line, time of year, weather, and any other relevant factors deemed relevant by IORY operating and/or safety personnel. It is IORY's belief that the transfer of TIH-PIH cars to a priority train will enhance the efficiency of the use of the TIH PIH equipment fleet by expediting delivery to the destination.

Item 1000 - General Rules:

A) Not subject to Rule 24 of tariff STB-UFC-6000 Series. Any services not covered by the charges in this document are subject to the rules and provisions of the 6006-series, & 6007-series Charge Catalogs. This Rate Authority can be cancelled upon 20 days notice. Reverse application applies only on rejected shipments moving back toward original origin via reverse route. Each shipment hereunder shall be tendered to Carriers on a Uniform Straight Bill of Lading. IORY-T-0900-series must be shown on all bills of lading tendered for shipment. Except when specifically provided herein, rates do not include switching charges at origin or destination. Shipments shall be billed accounting Rule 11.

B) Upon tender of a car or cars containing TIH-PIH to a rail carrier for delivery to IORY in interchange for delivery to the receiver, the shipper shall give notice of the shipment to IORY by providing IORY a copy of the Notice attached as Appendix A hereto. The Notice must be completely filled out and tendered to IORY by the instructions specified on the bottom of Appendix A. IORY shall use the Notice to track the car in order to be able to comply with the regulatory requirements once the car or cars arrive for interchange to IORY.

C) Upon placement of the car or cars containing TIH-PIH upon the interchange track to IORY, a mechanical inspector shall inspect the car or cars as required by 49 CFR 174.9 to make sure that the car or cars comply with the requirements of 49 CFR 174.3.

D) After the inspection, IORY will notify the recipient of the arrival of the car or cars and the estimated time of delivery.

E) All TIH-PIH commodities will be moved in priority train service.

F) No more than 3 cars loaded with TIH-PIH commodities will be transported in the same priority train at any time, unless approved by the General Manager.

Item 1001 – Procedure on Delivery and Placement of Cars:

Receiver shall be prepared to receive carloads of TIH-PIH commodities immediately upon notification of availability at destination by IORY. There will no free time granted to receiver once notification takes place. Charges will begin at 12:01AM the morning after notification to the receiver or the first day of deliverable service, whichever occurs first.

If a receiver or receiving location is unable to accept a TIH-PIH commodity carload when it is first tendered after notice and available for delivery, and IORY must then hold the car(s) in its rail facilities, a charge of \$1,000 per car, per day or portion thereof will be assessed until the car or cars are placed at the billed destination.

Item 1020 is a list of STCC codes that fall under the category of TIH-PIH and will be applicable in assessment of the daily charge and handling.

Item 1003 – Procedure on Unsafe or Improperly Loaded Cars:

When a car is deemed unsafe based on the criteria below or for failure to comply with 49 CFR 174.3, a penalty of \$10,000 may be assessed to the Shipper:

- A car is overloaded, imbalanced or has a shifted load.
- A car is spilling, leaking, or dusting.
- A car containing TIH-PIH commodities or residue is identified moving on IORY for which shipping instructions were not regulatory compliant.

Item 1005 – Procedure on any Major Adjustment for TIH-PIH Cars

When IORY provides any of the following tasks to a TIH-PIH car or cars, a charge equating to actual cost plus 25% (minimum \$1,000) will be assessed to the party requesting or requiring these services:

- A car needs readjusting, reducing, loading, or unloading of a shipment.
- Repair or cleaning equipment, or clean-up of leaked/spilled materials.
- Applying sprays or suppressants to the shipment or contents.

Item 1007 – Procedure on Unsafe Condition at Customer Facility

Where at IORY's sole discretion, safe railway operations are not possible because of an extreme condition or practice including, but not limited to the conditions below, train service will be suspended until the condition is rectified to the satisfaction of IORY's safety/environmental staff.

A CONDITION OR PRACTICE LIKELY TO CAUSE: PERMANENT DISABILITY;
LOSS OF LIFE OR BODY PART; EXTENSIVE LOSS OF STRUCTURE, EQUIPMENT
OR MATERIAL; OR REPEATED/OR MULTIPLE UNRESOLVED CONDITIONS OR
PRACTICES THAT MAY HAVE A SAFE WORK-AROUND.

Item 1009 - Loss or Damage

No claim for physical loss or damage to any one shipment transported hereunder shall be made or filed by receiver for amounts of \$250.00 or less. Any claims should be filed with the destination IORY.

Item 1011 - Fuel Surcharge

Shipments are not subject to Fuel Surcharge Tariffs.

Item 1013 – Rate

Notwithstanding any other rate provisions for transportation of a TIH-PIH car on IORY, the rate shall be for

- One car - \$5,955 Per Car
- Two cars - \$4,882 Per Car
- Three or more Cars \$3,802 Per Car

APPENDIX A

NOTICE OF SHIPMENT OF TIH-PIH

	TIH/PIH COMMODITY TRANSPORTATION NOTICE			
	COMPANY PROVIDING NOTICE			
	COMMODITY NAME:			
MOVEMENT INFORMATION				
ORIGIN RAIL STATION:		ORIGIN RAILROAD:		COMPLETE RAIL ROUTE:
DEST. STATION RAIL STATION:		DESTINATION RAILROAD:		ORIGIN STATION OR ICERY: DESTINATION STATION OR ICERY:
WAYBILL/ROL DATE:	WAYBILL/ROL NUMBER:	CAR INITIAL:	CAR NUMBER:	DATE ICERY IS REQUESTED TO TAKE POSSESSION:
APPLICABLE RATE AUTHORITY:			FREIGHT PAYOR:	
CUSTOMER INFORMATION				
CONSIGNEE:			CONSIGNEE:	
EMERGENCY CONTACT NAME:			EMERGENCY CONTACT PHONE NUMBER:	
SPECIAL INSTRUCTIONS				
ICRY INFORMATION FOR SHIPMENT				
NAME:		NAME:		
TITLE:		TITLE:		
DATE:		DATE:		
ESTIMATED MOVE DATE:		PHONE:	EMAIL:	
ADDITIONAL INFORMATION FOR CUSTOMER				
1. Notice must be delivered to ICRY upon tender of a car or cars containing TIH/PIH to a rail carrier for delivery to ICRY. 2. All notices must be accompanied by a waybill and a Material Safety Data Sheet (MSDS) for the commodity listed on the waybill. 3. A notice must be filed for each individual shipment. 4. By sending the notice for shipment, the customer agrees to conform to and be bound by all applicable industry and ICRY tariffs governing the shipment of TIH/PIH commodities. 5. By receiving the notice, ICRY does not commit to a specific date or service schedule for the movement of the shipment listed in the application.				
EMAIL COMPLETED APPLICATION TO: Marketingservices@railamerica.com or FAX TO: 904-296-0463				



PCN TARIFF 0900-2

ORIGINALLY EFFECTIVE: May 6, 2011

EXPIRES: May 5, 2012

COMMODITIES: All TIH-PIH Commodities as defined by AAR Circular No. OT-55-Series (Series "L" attached).

ORIGIN: When from connections at all PCN interchange points; rule 11 applies.

DESTINATION: To all PCN served stations.

ROUTE: PCN

PURPOSE: TIH-PIH are inherently dangerous commodities and require special handling. PCN must provide safe transportation for TIH-PIH in accord with existing rules. To that end, PCN has developed a program imposing minimal additional burdens on the shippers. PCN's program starts with notification from a shipper that a car is being forwarded for delivery to PCN. PCN is requiring the pre-notification so that it can verify that the recipient will be able to receive the car or cars when it is delivered, arrange to have an inspector available when the car or cars are received by PCN, arrange to have locomotives and crews available when the TIH PIH car or cars arrive for interchange to PCN. Before accepting a TIH-PIH car or cars, PCN will inspect that car or cars to make sure of compliance with the requirements of 49 CFR 174.3. Once PCN accepts a car or cars it will put the car or cars into a priority train to immediately deliver the car or cars to the receiver. This train will depart within the 48 hour period required by 49 CFR 174.14, usually much sooner. The priority train will also provide more expeditious service and safer transit to the receiver than handling the car or cars in the normal course of business that would require moving through yards, switching onto a regular train, and starting and stopping at different shippers along the route to the receiver. The train will travel at the appropriate speed for safe operation based on the conditions of the rail line, time of year, weather, and any other relevant factors deemed relevant by PCN operating and/or safety personnel. It is PCN's belief that the transfer of TIH-PIH cars to a priority train will enhance the efficiency of the use of the TIH PIH equipment fleet by expediting delivery to the destination.

Item 1000 - General Rules:

A) Not subject to Rule 24 of tariff STB-UFC-6000 Series. Any services not covered by the charges in this document are subject to the rules and provisions of the 6006-series, & 6007-series Charge Catalogs. This Rate Authority can be cancelled upon 20 days notice. Reverse application applies only on rejected shipments moving back toward original origin via reverse route. Each shipment hereunder shall be tendered to Carriers on a Uniform Straight Bill of Lading. PCN-T-0900-series must be shown on all bills of lading tendered for shipment. Except when specifically provided herein, rates do not include switching charges at origin or destination. Shipments shall be billed accounting Rule 11.

B) Upon tender of a car or cars containing TIH-PIH to a rail carrier for delivery to PCN in interchange for delivery to the receiver, the shipper shall give notice of the shipment to PCN by providing PCN a copy of the Notice attached as Appendix A hereto. The Notice must be completely filled out and tendered to PCN by the instructions specified on the bottom of Appendix A. PCN shall use the Notice to track the car in order to be able to comply with the regulatory requirements once the car or cars arrive for interchange to PCN.

C) Upon placement of the car or cars containing TIH-PIH upon the interchange track to PCN, a mechanical inspector shall inspect the car or cars as required by 49 CFR 174.9 to make sure that the car or cars comply with the requirements of 49 CFR 174.3.

D) After the inspection, PCN will notify the recipient of the arrival of the car or cars and the estimated time of delivery.

E) All TIH-PIH commodities will be moved in priority train service.

F) No more than 3 cars loaded with TIH-PIH commodities will be transported in the same priority train at any time unless approved by General Manager.

Item 1001 – Procedure on Delivery and Placement of Cars:

Receiver shall be prepared to receive carloads of TIH-PIH commodities immediately upon notification of availability at destination by PCN. There will no free time granted to receiver once notification takes place. Charges will begin at 12:01AM the morning after notification to the receiver or the first day of deliverable service, whichever occurs first.

If a receiver or receiving location is unable to accept a TIH-PIH commodity carload when it is first tendered after notice and available for delivery, and PCN must then hold the car(s) in its rail facilities, a charge of \$1,000 per car, per day or portion thereof will be assessed until the car or cars are placed at the billed destination.

Item 1020 is a list of STCC codes that fall under the category of TIH-PIH and will be applicable in assessment of the daily charge and handling.

Item 1003 – Procedure on Unsafe or Improperly Loaded Cars:

When a car is deemed unsafe based on the criteria below or for failure to comply with 49 CFR 174.3, a penalty of \$10,000 may be assessed to the Shipper:

A car is overloaded, imbalanced or has a shifted load.

A car is spilling, leaking, or dusting.

A car containing TIH-PIH commodities or residue is identified moving on PCN for which shipping instructions were not regulatory compliant.

Item 1005 – Procedure on any Major Adjustment for TIH-PIH Cars

When PCN provides any of the following tasks to a TIH-PIH car or cars, a charge equating to actual cost plus 25% (minimum \$1,000) will be assessed to the party requesting or requiring these services:

A car needs readjusting, reducing, loading, or unloading of a shipment.

Repair or cleaning equipment, or clean-up of leaked/spilled materials.

Applying sprays or suppressants to the shipment or contents.

Item 1007 – Procedure on Unsafe Condition at Customer Facility

Where at PCN's sole discretion, safe railway operations are not possible because of an extreme condition or practice including, but not limited to the conditions below, train service will be suspended until the condition is rectified to the satisfaction of PCN's safety/environmental staff.

A CONDITION OR PRACTICE LIKELY TO CAUSE: PERMANENT DISABILITY;
LOSS OF LIFE OR BODY PART; EXTENSIVE LOSS OF STRUCTURE, EQUIPMENT
OR MATERIAL; OR REPEATED/OR MULTIPLE UNRESOLVED CONDITIONS OR
PRACTICES THAT MAY HAVE A SAFE WORK-AROUND.

Item 1009 - Loss or Damage

No claim for physical loss or damage to any one shipment transported hereunder shall be made or filed by receiver for amounts of \$250.00 or less. Any claims should be filed with the destination PCN.

Item 1011 - Fuel Surcharge

Shipments are not subject to Fuel Surcharge Tariffs.

Item 1013 – Rate

Notwithstanding any other rate provisions for transportation of a TIH-PIH car on PCN, the rate shall be for one car \$5,955 per car, for two cars \$4,882 per car, and for three or more cars \$3,802 per car.

APPENDIX A

NOTICE OF SHIPMENT OF TIH-PIH

 		TIH/PIH COMMODITY TRANSPORTATION NOTICE	
COMPANY PROVIDING NOTICE:			
COMMODITY NAME:			
MOVEMENT INFORMATION			
ORIGIN RAIL STATION:		ORIGIN RAILROAD:	
DESTINATION RAIL STATION:		DESTINATION RAILROAD:	
WAYBILL REF. DATE:		WAYBILL REF. NUMBER:	
CAR INITIAL:		CAR NUMBER:	
APPLICABLE RATE AUTHORITY:		FREIGHT PAYOR:	
COMPLETE RAIL ROUTE:		DATE PCN IS REQUESTED TO TAKE POSSESSION:	
ORIGIN STATION ON PCN:		DESTINATION STATION ON PCN:	
CUSTOMER INFORMATION			
CONSIGNEE:		CONSIGNEE:	
EMERGENCY CONTACT NAME:		EMERGENCY CONTACT PHONE NUMBER:	
SPECIAL INSTRUCTIONS			
PCN INFORMATION FOR SHIPMENT		CUSTOMER REPRESENTATIVE GIVING NOTICE	
NAME:		NAME:	
TITLE:		TITLE:	
DATE:		DATE:	
ESTIMATED MOVE DATE:		PHONE:	
		EMAIL:	
ADDITIONAL INFORMATION FOR CUSTOMER			
1. Notice must be delivered to PCN upon tender of a car or cars containing TIH/PIH to a rail carrier for delivery to PCN. 2. All notices must be accompanied by a waybill and a Material Safety Data Sheet (MSDS) for the commodity listed on the waybill. 3. A notice must be filed for each individual shipment. 4. By sending the notice for shipment, the customer agrees to conform to and be bound by all applicable industry and PCN tariffs governing the shipment of TIH/PIH commodities. 5. By receiving the notice, PCN does not commit to a specific date or service schedule for the movement of the shipment listed in the application.			
EMAIL COMPLETED APPLICATION TO: MarketingService@trainservice.com or FAX TO: 904-256-0463			

**EXHIBIT C-TARIFF OF NECR
(EXCLUDING ITEM 1020 LIST OF COMMODITIES)**



NECR TARIFF 0900-2

ORIGINALLY EFFECTIVE: January 1, 2012

EXPIRATION: December 31, 2012

COMMODITIES: All TIH-PIH Commodities as defined by AAR Circular No. OT-55 Series (Series "L" Attached)

ORIGIN: East Alburgh, VT (from beyond)

DESTINATION: Willimantic, CT (for furtherance)

ROUTE: NECR

PURPOSE: TIH-PIH are inherently dangerous commodities and require special handling. NECR (hereinafter referred to as "CARRIER") must provide safe transportation for TIH-PIH in accord with existing rules. To that end, CARRIER has developed a program imposing minimal additional burdens on the shippers. CARRIER's program starts with notification from a shipper that a car is being forwarded for delivery to CARRIER. CARRIER is requiring the pre-notification so that it can verify that the recipient will be able to receive the car or cars when it is delivered, arrange to have an inspector available when the car or cars are received by CARRIER, arrange to have locomotives and crews available when the TIH-PIH car or cars arrive for interchange to CARRIER. Before accepting a TIH-PIH car or cars, CARRIER will inspect that car or cars to make sure of compliance with the requirements of 49 CFR 174.3. Once CARRIER accepts a car or cars it will put the car or cars into a priority train to immediately deliver the car or cars to the receiver. This train will depart within the 48 hour period required by 49 CFR 174.14, usually much sooner. The priority train will also provide more expeditious service and safer transit to the receiver than handling the car or cars in the normal course of business that might require delays in yards, switching onto a regular train, and starting and stopping at different shippers along the route to the receiver. The train will travel at the appropriate speed for safe operation based on the conditions of the rail line, time of year, weather, and any other relevant factors deemed relevant by CARRIER operating and/or safety personnel. It is CARRIER's belief that the transfer of TIH-PIH cars to a priority train will enhance the efficiency of the use of the TIH PIH equipment fleet by expediting delivery to the destination.

ITEM 1000 – GENERAL RULES:

- A. Not subject to Rule 24 of tariff STB-UFC-6000 Series. Any services not covered by the charges in this document are subject to the rules and provisions of the 6006-series, & 6007-series Charge Catalogs. This Rate Authority can be cancelled upon 20 days notice. Reverse application applies only on rejected shipments moving back toward original origin via reverse route. Each shipment hereunder shall be tendered to carriers on a Uniform Straight Bill of Lading. NECR-T-0900-series must be shown on all bills of lading tendered for shipment. Except when specifically provided herein, rates do not include switching charges at origin or destination. Shipments shall be billed accounting Rule 11.

- B. Upon tender of a car or cars containing TIH-PIH to a rail carrier for delivery to CARRIER in interchange for delivery to the receiver, the shipper shall give notice of the shipment to CARRIER by providing CARRIER a copy of the Notice attached as Appendix A hereto. The Notice must be completely filled out and tendered to CARRIER by the instructions specified on the bottom of Appendix A. CARRIER shall use the Notice to track the car in order to be able to comply with the regulatory requirements once the car or cars arrive for interchange to CARRIER.
- C. Upon placement of the car or cars containing TIH-PIH upon the interchange track to CARRIER, a mechanical inspector shall inspect the car or cars as required by 49 CFR 174.9 to make sure that the car or cars comply with the requirements of 49 CFR 174.3.
- D. After the inspection of any car or cars to be delivered to a recipient on CARRIER's system, CARRIER will notify the recipient of the arrival of the car or cars and the estimated time of delivery.
- E. All TIH-PIH commodities will be moved in priority train service.
- F. No more than 3 cars loaded with TIH-PIH commodities will be transported in the same priority train at any time, unless approved by the General Manager.

ITEM 1001 – PROCEDURE ON DELIVERY AND PLACEMENT OF CARS:

Receiver shall be prepared to receive carloads of TIH-PIH commodities immediately upon notification of availability at destination by CARRIER. There will no free time granted to receiver once notification takes place. Charges will begin at 12:01AM the morning after notification to the receiver or the first day of deliverable service, whichever occurs first.

If a receiver or receiving location is unable to accept a TIH-PIH commodity carload when it is first tendered after notice and available for delivery, and CARRIER must then hold the car(s) in its rail facilities, a charge of \$1,000 per car, per day or portion thereof will be assessed until the car or cars are placed at the billed destination.

Item 1020 is a list of STCC codes that fall under the category of TIH-PIH and will be applicable in assessment of the daily charge and handling.

ITEM 1003 – PROCEDURE ON UNSAFE OR IMPROPERLY LOADED CARS:

When a car is deemed unsafe based on the criteria below or for failure to comply with 49 CFR 174.3, a penalty of \$10,000 may be assessed to the Shipper:

- A car is overloaded, imbalanced or has a shifted load.
- A car is spilling, leaking, or dusting.
- A car containing TIH-PIH commodities or residue is identified moving on CARRIER for which shipping instructions were not regulatory compliant.

ITEM 1005 – PROCEDURE ON ANY MAJOR ADJUSTMENT FOR TIH-PIH CARS:

When CARRIER provides any of the following tasks to a TIH-PIH car or cars, a charge equating to actual cost plus 25% (minimum \$1,000) will be assessed to the party requesting or requiring these services:

- A car needs readjusting, reducing, loading, or unloading of a shipment.
- Repair or cleaning equipment, or clean-up of leaked/spilled materials.
- Applying sprays or suppressants to the shipment or contents.

ITEM 1007 – PROCEDURE ON UNSAFE CONDITION AT CUSTOMER FACILITY:

Where at CARRIER's sole discretion, safe railway operations are not possible because of an extreme condition or practice at the recipient's location including, but not limited to the conditions below, train service will be suspended until the condition is rectified to the satisfaction of CARRIER's safety/environmental staff.

- A CONDITION OR PRACTICE LIKELY TO CAUSE: PERMANENT DISABILITY; LOSS OF LIFE OR BODY PART; EXTENSIVE LOSS OF STRUCTURE, EQUIPMENT OR MATERIAL; OR REPEATED/OR MULTIPLE UNRESOLVED CONDITIONS OR PRACTICES THAT MAY HAVE A SAFE WORK-AROUND.

ITEM 1009 – LOSS OR DAMAGE:

No claim for physical loss or damage to any one shipment transported hereunder shall be made or filed by receiver for amounts of \$250.00 or less. Any claims should be filed with the destination carrier.

ITEM 1011 – FUEL SURCHARGE:

Shipments are not subject to Fuel Surcharge Tariffs.

ITEM 1013 – RATE:

Notwithstanding any other rate provisions for transportation of a TIH-PIH car on CARRIER, the rate shall be:

- One Car - \$10,628 Per Car
- Two Cars - \$8,128 Per Car
- Three or more Cars - \$5,630 Per Car

THIS PORTION INTENTIONALLY LEFT BLANK

APPENDIX A

NOTICE OF SHIPMENT OF TIH-PIH

	TIH/PIH COMMODITY TRANSPORTATION NOTICE			
	COMPANY PROVIDING NOTICE:			
	COMMODITY NAME:			
MOVEMENT INFORMATION				
ORIGIN RAIL STATION:		ORIGIN RAILROAD:		COMPLETE RAIL ROUTE:
DESTINATION RAIL STATION:		DESTINATION RAILROAD:		ORIGIN STATION ON NECR: DESTINATION STATION ON NECR:
WAYBILL/ROL DATE:	WAYBILL/ROL NUMBER:	CAR INITIALS:	CAR NUMBER:	DATE NECR IS REQUESTED TO TAKE POSSESSION:
APPLICABLE RATE AUTHORITY:			FREIGHT PAYOR:	
CUSTOMER INFORMATION				
CONSIGNEE:			CONSIGNEOR:	
EMERGENCY CONTACT NAME:			EMERGENCY CONTACT PHONE NUMBER:	
SPECIAL INSTRUCTIONS				
NECR INFORMATION FOR SHIPMENT			CUSTOMER REPRESENTATIVE GIVING NOTICE	
NAME:			NAME:	
TITLE:			TITLE:	
DATE:			DATE:	
ESTIMATED MOVE DATE:			PHONE:	EMAIL:
ADDITIONAL INFORMATION FOR CUSTOMER				
1. Notice must be delivered to NECR upon tender of a car or cars containing TIH/PIH to a rail carrier for delivery to NECR. 2. All notices must be accompanied by a waybill and a Material Safety Data Sheet (MSDS) for the commodity listed on the waybill. 3. A notice must be filed for each individual shipment. 4. By sending the notice for shipment, the customer agrees to conform to and be bound by all applicable industry and NECR tariffs governing the shipment of TIH/PIH commodities. 5. By receiving the notice, NECR does not commit to a specific date or service schedule for the movement of the shipment listed in the application.				
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