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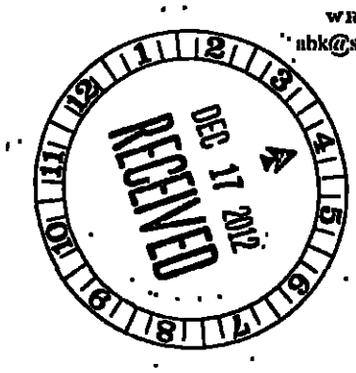
233517

December 17, 2012



BY HAND DELIVERY

Ms. Cynthia Brown
Chief, Section of Administration
Office of Proceedings
Surface Transportation Board
395 E Street, S.W.
Washington, D.C. 20423-0001

Re. STB Finance Docket No. 35557, *Reasonableness of BNSF Railway Company Coal Dust Mitigation Tariff Provisions*

Dear Ms. Brown:

Enclosed for **FILING UNDER SEAL** in the above-referenced proceeding, please find a separately packaged original and ten (10) copies of the Rebuttal Evidence and Argument of Western Coal Traffic League, American Public Power Association, Edison Electric Institute, and National Rural Electric Cooperative Association (collectively referred to as "Coal Shippers") Also enclosed, for **FILING UNDER SEAL**, are three (3) compact discs containing an electronic version of the filing and the electronic workpapers Additionally, enclosed are an original and ten (10) copies of a **REDACTED, PUBLIC** version of Coal Shippers' Rebuttal Evidence and Argument for filing on the Board's public docket

Finally, we have enclosed additional copies of both filings to be date-stamped and returned to the bearer of this letter Thank you for your attention to this matter.

Sincerely,

Andrew B. Kolesar III

Andrew B. Kolesar III

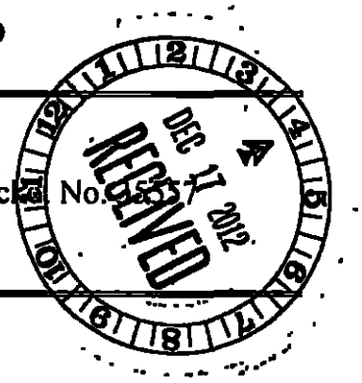
Enclosures

233517

– PUBLIC VERSION –
CONFIDENTIAL AND HIGHLY CONFIDENTIAL INFORMATION HAS BEEN REDACTED

BEFORE THE
SURFACE TRANSPORTATION BOARD

REASONABLENESS OF BNSF RAILWAY COMPANY COAL DUST MITIGATION TARIFF PROVISIONS	)	Finance Docket No. 35557



REBUTTAL EVIDENCE AND ARGUMENT OF WESTERN COAL TRAFFIC LEAGUE, AMERICAN PUBLIC POWER ASSOCIATION, EDISON ELECTRIC INSTITUTE AND NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION

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Dated. December 17, 2012

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REBUTTAL EVIDENCE AND ARGUMENT OF WESTERN COAL TRAFFIC LEAGUE, AMERICAN PUBLIC POWER ASSOCIATION, EDISON ELECTRIC INSTITUTE AND NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION

In response to the Surface Transportation Board's ("STB" or "Board") decision served in this proceeding[1] on July 31, 2012, the Western Coal Traffic League ("WCTL"), American Public Power Association, Edison Electric Institute, and National Rural Electric Cooperative Association (collectively "Coal Shippers") present the following joint rebuttal evidence and argument.

SUMMARY

In its opening submission, Coal Shippers demonstrated that BNSF Railway Company's ("BNSF") publication of the Revised Coal Dust Tariff[2] is an unreasonable practice because the tariff is predicated on junk science; the tariff places all compliance costs on rail shippers; the tariff contains no enforcement provisions; the tariff unlawfully

[1] *Reasonableness of BNSF Ry. Coal Dust Mitigation Tariff Provisions*, STB Finance Docket No. 35557 ("Dust II").

[2] "Revised Coal Dust Tariff" refers to Item 100, entitled "Coal Dust Mitigation Requirements," as published on July 14, 2011 in Revision 016 to BNSF's Price List 6041-B, including subsequent revisions to date.

limits BNSF's liability; and the tariff contains arbitrary train profiling provisions. Coal Shippers' views are shared by all other shippers participating in this proceeding.

In its reply submission, BNSF repeats – for the most part – the same arguments that it presented in its opening submission. BNSF asks the Board to ignore "science," and rubber-stamp BNSF's fatally flawed emission testing. BNSF argues that it is both lawful and equitable to place all spraying costs on shippers, even though BNSF derives all of the benefits of spraying.[3] BNSF maintains that there is no need for it to publish enforcement provisions even though it has threatened to shut down Powder River Basin ("PRB") trains for non-compliance. BNSF says that shippers are misreading clear tariff text placing all liability for spraying on shippers. Finally, BNSF argues that it is perfectly reasonable to monitor train profiles at locations far removed from the PRB mines where the profiling occurs

Coal Shippers have addressed, and refuted, BNSF's contentions in their opening and reply submissions. Coal Shippers do so once again in this rebuttal submission which contains counsel's argument along with supporting verified statements tendered by Dr. Mark J. Viz ("Viz Dust II Rebuttal V.S.") and Dr. Ralph W. Barbaro ("Barbaro Dust II Rebuttal V.S.").

[3] BNSF does engage in an about-face on the "benefits" of spraying in its reply. BNSF now asserts that spraying may not reduce its maintenance costs, an assertion which – if true – moots the need for any forced spraying of coal trains. *See* BNSF Railway Company's Reply Evidence and Argument ("BNSF Dust II Reply") at 24 & Reply Verified Statement of Stevan A Bobb ("Bobb") at 6-7.

Coal Shippers respectfully request that the Board find that BNSF's publication of the Revised Coal Dust Tariff is an unreasonable practice for the reasons set forth in their opening ("Coal Shippers Dust II Op."), reply ("Coal Shippers Dust II Reply"), and rebuttal submissions. Coal Shippers emphasize, as they have throughout both this proceeding and Dust I,[4] that the issues raised in both cases could and should have been resolved by negotiations between the parties. However, it takes two to negotiate, and BNSF has steadfastly refused to do so. The unfortunate result is expensive and time consuming litigation. If the Board rejects BNSF's Revised Coal Dust Tariff – which it should – BNSF may finally get the message.

ARGUMENT

I.

THE REVISED COAL DUST TARIFF IS UNREASONABLE BECAUSE IT IS BASED ON JUNK SCIENCE

The Revised Coal Dust Tariff contains a list of "approved" surfactant sprays. The sprays were approved because BNSF concluded, based on the results of its Super Trial emission testing procedures, that each spray reduced coal dust emissions by 85%.

A. The Board Cannot Ignore Science

In its opening submission, and again in its reply, BNSF asks the Board to ignore the science underlying its Super Trial testing. Of course, the Board cannot ignore

[4] *Ark. Elec. Coop Corp – Petition for Declaratory Order*, STB Finance Docket No. 35305 ("Dust I").

science. BNSF's Revised Coal Dust Tariff sets an emissions reduction threshold – 85% – and then relies on its Super Trial emission testing procedures to determine whether a surfactant meets the 85% reduction limit.

If BNSF's Super Trial emission testing and analysis are flawed – which they clearly are – then BNSF's Revised Coal Dust Tariff (which is predicated on the results of the flawed testing) must be found unreasonable because the Board cannot "[a]s a legal matter" approve a coal dust tariff that is "based upon faulty collection, measurement, or analysis of coal dust emissions."[5] The law is supported by principles of fundamental fairness. BNSF is asking the PRB coal shippers to expend millions of dollars annually to spray their trains with BNSF-approved surfactants. It is manifestly unfair and unreasonable to make such a request where, as here, the request is predicated on faulty collection, measurement, and analysis of coal dust emissions.

B. Coal Shippers' Science Arguments are Not "Made for Litigation"

BNSF asks the Board to ignore Coal Shippers' science-based arguments because BNSF claims they are "made for litigation."[6] BNSF presented the same arguments in Dust I. The Board rejected them in Dust I and should reject them again in this proceeding.

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[5] Dust I, Reply Comments of the U.S. Department of Transportation at 6 (Apr. 30, 2010) ("DOT Dust I Reply")

[6] BNSF Dust II Reply at 14.

In Dust I, the Board found that BNSF's Original Coal Dust Tariff[7] was unlawful because, among other reasons, its Integrated Dust Value ("IDV") compliance standards were based on flawed science.[8] The Board relied extensively upon Dr. Viz's expert testimony in making these findings and rejected contrary testimony tendered by the BNSF consultants who designed the thoroughly discredited IDV standards.

In Dust II, BNSF has abandoned the flawed IDV standards, but has not abandoned the consultants who designed them. Instead, BNSF asks the Board to approve a "passive collector" measurement system designed by the same consultants who created the fatally flawed IDV measurement system. Dr. Viz demonstrates that BNSF's passive collector measurement system is just as flawed as its IDV system. His critique in Dust II is not one that was "made for litigation." Instead, just as he did in Dust I, Dr. Viz simply has reviewed BNSF's air emission studies in light of basic precepts of air emission science

C. BNSF's Passive Collector Data Collection, Measurement and Analysis are Fatally Flawed

BNSF employed its Super Trial procedures to obtain passive collector data. Under these procedures, a limited number of trains were divided into two sections. One section was sprayed with a surfactant and the other was not. BNSF placed a passive collector on seven sprayed cars and seven unsprayed cars in each train. The trains were

[7] "Original Coal Dust Tariff" refers to Item 100, entitled "Coal Dust Mitigation Requirements," initially published on April 30, 2009 in Revision 011 to BNSF's Price List 6041-B and Item 101, entitled "Coal Dust Requirements Black Hills Subdivision," initially published on May 27, 2009 in Revision 012 to BNSF's Price List 6041-B.

[8] Dust I (STB served March 3, 2011) at 11-13 ("Dust I Decision").

then transported from PRB mines to Alliance, NE – a distance of approximately 200 miles.

At Alliance, the fugitive emissions in the passive collectors were removed, field-weighed, and then sent to a BNSF facility where the samples were re-weighed. The fugitive emission weights were then used as the raw data inputs into BNSF's percent reduction calculations.[9]

As Dr. Viz explains, it is critically important that passive collector tests be conducted in a scientifically reasonable manner, particularly in light of the small mass of the data being collected. BNSF's test trains moved 200 miles and a typical PRB train contains over 14,400 tons of coal. However, the amounts of dust that BNSF was attempting to measure were very small.

For example, on one of BNSF's test trains, {

}[10] By way of a simple visual analogy, a teaspoon full of sugar weighs approximately 4 grams.[11]

When measuring fugitive emissions in general, and particularly when measuring minute emissions of the type BNSF was endeavoring to measure, scientifically sound data collection, measurement, and statistical analysis procedures must be adopted

[9] Union Pacific Railroad Company ("UP") argues that, "even without data from its own testing, BNSF could reasonably establish a safe harbor." Dust II, Reply Evidence and Argument of Union Pacific Railroad Company (Nov. 15, 2012) at 3-4 ("UP Dust II Reply") UP's argument is absurd because BNSF relied on the results of its testing in determining which surfactants met its 85% reduction standard. *See* Coal Shippers Dust II Reply at 10-11.

[10] *See* Coal Shippers Dust II Rebuttal, Viz Rebuttal V.S. at 9.

[11] *See* http://nutrition.about.com/od/askyournutritionist/f/gramconversion.htm.

and followed. Dr. Viz demonstrates that BNSF failed to adopt and follow such procedures, including the following:

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  }.[12]

- {

  }.[13]

- {

  }.[14]

- {

  }.[15]

[12] *See* Coal Shippers Dust II Rebuttal, Viz Rebuttal V.S. at 4-5.

[13] *Id.* at 12-13

[14] *Id.* at 6-7.

[15] *Id.* at 14-16. {

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[16] Coal Shippers Dust II Rebuttal, Viz Rebuttal V.S. at 7-8 {

}

[17] Coal Shippers Dust II Rebuttal, Viz Rebuttal V.S. at 8.

[18] *Id.* at 10-11.

[19] *Id.* at 11-13

[20] *Id.* at 13.

- {

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}.[24]

BNSF claims the "data speak for themselves,"[25] but if the data are not properly collected, measured and analyzed, what the "data says" is not scientifically meaningful. As Dr. Viz concludes:

> Passive Dust Collectors, as designed and implemented for use by BNSF's consultant, Simpson Weather Associates (SWA), and as used by BNSF (to the extent that BNSF and SWA's methods and procedures have been disclosed), cannot be used to scientifically establish the amount, if any, of fugitive particulate emissions from railcars with certainty, reliability or repeatability, nor can they be used to scientifically establish the quantitative effectiveness (in terms of percent reduction in dust emissions), if any, of the application of coal

[21] *Id.* at 18-19.

[22] *Id.* at 19.

[23] *Id.*

[24] *Id.* at 20.

[25] BNSF Dust II Reply, Reply Verified Statement of Willian VanHook ("VanHook Reply") at 3

> dust suppressants, in reducing fugitive particulate emissions with certainty, reliability or repeatability.[26]

BNSF's failure to follow scientifically sound air emission data, collection, and analysis practices is dispositive here. BNSF could not reasonably calculate percent reductions using air emission data that has not been properly collected, measured or analyzed, nor can the Board approve a tariff based on BNSF's fatally flawed passive collector data collection, measurement, and analysis.[27]

II.

THE REVISED COAL DUST TARIFF IS UNREASONABLE BECAUSE IT REQUIRES SHIPPERS TO BEAR ALL COMPLIANCE COSTS

BNSF's Revised Coal Dust Tariff requires that coal shippers bear all costs to comply with the tariff. The only BNSF-approved compliance option to date is profiling plus surfactant spraying, so compliance with the Revised Coal Dust Tariff terms requires that shippers pay to spray trains.

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[26] Coal Shippers Dust II Rebuttal, Viz Rebuttal V.S. at 2.

[27] BNSF asserts that Dr. Viz is engaged in a "flip-flop" because, it asserts, his opinions in this case conflict with those set forth in a report Dr. Viz's firm prepared for the National Coal Transportation Association BNSF Dust II Reply at 9, citing Exponent, Inc , Railcar Coal Loss and Suppressant Study: Final Report to the National Coal Transportation Association at 163 ("Exponent Report"). However, there is no "flip flop" {

} Moreover, BNSF did not rely on the Exponent Report in determining which sprays to approve or disapprove. *See* Coal Shippers Dust II Reply at 10.

Spraying coal trains with surfactants is expensive. The National Coal Transportation Association has estimated these costs in the $50 to $150 million range annually.[28] Coal Shippers demonstrated in their opening submission that it was unreasonable for BNSF to unilaterally impose these costs on their coal shippers because: (1) the law places responsibility for spraying costs on BNSF; (2) the law precludes BNSF from requiring shippers to pay twice for the same service, (3) it is fundamentally unfair for BNSF to reap all of the benefits (if any) from spraying, while incurring none of the costs; and (4) requiring shippers to pay to spray trains is contrary to current industry practice.

A. The Law Requires BNSF to Incur All Reasonable Spraying Costs

Governing law is clear here. The law requires whoever is supplying rail cars – be it the shipper or the railroad – to supply a car that is properly loaded to permit safe transportation of freight.[29] The law also requires that the party (be it the shipper or

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[28] {

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[29] *See, e.g.*, 49 U.S.C. § 11706 (making common carriers by rail generally responsible for the safe transportation of the commodities they carry); *Waste Material Dealers Ass'n of Ark v. Chicago, Rock Island & Pac. Ry.*, 226 I.C.C 683, 688 (1938) ("It is the right and duty of the railroads to refuse to accept shipments that are not loaded in a safe manner."); *Consignees' Obligation to Unload Rail Cars in Compliance with Carriers' Published Tariffs*, 340 I.C.C. 405, 410 (1972) ("carriers may refuse for shipment articles tendered for transportation, unless in such condition and so prepared for shipment as to render the transportation thereof reasonably safe and practicable").

the railroad) that seeks special car treatment or service – *i.e* , service or treatment in addition to that needed for safe transportation of a shipper's freight in accordance with the shipper's instructions – bear the additional costs attributable to the special service.[30]

1. Trains are Safely Transported Without Spraying

BNSF argues that spraying is "necessary for safe and reliable transportation."[31] However, that is clearly not the case. Coal has been transported safely by rail in the United States for over 100 years without application of sprays. Moreover, if BNSF was correct, the Federal Railroad Administration ("FRA") – the agency charged with regulating rail safety – would certainly have issued a regulation requiring coal train spraying.

The FRA has promulgated many rules governing safe operation of all railcars, including cars used in coal service. However, the FRA has never issued a rule mandating that shippers or railroads spray coal. As FRA, through the U.S. Department of Transportation ("DOT"), explained in Coal Dust I, coal dust mitigation is a rail maintenance of way issue[32] that can – from a safety perspective – be addressed exclusively through proper maintenance of way practices·

> Properly understood, FRA regulations require BNSF to ensure that the ballast of the PRB Joint Line track performs the functions specified BNSF may do so in a variety of ways, as long as its choices do not themselves violate applicable regulations or otherwise threaten safety. None of the

[30] *See* Coal Shippers Dust II Op. at 25 & n.61 (citing cases).

[31] BNSF Dust II Reply at 21.

[32] *See* DOT Dust I Reply at 3 ("the [FRA] rules most germane to this proceeding are those governing ballast").

> alternatives reflected in the record of this proceeding, whether undertaken by railroads (via maintenance of way) or coal shippers (by profile loading, spraying surfactant, etc) do so.

Id. at 4.

DOT emphasized this point in the Dust I oral argument, as well:

> [F]rom a safety perspective there is more than one way to deal [with coal dust]. There is indeed maintenance . . . There are also other methods, containment-type methods . . .
>
> From a safety perspective, from a compliance with FRA ballast standards perspective, either will do . . . .[33]

BNSF also argues that train spraying was mandated by the Board's decision in Dust I.[34] Of course, that is not what the Board held in Dust I. In that decision, the Board rejected a tariff that mandated train spraying. Also, the Board did not otherwise find or conclude in Dust I that train spraying was a practice BNSF, or any other carrier, was legally mandated to undertake for safety reasons or any other reason.

Simply stated, coal can be safely loaded and transported in open top cars – without application of any surfactants – so long as the train is operated properly, and the ballast and other track structures are properly designed and maintained.

Finally, BNSF argues that "[s]hippers should not be allowed to load their freight in railcars without securing it properly so that it does not escape during transit."[35]

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[33] Dust I Oral Argument Tr. (July 29, 2010) at 11-12 (statement of Paul Samuel Smith on behalf of DOT).

[34] BNSF Dust II Reply at 21.

[35] *Id.* at 2.

BNSF implies that dust is "freight" that needs to be "secured." If that is the case, BNSF is really advocating the abolishment of the use of open top cars to haul bulk commodities.

As Paul Reistrup, one of the nation's leading authorities on rail operations testified in Dust I, all bulk commodities loaded in open top cars "dust."[36] Coal Shippers reintroduced Mr. Reistrup's testimony in their opening submission in Dust II.[37] No party took issue with Mr. Reistrup's testimony in their Dust II reply filings.

The nation's commerce will come to a grinding halt if the Board holds that dust blown off open top cars in transit is "freight" that must be "secured" during the loading process [38]

2. Costs for Spraying Must Be Borne by The Party Seeking or Mandating the Spraying

BNSF argues that the law is one-sided when it comes to special car services. As BNSF acknowledges, "[i]t is well settled that a common carrier must furnish suitable equipment for safe transportation, and that *special safeguards desired by the*

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[36] Dust I, Rebuttal Evidence and Argument of Western Coal Traffic League and Concerned Captive Coal Shippers ("WCTL Dust I Rebuttal"), Verified Statement of Paul H. Reistrup at 2-3.

[37] Coal Shippers Dust II Op. at 31.

[38] BNSF cites no case where dust has been deemed to be "freight" for loading purposes and in the only case where similar issues have arisen, the court dismissed claims that a shipper was legally responsible for coal dust emissions from trains in transit. *See Union Pac R.R. v. Entergy Arkansas, Inc.*, Case No CV2006-2711 (Circuit Court of Pulasky County, Arkansas, Sixth Division, Sept. 12, 2007); Dust I, Reply Evidence and Argument of Western Coal Traffic League and Concerned Captive Coal Shippers ("WCTL Dust I Reply") at 21-22. A copy of this decision, along with other pertinent filings in that case, are included in Coal Shippers Dust II Reply Addenda.

shipper should be furnished by him."[39] BNSF argues that this rule has no application where, as here, special car safeguards or services – here train spraying – are desired by a carrier

Of course, the law is not inequitably one-sided If a carrier mandates a service that is not necessary for safe transportation of freight, the carrier – not the shipper – is responsible for paying for it. *See Baltimore & Ohio R.R. v. United States*, 391 F. Supp. 249, 257 (E.D. Pa. 1975) ("it is inequitable to require shippers to pay additional charges for cars of different dimensions or capacity from those which would suit their needs"); *Radioactive Materials, Special Train Serv., Nationwide*, 359 I C.C. 70, 91 (1978) ("[h]istorically special train service has been a privilege accorded the shipper, rather than any requirement imposed on a shipper").

BNSF claims that *Baltimore & Ohio* is distinguishable because the mandated special car service in that case – supplying higher capacity cars than the shipper ordered – is different than the special service involved in this case – mandated train spraying.[40] The fact that the mandated special car services are different is not germane. The point is that a carrier cannot force a shipper to incur higher expenses that the shipper does not request and that are not needed for safe train operations.

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[39] *Furnishing Suitable Cars for Loading Flour & Other Grain Prods.*, 128 I.C.C. 442, 444 (1927) (cited and quoted in part in BNSF Dust II Reply at 21). UP cites cases (UP Dust II Reply at 7) that the ICC held in *Furnishing Suitable Cars* involved "special safeguards desired by the shipper." *Id* These cases are inapposite here.

[40] *See* BNSF Dust II Reply at 22

BNSF also claims that *Radioactive Materials* is distinguishable because the ICC found the special service mandated in that case – use of special trains to haul spent nuclear fuel – was not necessary for safe transportation of spent nuclear fuel.[41] In fact this case presents a similar fact pattern: mandated use of train spraying which is not necessary for the safe transportation of coal.

B. The Law Precludes BNSF from Requiring Shippers to Pay Twice for the Same Service

The stated purpose of BNSF's Revised Coal Dust Tariff is to reduce the amount of coal dust that enters track ballast.[42] The law requires that BNSF – as a track owner – properly maintain this ballast[43] and BNSF can collect payment from its shippers for providing this service. The same legal standards apply to UP.[44]

However, the law does not permit BNSF or UP to force shippers to pay twice for the same maintenance service.[45] But that is exactly what they propose. As Coal

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[41] *Id.*

[42] *See* Revised Coal Dust Tariff (tariff rules intended "[t]o prevent contamination of the rail ballast"); Dust I Decision at 8 (coal dust raises "issues associated with maintenance").

[43] *See, e.g., R.R Ventures, Inc – Abandonment Exemption – Between Youngstown Ohio, & Darlington, Pa In Mahong & Columbiana Cntys., Ohio, & Beaver Cnty., Pa.*, STB Docket No. AB-556 (Sub-2X) at 10 (STB served April 28, 2008) ("a common carrier [has] a duty to maintain its rail line in accordance with [governing] rules and regulations"); DOT Dust I Reply at 5 ("maintenance of way is a basic railroad responsibility").

[44] The Revised Coal Dust Tariff standards apply to UP trains, and BNSF and UP share ownership of the Joint Line. *See* Coal Shippers Dust II Op. at 7 n.10, 28.

[45] *See, e g , Ind. Harbor Belt R.R. v. Gen Am. Transp Corp.*, 577 F 2d 394, 400 (7th Cir. 1978) (requiring shippers to pay twice for the same switching service is an unreasonable practice); *Rail Fuel Surcharges*, STB Ex Parte No. 661, at 10-11 (STB

Shippers demonstrated in their opening submission, PRB coal shippers are already paying rates that cover all of BNSF's and UP's PRB track maintenance costs. Requiring them to pay an additional $50 to $150 million annually to maintain PRB ballast – when they are already reimbursing the carriers for all ballast maintenance costs in their freight rates – is clearly an unreasonable practice.

BNSF claims that "WCTL overstates the costs to comply with the safe harbor."[46] WCTL is citing the only publicly available data on compliance costs, and these costs { }.[47] {

}[48] {

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BNSF also claims that "by complying with the safe harbor, shippers are not paying to 'maintain PRB ballast.'"[49] In fact, that is exactly what shippers are doing. The

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served Jan. 26, 2007) (requiring shippers to pay twice for the same fuel cost increase is an unreasonable practice). BNSF argues that these cases are inapposite because they do not involve train spraying. BNSF Dust II Reply at 23 n.12. The fact that these cases involved different practices is irrelevant, as the prohibition on paying twice for the same service does not turn on the type of common carrier service being provided.

[46] BNSF Dust II Reply at 22.

[47] {

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[48] BNSF cites per ton spraying charges as running between { } in the last two years. *See* Dust II, BNSF's Opening Evidence and Argument at 19 (Oct 1, 2012) ("BNSF Dust II Op.") (citing Counsel's Exhibit 4)

[49] BNSF Dust II Reply at 22

purpose of BNSF's spraying program is to reduce BNSF's maintenance costs by reducing the amount of coal dust going into the ballast.

BNSF's intent is confirmed in {

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Similarly, the STB has observed:

> [C]oal dust fouling a railroad's right-of-way is a source of maintenance expenses for railroads. Railroads and coal shippers are exploring ways to reduce the amount of coal dust lost in transit, such as altering the shape of car loads or spraying agents on the coal, thereby reducing the amounts necessary to be spent on maintenance.

Major Issues in Rail Rate Cases, STB Ex Parte No. 657 (Sub-No. 1) (STB served Oct. 30, 2006) at 43 (footnote omitted).

C. It is Fundamentally Unfair for Shippers to Pay More While BNSF Pays Less

BNSF appears to concede that it would be unfair for shippers to pay more – in the form of spraying costs – while, at the same time, BNSF incurs lower maintenance costs – due to the train spraying. However, BNSF claims that there is no unfairness here because Coal Shippers' argument is based on a faulty premise. According to BNSF, "it is

far from clear that shipper compliance with the safe harbor will have any impact on BNSF's costs, certainly in the near future."[50]

This is a remarkable about-face by BNSF As discussed above {

}.[51] {

}.[52]

If, as BNSF now suggests, spraying trains will not reduce BNSF's maintenance costs, there is no purpose for requiring PRB shippers to spray their trains, since, by BNSF's own apparent admission, the spraying will not result in any changes in BNSF's maintenance practices or costs. Thus, shippers will be required to expend millions annually for no apparent benefit, {

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[50] BNSF Dust II Reply at 24; BNSF Dust II Reply, Bobb Reply V.S. at 6-7.

[51] *See* BNSF_COAL DUST_0033663-33698 at 33664; *see also* BNSF_COAL DUST_0022782 {
}; WCTL Dust I Op., Verified Statement of Thomas D Crowley ("Crowley") at 11-13{ }.

[52] BNSF Dust I Reply, VanHook Reply V.S. at 32. In Dust I, Coal Shippers agreed with BNSF that coal dust, along with other ballast foulants, needs to be remediated, and that such remediation produces maintenance expense, {
}. *See, e.g*, WCTL Dust I Rebuttal, Crowley Rebuttal V.S. at 9-12).

BNSF also asserts that requiring shippers to spray is necessary "to ensure safe, reliable and efficient PRB transportation."[53] However, this argument is a red herring. PRB coal trains have moved for years in "safe, reliable and efficient PRB transportation" service without spraying.[54]

BNSF's repeated citation to the two Joint Line derailments does not dictate a different answer.[55] These derailments occurred in 2005 and were caused by poor maintenance practices.[56] Since 2005, BNSF has properly maintained the Joint Line and there have been no additional derailments.[57]

D. Requiring Shippers to Pay a Separate Charge for Coal Dust Mitigation is Contrary to Industry Practice

In Dust I, BNSF pointed out that some Norfolk Southern Railway Company ("NS") trains, as well as some trains moved by railroads operating in foreign countries, were being sprayed with chemical surfactants.[58] However, BNSF pointed to no instances where NS, or a foreign carrier, was requiring shippers to enter into separate arrangements with coal suppliers to pay for the application of surfactants, and Coal Shippers are not

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[53] BNSF Dust II Reply at 24.

[54] *Accord* DOT Dust I Reply at 3 ("the rules most germane to this proceeding are those governing ballast").

[55] *See* Coal Shippers Dust II Reply at 26.

[56] *See, e.g.*, WCTL Coal Dust I Op. Argument at 14-17 and Exhibit B; WCTL Coal Dust I Reply, Reply Verified Statement of Richard H. McDonald at 8-12; WCTL Coal Dust I Rebuttal, Counsel's Exhibit 3. Copies of these materials are included in Coal Shippers Dust II Reply Addenda.

[57] *Id.*

[58] *See* BNSF Dust I Op., Verified Statement of G. David Emmitt ("Emmitt") at 13.

aware of any such arrangements. Requiring shippers to enter into such arrangements is contrary to industry practice.

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}. *See* WCTL Dust I Op. at 36.

In its reply, BNSF disputes Coal Shippers' industry practice claims However, BNSF cites no other instance where a carrier has published a tariff requiring coal shippers to spray their trains. {

}.[59]

E. Fair Cost Sharing Requires BNSF to Reimburse Shippers for Their Reasonably Incurred Compliance Costs

BNSF could establish a fair cost sharing arrangement in a reasonable containment-based coal dust tariff by including a provision stating that it will reimburse shippers' reasonably incurred compliance costs or by including a provision containing a reasonable reimbursement at a specified per ton allowance. The choice is BNSF's in the

[59] *See* {

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first instance. UP could then follow suit. The absence of any such provisions, on the facts of this case, is an unreasonable practice.

F. Shippers are Employing Cost-Effective Containment Practices

BNSF argues that Coal Shippers are advocating a "do-nothing" approach.[60] That is not the case. As Coal Shippers explained in their opening presentation, PRB shippers have agreed, at BNSF's request, to use cost-effective means to limit coal dust emissions, such as train profiling and the use of three inch coal.

BNSF argues that use of 3 inch coal is not a dust mitigation technique [61] In fact, shippers have been switching from 2" coal to 3" coal at the behest of BNSF *See* Barbaro Rebuttal V.S. at 2. Moreover, shippers have previously discussed their efforts to reduce coal dust emissions in proceedings before this Board. As one such shipper informed the Board:

> [M]ines and shippers have been working with the carriers to minimize dust by increasing the size of coal being shipped, modifying mine loadouts to change the contour of the coal in the car, and performing maintenance on cars to minimize leakage. A cooperative effort that should be applauded.
>
> The remaining contentious issue is the chemical treatment of rail cars, which is expected to cost roughly $50 million annually. To date, I have not seen the carriers indicate they are willing to pay any portion of this cost. Consequently, among the shipper community it is viewed as one more program to shift costs from the carriers to the

[60] BNSF Dust II Reply at 16.

[61] *Id.* at 18.

> shippers, who already are paying an ever-increasing rate for services . . . .[62]

BNSF also attempts to impeach its own studies showing that the combination of train profiling and use of three inch coal produces significant reductions in coal dust.[63] However, even its own expert, Dr. Emmitt, is forced to acknowledge that "less coal dust is produced in the mining process if the coal is crushed to a larger size."[64] Similarly, Mr. VanHook asserted in Dust I that BNSF studies "found that there was a notable reduction in coal dust emissions, about 30%, from the use of 3 inch coal."[65]

Finally, if BNSF was truly interested in spraying as a dust mitigation technique – as opposed to trying to force shippers to pay to spray – BNSF could easily enter into reasonable arrangements with PRB mine operators, or its shippers, to pay spraying costs. Of course, BNSF wants it both ways: it wants to mandate spraying, but not pay for the mandated spraying.

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[62] STB Public Hearing (July 18, 2007. Kansas City, Missouri), Tr at 89-90 (statement of David Laffere on behalf of WCTL and Kansas City Power & Light Company) *available at* www.stb.dot.gov/TransAndStatements.nsf/8740c718c33d774c85256dd500572ac5/81b550bd6506075485257448006 9df28/$FILE/transcript.pdf. WCTL notes that this document is a public record and predates the discovery period in Dust II.

[63] *See, e.g.*, BNSF Dust II Reply, Bobb Reply V.S. at 4 ("There is no evidence that the use of coal crushed to 3 inches, even with load profile grooming, would be an effective measure for dealing with coal dust in the PRB.")

[64] BNSF Dust II Reply, Reply Verified Statement of G. David Emmitt ("Emmitt Reply V.S.") at 13.

[65] BNSF Dust I Op., VanHook Op V.S. at 10. Coal Shippers do not endorse BNSF's three inch coal studies. *See* Dust II Op. at 29. Coal Shippers simply point out that BNSF is talking out of both sides of its mouth when claims that shippers are "doing nothing" to contain coal dust emissions when its own studies (though flawed) show that shippers are doing a lot.

III.

THE REVISED COAL DUST TARIFF IS UNREASONABLE BECAUSE IT CONTAINS NO ENFORCEMENT PROVISIONS

The Revised Coal Dust Tariff contains many performance standards Shippers are required to apply BNSF-approved surfactants (or any other BNSF-approved dust mitigation method), shippers are required to "properly appl[y]" these approved surfactants; and shippers are required to "ensure" that trains meet BNSF's profiling requirements. *Id* However, the Revised Coal Dust Tariff does not specify the consequences of a shipper's failure to comply with these standards.

BNSF concedes that the Revised Coal Dust Tariff contains no corresponding enforcement provisions and maintains "it is unnecessary" to add such provisions."[66] BNSF's failure is unreasonable for the reasons set forth in Coal Shippers' opening and reply submissions.

First, the Board rejected the Original Coal Dust Tariff because, among other reasons, "the tariff does not explain what consequences coal shippers would face if they are found to have tendered loaded coal cars" that violated the tariff terms.[67] BNSF's failure to include any enforcement terms in the Revised Coal Dust Tariff deliberately ignores the Board's rulings in Dust I.

Second, BNSF's failure to specify the consequences of non-compliance is particularly egregious in light of public reports that BNSF may shut down a shipper's

[66] BNSF Dust II Reply at 25.

[67] Dust I Decision at 14.

trains or impose draconian financial penalties for claimed non-performance. *See UP Letter Mulls Implications of Coal Dust Rules*, Platt's Coal Trader, Oct. 19, 2009 ("A top BNSF official told utility customers this month that penalties for not meeting dust standards include a $1 per ton fine and possibly temporarily halting service."). BNSF confirms in its reply submission that it may try to stop service for non-compliance.[68]

Third, BNSF claims that it "cannot determine in the abstract" penalties for non-compliance.[69] However, BNSF routinely "determine[s] in the abstract" penalties for a shipper's failure to meet tariff obligations.[70] BNSF does so because the law requires that all tariff terms and policies be clearly set forth in the tariff text.[71]

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[68] *See* BNSF Dust II Reply at 26 ("[t]he possibility of refusing service to a shipper that deliberately refuses to comply with BNSF's loading rules must be an available option").

[69] *Id.*

[70] *See, e.g.*, BNSF Price List 6041-B, Revision 20, Item 110 (establishing four hour free time for loading, and six hour free time for unloading, of PRB coal trains, and establishing a $600 per hour detention charge if trains are not loaded or unloaded during the specified free time); BNSF Rules Book 6100-A, Revision 109, Item 3400G (establishing, *inter alia*, 15 day time period within which to pay freight charges and setting forth finance charge of 0.033% per day for late payments).

[71] *See, e.g , Birmingham Rail & Locomotive Co , Inc. v Aberdeen & Rockfish R.R.*, 358 I.C.C. 606, 608 (1978) (tariff must contain "clear standards for application" and all governing rates, rules and policies "should be specifically defined as well as published"); *Radioactive Materials*, 359 I.C.C. at 73 (railroads must "plainly state their tariffs [] in order to inform all parties of their plain meaning and to avoid controversy") (internal quotation marks omitted).

Fourth. BNSF argues that the need for enforcement standards is moot because "it will give at least 60 days' notice" before engaging in any enforcement actions.[72] This offer is no substitute for publishing enforcement procedures now

As Coal Shippers explained in their reply submission, sixty days does not provide the Board sufficient time to rule on the legality of any BNSF "enforcement mechanisms." Nor should shippers or the Board be forced to address enforcement issues in the context of requests for an injunction or other forms of emergency relief. These requests tax the limited resources of the Board and impose heightened burdens of proof on shippers.[73]

The proper approach, which is the legally mandated approach, is for BNSF to include its enforcement policies and procedures in its common carrier tariffs before an emergency arises. That way, both shippers, and the Board, can address the reasonableness of these policies and procedures in proceedings such as this one.

Fifth, BNSF asks the Board to rule "that deliberate non-compliance with a reasonable loading rule is not acceptable."[74] The Board can issue no such pronouncement. For example, shippers may "deliberately" be in non-compliance with a tariff rule because of conditions beyond their control, including force majeure events, acts of mine operators, acts of railroads, etc.

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[72] BNSF Dust II Reply at 26.

[73] *See* Dust I (STB served Aug. 31, 2011) at 2 (setting forth legal requirements that must be met to obtain an injunction).

[74] BNSF Dust II Reply at 26

Sixth, BNSF claims that for contract shipments, "BNSF would have contract remedies that are outside of the Board's jurisdiction."[75] The fact that the Board does not have jurisdiction over contract shipments does not excuse BNSF from publishing reasonable enforcement provisions to apply to common carrier shipments.

In addition, as Coal Shippers demonstrated in their reply submission,

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IV.

THE REVISED COAL DUST TARIFF IS UNREASONABLE BECAUSE BNSF'S TRAIN PROFILING PRACTICES ARE ARBITRARY

BNSF's Revised Coal Dust Tariff, like the Original Coal Dust Tariff, requires shippers to "ensure[] that loaded uncovered coal cars will be profiled in accordance with BNSF's published template entitled 'Redesigned Chute Diagram' located in Appendix A to this publication." *Id.*[76] The "Redesigned Chute" produces a rail car profiled in the shape of a breadloaf.

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[75] BNSF Dust II Reply at 26.

[76] The bread-loaf shaped profile "is designed to reduce coal dust emission by reducing the effect of air currents on loaded coal." Dust I Decision at 12. All PRB mines have installed "redesigned chutes" and are using them. BNSF Dust I Op. at 16; Dust I Decision at 12.

BNSF concedes that it plans on monitoring a PRB shipper's compliance with its profiling requirements using lasers located in some cases over 100 miles from the mine load-outs.[77] BNSF asserts that this monitoring practice is reasonable because "[a]s the train moves away from the mine, the coal in a poorly loaded railcar will tend to settle naturally into a breadloaf profile."[78]

BNSF's assertion is counterintuitive. If a "loaded railcar will tend to settle naturally into a breadloaf profile," why bother profiling trains at mines using specially designed loading chutes? Mine profiling is a wasted exercise if moving rail cars magically shift into the desired breadloaf configuration.

More importantly, BNSF's assertion is wrong. As Dr. Viz explains:

> The coal in any loaded railcar is affected by physical forces when it is in motion, and likely will settle in a natural angle of repose that likely has no connection to the profile that BNSF demands must be present. If a railcar is loaded or not loaded in a manner that meets the profile, the best place to make that determination is at or very close to the mine.

Viz Rebuttal V.S. at 21.

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[77] BNSF refers to this laser-based equipment as its "Coal Car Loading Profiling System" or "CCLPS"). *See* BNSF Dust II Discovery Responses at 10. BNSF has now installed one permanent laser monitor near Milepost 91 on the Joint Line. *See* Dust I, Opening Evidence and Argument of Union Pacific Railroad Company, Verified Statement of Douglas Glass at 10 (Mar. 16, 2010) The CCLPS at MP 91 is over 27 miles from the southern-most PRB mine (Antelope) and over 107 miles from the northern-most PRB mine (Buckskin). *See* BNSF Railway, Powder River Division, Timetable No. 8 (effective Nov. 29, 2006) *available at* www.huntsvillenewswire.com/RailroadInfo/BNSF%20Timetables/Powder%20River%20Division.pdf.

[78] *See* BNSF Dust II Reply, Reply Verified Statement of E. Daniel Carré and Mark Murphy at 4 n.3.

BNSF also argues that it is not using its lasers "*for now* . . as a tool for enforcing compliance with the safe harbor."[79] However, prior to the institution of Dust II, BNSF was using its lasers "as a tool for enforcing compliance with" its train profiling requirements and was routinely sending out notices to shippers claiming that its lasers showed the shipper was not meeting BNSF's train profiling requirements.[80] Also, BNSF has not stated it will not, at some future date, once again use its lasers to monitor compliance with tariff profiling requirements.

The Board ruled in Dust I that the "proper place to focus shipper efforts to minimize coal dust emissions must be at the load-out":

> After the loading has taken place, the shipment is under control of the railroad and subject to the vagaries of wind, weather, train speed, and track conditions. Once the movement is in transit, there is nothing the shipper can do to comply. Clearly, this suggests that the proper place to focus shipper efforts to minimize coal dust emissions must be at the load-out.

Dust I Decision at 13-14.

BNSF's profiling monitoring practices do not take place "at the load-out" and therefore are unreasonable. Once a train leaves a mine, any number of operating and weather factors can modify the train profile *See* Coal Shippers Dust II Op., Verified Statement of Dr. Mark J. Viz at 30 Shippers should not be deemed to be in non-

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[79] *See* BNSF Dust II Reply at 25 n.14 (emphasis added).

[80] *See* Dust I, WCTL Rebuttal at 65 (June 5, 2010), BNSF Dust I Op., VanHook V.S. at 16; {

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compliance with profiling standards due to events beyond their control.[81] Nor is there any "safe harbor" for train profiling.

As Coal Shippers' demonstrated in their opening submission, BNSF could easily modify a reasonable containment-based coal dust tariff to address Coal Shippers' profile monitoring concerns by including language stating that a shipper will be deemed in compliance with BNSF's current Redesigned Chute Diagram if its mine operators have installed, and are using, loading chutes that conform to the Diagram specifications. The Board should direct BNSF to do so.

V.

THE REVISED COAL DUST TARIFF IS UNREASONABLE BECASE BNSF UNLAWFULLY ATTEMPTS TO INSULATE ITSELF FROM LIABILITY

The Revised Coal Dust Tariff provides that "[a]ny product including topper agents, devices, or appurtenance utilized by the Shipper or Shipper's mine agents to control the release of coal dust shall not adversely impact railroad employees, property, locomotives or owned cars." *Id.*

As Coal Shippers discussed in their opening submission, it is fundamentally unfair for BNSF to mandate train spraying and train profiling using BNSF-approved

[81] *See* Dust I Decision at 13-14 ("After the loading has taken place, the shipment is under control of the railroad and subject to the vagaries of wind, weather, train speed, and track conditions Once the movement is in transit, there is nothing the shipper can do to comply. Clearly, this suggests that the proper place to focus shipper efforts to minimize coal dust emissions must be at the load-out.").

sprays and loading chutes, and then say that shippers are responsible for all liability arising from compliance with these mandates.

BNSF wants it both ways: BNSF demands that shippers comply with its mandates, but then absolves itself from any corresponding responsibilities for liability to its employees, property, locomotives or owned cars, including liability arising from its own negligence or the negligence of its own employees.

BNSF again argues, as it did in its opening submission, that its "intent" is not to "avoid liability for its own negligence."[82] However, as Coal Shippers emphasized in their reply submission, BNSF's "intent" does not square with the tariff text, which places all liability on shippers, including liability caused by BNSF's own negligence.[83] A tariff is judged by what it says, not by what is "intended."[84]

BNSF also argues that "a railroad can establish liability provisions that hold shippers liability [sic] for the shipper's negligence or the negligence of the shipper's agents."[85] BNSF is wrong. BNSF cannot use its power to write tariffs to address liability

[82] BNSF Dust II Reply at 28.

[83] *Accord* Dust II, Reply Evidence of Union Electric Company D/B/A Ameren Missouri at 2.

[84] Dust I (STB served Aug. 31, 2011) at 2 n.2 (STB reviews compliance dates in the Revised Coal Dust Tariff based on the "language of the tariff" not BNSF's contrary "intent"); *Globe Grain & Milling Co. v. Los Angeles & Salt Lake R.R.*, 46 I.C.C. 645, 646 (1917) ("the language of the tariff and not the intent of its author is controlling").

[85] BNSF Dust II Reply at 28.

for shipper negligence because carriers cannot promulgate tariff rules governing liability for torts "over which [the STB] has no jurisdiction."[86]

Negligence is a question of state law, not federal commerce law, and the STB has no jurisdiction over negligence questions. Moreover, in any liability case litigated under state law, a key issue would be whether a shipper could be deemed "negligent" when complying with tariff rules unilaterally imposed by a railroad.

BNSF may be trying to get an upper hand by publishing its tariff liability rules, but that is not permitted either because "[n]othing can be added to or subtracted from the law by limitations or definitions stated in tariffs."[87] In the end, BNSF's tariff liability rule must be rejected because BNSF is unlawfully attempting to write tort liability standards into a common carrier tariff.

VI

REQUESTED RELIEF

Coal Shippers request that the Board find that BNSF's publication of the Revised Coal Dust tariff constitutes an unreasonable practice. Coal Shippers further request that the Board once again urge BNSF to work collaboratively with its PRB coal shippers to devise a reasonable approach to coal dust mitigation issues. Finally, Coal Shippers request that the Board instruct BNSF that any new coal dust tariff provisions be based on sound emission testing, provide for the reasonable reimbursement of coal

[86] *Wooden Grain Doors, Burlington N., Inc.*, 350 I.C.C. 768, 774-75 (1975)

[87] *Perishable Freight Investigation*, 56 I.C.C. 449, 482 (1920).

shippers' compliance costs; establish specific, reasonable enforcement terms; eliminate unfair coal profile monitoring; and remove all liability limitations.

Respectfully submitted,

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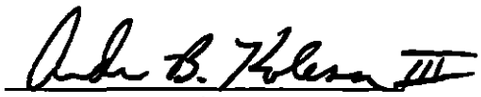
Dated: December 17, 2012

CERTIFICATE OF SERVICE

I hereby certify that this 17th day of December, 2012, I have served a copy of the Rebuttal Evidence and Argument of Western Coal Traffic League, American Public Power Association, Edison Electric Institute, and National Rural Electric Cooperative Association via first-class mail, postage prepaid upon all parties of record in this case



Andrew B. Kolesar III

VIZ

BEFORE THE
SURFACE TRANSPORTATION BOARD

FINANCE DOCKET NO. 35557

REASONABLENESS OF BNSF RAILWAY COMPANY COAL DUST MITIGATION TARIFF PROVISIONS

REBUTTAL VERIFIED STATEMENT OF

MARK J. VIZ, Ph.D., P.E.

ON BEHALF OF

WESTERN COAL TRAFFIC LEAGUE, AMERICAN PUBLIC POWER ASSOCIATION, EDISON ELECTRIC INSTITUTE AND NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION

Redacted, Public Version

DATED: December 17, 2012

1. Introduction and summary of conclusions.

a. My name is Mark J. Viz. I am the same Mark J. Viz who submitted a verified statement ("opening statement") in this proceeding on October 1, 2012, on behalf of the Western Coal Traffic League, American Public Power Association, Edison Electric Institute and National Rural Electric Cooperative Association (collectively "Coal Shippers").

b. In my opening statement, I addressed four topics: (i) BNSF Railway Company's ("BNSF") use of "Passive Dust Collectors" (also referred to as "passive collectors") as a means *to measure* the amount, if any, of fugitive coal dust emissions from moving coal railcars; (ii) BNSF's use of laser scanning or other technology to monitor or "verify" that the loaded top-of-car coal heap profile meets the precise requirements of BNSF's "bread loaf" railcar profiling requirements set forth in Appendix A to the Revised Coal Dust Tariff;[1] (iii) the factors that determine if, when and to what extent fugitive emissions will occur in the transportation of loaded railcars; and (iv) alternatives to use of surfactants to reduce fugitive coal dust emissions.

c. I concluded, for the reasons set forth in my opening statement, that: (i) Passive Dust Collectors, as designed and implemented for use by BNSF's consultant, Simpson Weather Associates (SWA), and as used by BNSF (to the extent that BNSF and SWA's methods and procedures have been disclosed), cannot be used to scientifically establish the amount, if any, of fugitive particulate emissions from railcars with certainty, reliability or repeatability, nor can they be used to scientifically establish the quantitative effectiveness (in terms of percent reduction in dust emissions), if any, of the application of coal dust suppressants, in reducing fugitive particulate emissions with certainty, reliability or repeatability; (ii)

[1] "Revised Coal Dust Tariff" refers to item 100, entitled "Coal Dust Mitigation Requirements," as first published on July 14, 2011, in Revision 016 to BNSF's Price List 6041-B and subsequent revisions thereto

BNSF's use of laser scanning or other technology to monitor or "verify" that the loaded top-of-car coal profile meets the precise requirements of BNSF's "bread loaf" railcar profiling requirements set forth in Appendix A to the Revised Coal Dust Tariff is inappropriate unless the laser profile measurement is made at or very near to the mine load-out location; (iii) that factors such as train speed (and therefore the resultant speed of the air over the top of loaded railcars when combined with local wind speed), train operation dynamics, weather and the properties of the coal itself are among the significant factors that determine if fugitive emissions will occur, when and to what extent fugitive emissions will occur in the transportation of loaded railcars; and (iv) it is possible that a valid study of fugitive coal emissions from railcars could show that a combination of profiling and increased coal size significantly reduces fugitive emissions and that the additional application of suppressants does not produce significant additional reductions in those emissions.

d. I have been requested by Coal Shippers to review and respond to the verified statements submitted by four BNSF witnesses in BNSF's reply submission in this proceeding: William VanHook, a retired BNSF employee; E. Daniel Carré, an Assistant Director at SWA; Mark Murphy, Vice President/Principal at Conestoga-Rovers & Associates; and G. David Emmitt, President of SWA. In general, Messrs. VanHook, Carré, Murphy and Emmitt disagree with, or question the importance of, all of my conclusions except one: the factors that determine if, when and to what extent fugitive emissions will incur in the transportation of loaded railcars. They also claim that my analysis and conclusions are "made for litigation" and conflict with the analysis and conclusions contained in my firm's final report to the National Coal Transportation Association ("NCTA") submitted in August of 2009 ("Exponent Report").[2]

[2] This report is titled, "Railcar Coal Loss and Suppressant Effectiveness Study," and is dated August 3, 2009 A copy of the Exponent Report is included in Coal Shippers' opening submission in this proceeding. As I noted in

c. In this rebuttal statement I address and reaffirm the conclusions set forth in my opening statement. I also demonstrate that these conclusions are not "made for litigation" nor inconsistent with the Exponent Report findings. It is important to point out that the NCTA retained Exponent, Inc. to perform the "Railcar Coal Loss and Suppressant Effectiveness Study" because at the time certain NCTA member companies did not understand the confusing and unscientific approach to fugitive coal dust monitoring that had been undertaken at that time by BNSF and their consultant SWA. For example, the NCTA member companies that funded the Exponent, Inc. study had very little sense of what an "Integrated Dust Value" was In fact, as I have shown in previous submittals, the "IDV" concept is not accepted or even present in the relevant technical literature and is solely a creation of SWA. I have also shown in previous submittals that this concept is devoid of meaning and is not based in scientific principles. The Exponent study was an attempt to understand the "junk science" that was being promulgated by BNSF and its consultants

2. **BNSF is attempting to measure fugitive coal emissions from moving railcars using data collected from passive collectors. It is critically important that the test data be collected in a manner that comports with sound science. This is particularly true given the very small mass of fugitive emissions that BNSF is attempting to measure. BNSF has failed to establish that its data collection is based on scientifically sound collection and measurement practices.**

   a. The first issue that arises relates to the design and operation of BNSF's passive collectors with regard to their primary task of attempting to sample airborne particles emitted from coal cars As I discussed in my opening statement, a passive collector will capture a percentage of particles larger than a particular minimum size but will allow smaller particles to pass through the device entirely.

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my opening statement, I served as the project manager and technical lead in the study discussed in the Exponent Report

In the relevant industry terminology, the size of the particles captured with a passive collector is tied to the "cut point" of the passive collector. Even if all airborne particles are above the cut point of the passive collector, the collector also has an efficiency, i.e., if a known mass of appropriately sized particles become airborne upstream of the collector inlet, what percentage of that particle mass stream will actually be sampled by the collector and how much will simply pass the collector altogether. These deficiencies prevent reasonably certain conclusions from being made regarding coal particulate measurements because BNSF and SWA have simply not demonstrated that the sampling "characteristics" of the passive collectors do not bias the samples that they are intended to take. One of the standard tests used to determine the cut point and efficiency of a sampling device is wind tunnel testing of the collector. SWA claims to have undertaken such testing, but neither BNSF nor SWA have submitted the results of any such testing in their reply filing or in the relevant technical literature. Given this lack of information and ability to verify the design and setting of the collector's cut point and efficiency, neither SWA nor BNSF have offered reasonable scientific or engineering data to establish what the passive collectors are actually measuring and whether the collectors themselves introduce measurement bias.

b. {

} However, no other data are given to corroborate the results of the sieve analysis, and, in any event, a sieve analysis is not by itself a proper substitute for a wind-tunnel study because it only addresses the size of particles the collector captures and not the efficiency. It is important to note, however, that in the referenced PowerPoint slide, Dr. Emmitt makes the statement: {

} As the NCTA study showed, many of the tested topper agents did not so much reduce the amount of coal released from the railcar but rather made the coal particles larger by essentially "gluing" them together {

} The point: Even coal that is sprayed with a topper agent is likely still generating fugitive emissions but the passive collectors are not designed to capture coal particles of increased size. This finding, if properly tested by BNSF and SWA, would likely show that the passive collectors themselves introduce a sampling bias that favors the treated coal results because they sample treated coal with a lower efficiency.

c. The second issue involves the proper placement of passive collectors on a given railcar. As I discussed in my opening statement, the technical literature addresses the importance of sampling locations in determining the mass of captured fugitive emissions from railcars. Placement is usually determined based on valid and verified air flow studies. Dr. Emmitt says that my concerns here are "unfounded because [SWA] did air flow studies several years ago in connection with our work with Norfolk Southern to determine where passive collectors should be located."[3] However, Dr Emmitt did not submit the referenced "studies" in his workpapers so neither I, nor the Board, can evaluate SWA's asserted "studies" or results. Thus, as I presented in my opening statement and repeat here, no evidence, wind tunnel test data, scale studies or calculations have been provided by BNSF or SWA to establish that the air flow sampled by the passive collectors installed at certain locations on the top chord of the railcar is at all representative of the particulate concentrations found in the larger air flow currents over and around the entire railcar. Stated differently, in the absence of valid air flow studies, BNSF cannot exclude the possibility that – for example – the application of a given topper

[3] Emmitt Reply V S at 5.

actually causes a *greater* mass of fugitive coal dust to be emitted from a moving railcar (perhaps in larger "clumps" than from an untreated car), but causes that additional coal dust to escape from the cars on a trajectory that misses the air entry point of the passive collectors.

d. The third issue involves the degree of subjectivity associated with BNSF's decision to spray a given topper agent on the front half or the back half of a given train. {

} BNSF has not demonstrated that it has adequately removed the possibility of any front versus back bias in its evaluation of topper agent effectiveness. In that regard. {

[1] See, e.g., BNSF_COAL DUST II 00568940-00568957; BNSF_COAL DUST_II 00007347-00007354, BNSF_COAL DUST_II 00568896-00568913

} From a statistical sampling perspective, the key point is whether BNSF has introduced bias by not basing their sampling program from data that initially involved "random sampling." When sampling is performed to attempt to make statistical inferences about the behavior of a larger population, the samples need to be chosen *randomly*. If certain railcars are not equipped with passive collectors due to inconvenience or trying to isolate the effect of the locomotive emissions from the collected samples or whatever other reason might be conceived, these sampling decisions defeat the *randomness* of the sampled railcars and introduce bias. To test whether BNSF and SWA's approach introduced bias, BNSF and SWA initially should have performed a series of train tests where they randomly selected which railcars were to be treated with the topper agent and then randomly selected which railcars would be equipped with passive collectors. BNSF and SWA also could have performed train tests where they used more and more passive collectors on each train to determine if the number of samples biased the percent reduction values. These are all critically important issues if inferences are to be made with any confidence about the overall performance of topper agents.

e. The fourth issue involves the degree of subjectivity associated with BNSF's determination of the particular railcars within a given section of a train (*i.e* , the treated section or the untreated section) that would be equipped with passive collectors. Absent a defined protocol. it is entirely possible that environmental factors that were entirely unrelated to the effectiveness of the subject topper could have impacted the passive collector results BNSF's approach to collector placement therefore could have biased BNSF's results by: (1) omitting from consideration certain railcars perceived by BNSF's consultants as being more or less likely than average to dust; or (2) placing collectors in locations more likely to

collect coal dust emitted from other railcars in the same train. The potential fugitive coal dust sources of passing trains are also not considered.

f. The fifth issue involves physical collection and weighing of the fugitive emission particulates collected in the passive collectors. Under BNSF's Super Trial procedures, trains of loaded coal cars were loaded in the Power River Basin. One half of the trains were sprayed and one half were unsprayed. Each half (sprayed or unsprayed) was equipped with seven (7) passive collectors. The trains then were transported approximately 200 miles. Bags located within the passive collectors were then removed from the collectors from each train, each sample mass was measured in the field using a balance scale and then each sample was sent to BNSF's Technical Research & Development ("TR&D") laboratory for a second mass measurement.

   i. As I discussed in my opening verified statement, BNSF did not have any well-defined written protocols addressing passive dust collector handling, cleaning, sample removal and sample measurements.[5] Having such protocols in place is very important for at least two reasons.

   ii. First, the sample mass of fugitive emissions BNSF was attempting to measure was typically very small. {

[5] Mr Vanlook cites various documents discussing BNSF's Super Trial "test plan." Vanlook V.S. at 8. {

}

} Because the coal can be dusty and can adhere to the sides of the container in which it is stored, extreme care must be taken when trying to measure masses this small, especially when there is such a large variation in the container masses. As a point of reference, the mass of a typical paper clip is roughly one gram

iii. Second, when dealing with fugitive coal dust emissions that are this small, it is critical to have a detailed step-by-step protocol addressing the issues discussed in my opening statement, including:

1. Procedures addressing fugitive dust residue in collectors that is not transferred to the dust collection bags: As I discussed in my opening statement, the total particulate mass collected in the sample bag can be different than the total sampled mass because some particles are deposited on the collector walls (a well-known occurrence in testing of this type). If this factor is not taken into account, attempts to measure percentage differences between treated and untreated train samples is likely to produce skewed results I illustrated this point using a simple example in my opening statement: Suppose the sampling efficiency of the passive collector is $X \pm 5\%$. If the mass of material collected in one sampling bag (from a collector on the treated portion of the train) is *1.00 g*, the actual mass could range from *0.95 g* to *1.05 g*. In addition, there will be error associated with the measurement of this sample on even a highly precise digital scale or balance, which would be a percent of the maximum range of the scale or balance itself. If the scale used was rated up to *200 g*, the error associated with that scale might be *±2%* or more of the maximum, that is, *±4 g* or more. Remember that there are two sources of error involved in this immediate discussion: the error associated with the sampling efficiency of the collector and the error associated with the scale. In a like manner, if the mass of material

collected in one sampling bag (from a collector on the untreated portion of the train) is *2.00 g*, the actual mass could range from *1 90 g* to *2.10 g*. This would imply that based on a consideration of sampling efficiency error alone, the percentage reduction from the treated railcar compared to the untreated railcar could be anywhere from 44.7% to 54.8% – a significant range. If the error associated with the scale or balance was also included, the range in this calculated percentage reduction would be even greater. BNSF and SWA failed to address sampling efficiency and scale error in their collection procedures and analysis, and therefore their percentage reduction findings are known with less certainty as a result.

2. Procedures for rapping the side of the collector body and the collector bag: As I discussed in my opening statement, in studies like this it is important to have protocols in place concerning rapping the side of the collector body to dislodge any sampled particles that did not make it into the collection bag. Neither BNSF nor SWA have produced any evidence that they had such procedures. The absence of these procedures is important because, as Exponent found in its NCTA studies, when sampling bags were removed from the well of the passive collector a significant amount of particulate material still remained attached or otherwise embedded in the structure of the collector. Similarly, Exponent found in its NCTA studies that significant amounts of residue remain attached to the collector bags. Exponent addressed these issues with a "rapping" protocol where the collectors were "rapped" (that is, agitated) to insure consistent collection of the fugitive material. This was very important because, as I emphasized in my opening statement, where, as here, the total mass collected was quite small, the amount of material that could be liberated from a collector or

bag with "rapping" could easily double, in some cases, the total mass measurement or more.

3. Procedures for identifying the material in the bags: BNSF had no written procedures in place to address whether the material in the collector bags was coal. As I discussed in my opening statement, the collector bags collect whatever is in the air, which could be coal dust, locomotive exhaust soot, other forms of airborne dust, as well as other airborne items such as bugs, wood chips, vegetation, pollen, etc. It does not appear that BNSF undertook any analysis of the materials in the collector bags to determine what percentage of the material was actually coal dust. BNSF did say in response to Coal Shippers' discovery requests that "large and obvious non-coal particles were removed before drying or weighing,"[6] but as I discussed in my opening statement, without a written protocol, BNSF/SWA's approach introduces a substantial bias into the already uncertain sampling approach because it relies on subjective intent (i.e., what the person in the field or in the laboratory determines is "large and obvious"). In addition, because dust may adhere to a foreign object, removing a large piece of foreign material from the collector bag could easily change the total amount of remaining material in the bag to render its further use meaningless. Mr. VanHook says that a single BNSF laboratory employee "completed this process" of removing non-coal material,[7] but his choice of language ignores the fact that BNSF first weighed dry samples in the field.[8] Mr. VanHook also offers no evidence of what criteria field and laboratory

[6] BNSF Railway Company's Responses and Objections to Coal Shippers' First Set of Interrogatories and Document Requests at 2, February 6, 2012 ("BNSF Feb 6, 2012 Responses")

[7] VanHook Reply at 14.

[8] VanHook Reply at 13 ("Weights were taken in the field if samples were dry") (internal quotation marks omitted)

employees were supposed to follow to identify what was "large and obvious" non-coal material nor does he discuss how, or if, BNSF field and laboratory employees addressed the adherence issue.

4. Procedures for dust sample collection and removal and sample measurements: As I discussed in my opening statement, passive collector tests should include written procedures calling for the use of certified-clean sample collection bags; conditioning samples for a fixed period of time in a controlled environment at a fixed temperature and relative humidity (which normalizes moisture content[9]); use of standardized tests for the determination of the moisture content of the sample, such as ASTM D3173, "Standard Test Method for Moisture Analysis Sample Coal and Coke;"[10] and procedures used to insure sample integrity after field mass measurements were made but before laboratory mass measurements were made. BNSF/SWA does not address these issues in its reply, which indicates that they did not have written procedures governing these items, they did not use certified-clean sample bags, they did not condition their samples and they did not follow ASTM D3173 standards governing the determination of moisture content of the samples. Each of these failures provides additional proof that BNSF/SWA failed to follow basic steps necessary to obtain scientifically valid sample data.

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[9] Coal can contain varying amounts of moisture. Moisture, i e , water content, adds mass to the coal When the sample mass of coal from a passive collector is small (which is frequent based on the reported results from the Super Trials), the amount of moisture contained in the sample coal can significantly affect the measurement of its mass The effect of moisture can be eliminated by following the method prescribed in ASTM D3173 for the conditioning of the coal samples

[10] As quoted from the standard, the ASTM D3173 "test method covers the determination of moisture in the analysis sample of coal or coke It is used for calculating other analytical results to a dry basis." "Analysis samples" are further defined in ASTM D2013, "Standard Practice for Preparing Coal Samples for Analysis "

5. Procedures for measuring sample mass: BNSF said in response to Coal Shippers' discovery requests that it calculated field masses using a "weight-balance scale," and then "[m]ore precise measurements" were made in BNSF's TR&D laboratory.[11] As I noted in my opening statement, BNSF did not provide any details in its discovery responses concerning how these "[m]ore precise measurements" were made, including a description of the equipment used, whether the instruments were regularly calibrated to a NIST-traceable standard, the degree of precision associated with the measurements and an estimate of measurement error. Mr. VanHook provides some additional information here, stating that weighing was done on "a certified lab scale," and describing BNSF's dry weighing process.[12] However, Mr. VanHook does not address whether BNSF calculated or addressed measurement error in developing its sample weights, nor does his discussion of BNSF's dry weight process address how a dry-weight analysis would be interpreted if the original content of the coal was not determined by pre-departure sampling of the coal.

g. BNSF routinely observed significant variability in the individual passive collector results from within a given section of the same train. Variability can be caused by many things, some of which I have already addressed in this statement Although not exhaustive, sources of variability can include the following general categories: (1) the process or "mechanism" of fugitive coal emissions from railcars is itself highly variable; (2) the sampling method used to infer quantitative measurements of fugitive coal emissions involves its own set of uncertainties and errors; and (3) the method by which samples themselves are measured involves uncertainties and

[11] BNSF February 6, 2012 Responses at 3.

[12] VanHook Reply V S at 13 (internal quotation marks omitted)

errors. Some of these sources of variability are statistical in nature and some are associated with more fundamental engineering and scientific issues.

i. For example, BNSF and SWA have shown that the mechanism of fugitive coal emissions is highly variable. Many variables affect coal dust emissions: coal size; coal moisture content; coal heap shape in the railcar; numerous weather related phenomena such as rain, snow, wind and solar radiation, train handling issues such as speed, in-train forces and vibration, and track condition. BNSF and SWA would like us to believe that the effects of all of these variables are essentially removed by using half-treated trains equipped with passive collectors {

} Worse yet, neither BNSF nor SWA attempt to quantify this source of variability, which will influence whether BNSF can claim that a certain topper agent reduces coal dust emissions by at least 85%.

ii Second, the sampling method—passive collectors—used to infer quantitative measurements of fugitive coal emissions for entire trains involves its own set of uncertainties and errors. I have already discussed some of these errors above in my discussion of sampling efficiency and cut-point. Here again, neither BNSF nor SWA appear to have made any attempts to quantify the uncertainties associated with the use of the sampling device (the passive collectors). Interestingly enough, we saw this same treatment of BNSF and SWA's inability to quantify sampler

[13] Reference Super Trial data in BNSF_COAL DUST II_00146416-00146423, 00149528-00149531, 00150421-00150430, 00312614-00312625 and 00327710-00327715

uncertainty originally in the variation that BNSF and SWA observed in their E-Sampler testing. {

}

iii Third, the method by which samples themselves are measured involves uncertainties and errors I have discussed the engineering sources of these errors at length above. And again, neither BNSF nor SWA present any measure of the error associated with the value of coal dust mass derived from each passive collector sample. Moreover, any calculations made using these measurements also must reflect these error values.

h. Mr. VanHook says that I have no basis for questioning BNSF's "professionalism" in its collection and weighing of fugitive dust emissions.[15] I am not challenging the character of BNSF or SWA. I am simply pointing out that they have not demonstrated that their procedures can be used for their intended purpose: the collection of data to be used to scientifically establish the amount, if any, of fugitive particulate coal emissions from railcars with certainty, reliability and repeatability Dr. Emmitt asserts my "criticisms appear to be made up for this proceeding."[16] Similarly, BNSF counsel characterizes my critique of BNSF's testing procedures as "made-for-litigation."[17] These assertions are the same as those that BNSF, and Dr Emmitt, directed at my verified statements in the Dust I

[14] Id. and additionally BNSF_COAL DUST II_00573545-00573547.

[15] VanHook Reply V S. at 14

[16] Emmitt Reply V.S. at 4

[17] BNSF Reply at 14

case.[18] As BNSF knows, the Board rejected BNSF's Original Coal Dust Tariff[19] in Dust I and, in doing so, cited and relied upon my critique of the procedures BNSF and SWA used to support its "IDV" system to measure coal dust emissions.[20] My verified statements in this case, like those I presented in Dust I, are not "made up" or "made for litigation." They simply point out errors made by BNSF and SWA that demonstrate their procedures cannot be used for their intended purpose. As I emphasized in my opening statement, "I have relied upon the relevant technical literature and acceptable data reduction methods to support my conclusions, an approach that BNSF and SWA do not take."[21]

3. **BNSF's claim that the data collected from the passive collectors demonstrate that the approved surfactants reduce coal dust emissions by 85% is not supported by the evidence they have presented because they do not include any quantitative treatment of variability, error or uncertainty.**

   a. Mr. VanHook asserts that the data BNSF collected using the Super Trial procedure show that the four approved BNSF topper agents reduced fugitive coal dust emissions "by at least 85%."[22] Mr. VanHook attempts to make this demonstration by referring to the data collected, and summarized on a train-by-train basis, in tables set forth in his reply verified statement.[23]

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[18] Arkansas Electric Cooperative Corporation – Petition For Declaratory Order, STB Finance Docket No 35305 ("Dust I")

[19] Original Coal Dust Tariff" refers to Item 100, entitled "Coal Dust Mitigation Requirements," initially published on April 29, 2009, in Revision 011 to BNSF's Price List 6041-B as amended through Revision 015 and Item 101, entitled "Coal Dust Requirements Black Hills Sub-Division," initially published on May 27, 2009, in Revision 012 to BNSF's Price List 6041-B, as subsequently amended

[20] *See* Viz Open V S at 5-6

[21] *Id.* at 14.

[22] VanHook Reply V.S. at 6

[23] Consider the tables presented in Mr. VanHook's Reply V S. where he attempts to show the overall coal dust reductions within each half-treated train for each approved vendor (reference specifically Tables 1, 2, 3 and 4 at 4, 5, 6 and 7, respectively, and Table 7 at 10) For each train, passive collectors were mounted on seven cars that were treated with the topical dust suppressant and seven cars on the same train that remained untreated {

b. As discussed above, BNSF and SWA have not demonstrated that the method used to collect and then reduce the data that are summarized in Mr VanHook's tables is accurate for its intended purpose. Since the data have not been analyzed with respect to proper adjustment for weather factors, variability, error and uncertainty, no statistically certain conclusions can be drawn from studies analyzing that data.

c. First, BNSF collected a substantial amount of weather data for each train used to measure the effectiveness of selected surfactants.[24] BNSF and SWA say these data were collected using a "Rail Transportation Emission Profiling System" ("RTEPS"). However, BNSF and SWA used only precipitation data – and excluded trains "that operated during precipitation events" – from its percent reduction calculations.[25] Dr Emmitt said that BNSF and SWA considered using additional RTEPS data, but said that this was rejected based on "a set of rail trip studies in the 1990's for another Class I railroad."[26] BNSF and SWA did not produce the referenced "rail trip studies." Dr. Emmitt also says that any consideration of these additional data would introduce a "subjective element" into the analysis.[27] In fact, as I discussed in my opening statement, the importance of including meteorological data in the general treatment of coal dust dispersion modeling and sampling is well established.[28] Inclusion of such data does not

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[24] See BNSF_COAL DUST II_00311491-00312452 {

}

[25] Emmitt Reply V S. at 7.

[26] *Id.* at 7

[27] *Id.*

[28] *See* Viz. Op V.S. at 20.

introduce "subjective element[s]," it simply recognizes that many meteorological factors, besides rain, impact fugitive coal dust emissions. Mr. Murphy, one of BNSF's reply witnesses,{

}

d. Second, under BNSF's approach, {

} Only seven data samples were used in generating each of the averages. The *statistical sampling error* associated with this small sample size was not developed.

c. Third, in addition to statistical sampling error, the calculated percentages are susceptible to error associated with the data collection and measurement method as I have previously discussed in this statement. Every measurement device, such as the balance or scale used to measure the mass of the coal dust / beaker. has an associated uncertainty. In addition, there is uncertainty and error associated with the procedure for the dust collection and dust handling, such as transferring the particles from the passive collectors to the beakers (and any intermediate steps for shipment) before weighing. BNSF does not present the known error associated with the measurement devices or the estimated error associated with the data collection procedure, the actual percent reductions or reasonable range of percent reductions. The simple and readily apparent conclusion to draw from this analysis is that measurement error, or error associated with the data collection and reduction process (not the sampling ... that's a separate error), will change the percent coal dust reduction values. Omitting this part of the analysis implies that a level of engineering certainty exists when in reality it does not.

[29] *See Id* at 28 (citing BNSF_COAL DUST II_8394-8395).

f. As I explained in my Opening Statement, during the Super Trial tests performed by BNSF in 2010, only 115 trains out of a population of 1,633 were equipped with passive dust collectors, and only 14 railcars in each of these 115 trains were equipped with passive collectors. Given all of the different testing variables in addition to the uncertainty that is associated with each one of these variables, it seems inconceivable that a sample of 115 trains out of 1,633, as well as a smaller sample size to evaluate the performance of individual suppressants, could be sufficient to render any quantitative judgment about the effectiveness of suppressants. (BNSF's post-Super Trial testing was similarly limited in scope). The fundamental error that BNSF and SWA continuously have made in analyzing the results of these tests is that they never measure, determine, or attach realistic uncertainties or variability to the quantities they are attempting to measure.

4. Profiling and increasing coal size likely reduce coal dust emissions.

a. As I discussed in my opening statement, {

}

b. Dr. Emmitt claims that {

}

[30] Emmitt Reply V.S. at 14.

[31] *Id.* at 15.

c. Dr. Emmitt also criticizes me for "endors[ing] BNSF/SWA's 3-inch coal tests." Of course, I made clear in my opening statement that "I do not endorse the BNSF passive collector testing."[32] What I did say was that {

}[33]

5. **BNSF's use of laser scanning or other technology to monitor or "verify" that the loaded top-of-car coal profile meets the precise requirements of BNSF's "bread loaf" railcar profiling requirements set forth in Appendix A to the Revised Coal Dust Tariff is inappropriate unless the laser profile measurement is made at or very near to the mine load-out location.**

a. Messrs. Carré and Murphy state in a footnote in their joint reply verified statement that "[a]s the train moves away from the mine, the coal in a poorly loaded railcar will tend to settle naturally into a breadloaf profile. Thus, the further away from the mine that the profile is examined, the more likely the profile will conform with the necessary breadloaf profile."[34] Carré / Murphy provide no support for this assertion. The coal in any loaded railcar is affected by physical forces when it is in motion, and likely will settle in a natural angle of repose that likely has no connection to the profile that BNSF demands must be present. If a railcar is loaded or not loaded in a manner that meets the profile, the best place to make that determination is at or very close to the mine.

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[32] Viz Op. V.S at 29

[33] *Id.*

[34] Carré/Murphy Reply V.S. at 4 n 3.

6. **My conclusions in this case are consistent with the conclusions reached in the Exponent Report.**

   a. BNSF's witnesses, and BNSF counsel, claim that my conclusions concerning BNSF's Super Trial Study procedures and results conflict with the conclusions reached in the Exponent Report. I already addressed this point, which was first raised by BNSF in earlier proceedings in this case, in my opening statement. The overall conclusion reached in the Exponent Report is as follows:

   {

   } [emphasis mine]

   b. I offer a similar opinion in this proceeding: BNSF's Super Trial study and analysis do not provide reasonably certain valid support for its conclusion that application of specified surfactants, plus profiling, may together meet or exceed BNSF's 85% reduction target. {

   }

   c. BNSF relied on its Super Trial testing, not the Exponent testing, to determine which topper agents met its 85% reduction standard. Thus, even if the Exponent Report concluded, which it did not, that application of some topper agents, plus profiling, would meet BNSF's 85% reduction target, those findings would not be pertinent in this case because BNSF relied exclusively on its own testing – not the

[35] *Id.* at xiv

testing performed by Exponent – in approving, or rejecting, the use of individual surfactants.

VERIFICATION

I, Mark J. Viz, Ph.D., P.E., verify under penalty of perjury that I have read the foregoing Verified Statement and know the contents thereof; and that the same are true and correct Further, I certify that I am qualified and authorized to file this statement.

Mark J. Viz

Executed on: December 17, 2012

BARBARO

BEFORE THE
SURFACE TRANSPORTATION BOARD

REASONABLENESS OF BNSF RAILWAY COMPANY COAL DUST MITIGATION TARIFF PROVISIONS	)))))	Finance Docket No. 35557

VERIFIED REBUTTAL STATEMENT OF
DR. RALPH W. BARBARO

My name is Dr. Ralph W. Barbaro. I am the President of Energy Research Company ("ERC") and a former Principal of Energy Ventures Analysis ("EVA"). I am the same Dr. Ralph W. Barbaro that submitted a verified statement ("Opening Statement") in this proceeding on October 1, 2012 on behalf of the Western Coal Traffic League, American Public Power Association, Edison Electric Institute and the National Rural Electric Cooperative Association (collectively "Coal Shippers").

In my Opening Statement, I observed:

> Traditionally, PRB coal was crushed to 2". However, to address railroad concerns about coal dust emissions from their trains, PRB coal suppliers have been working with their customers to increase the standard PRB coal size from 2" to 3". This effort has been successful. Today, the current standard practice today is to crush PRB coal to 3".[1]

[1] *Id.* at 2

BNSF's counsel claims that use of 3 inch coal is "not a coal dust mitigation measure."[2] It is widely – and publicly – known that BNSF has strongly encouraged both Powder River Basin ("PRB") mines, and PRB utility coal purchasers, to increase coal sizing from 2 inch coal to 3 inch coal, for purposes of dust mitigation.

For example, the Gillette News-Record reported in an article entitled "Railway officials focus on coal dust solutions":

> BNSF . . . . has asked the mines to change some of their methods to reduce dust coming off trains. One of the first changes was a request to alter the profile of how the coal sits in railcars . .
> . .
> *BNSF has also worked with utilities and the mines, trying to encourage bigger chunks of crushed coal – three-inch versus two-inch – in an effort to reduce the amount of small particles that are created during the crushing process* [3]

BNSF witness Dr. G. David Emmitt also addresses my Opening Statement Dr. Emmitt does not dispute that BNSF has been working with mines and coal shippers to increase coal size from 2" to 3" and does not dispute that 3" inch coal today is the norm in the PRB. However, Dr. Emmitt disagrees with my statement that "[t]raditionally PRB coal was crushed to 2." He argues that "several mines" were using 3 inch coal in 2005.

Dr. Emmitt does not identify the "several mines" he claims were using 3" coal in 2005, nor does he identify the amount of 3" coal they were selling. Dr. Emmitt also does not address the fact that the PRB was a major coal producing region long before

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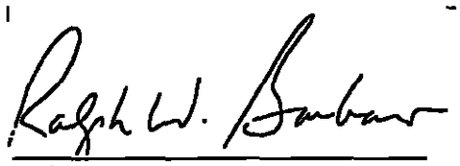
[2] BNSF Reply Arg. at 18.

[3] Peter Gartrell, "Railway Officials Focus on Coal Dust Solutions," Gillette News-Record (Gillette, Wy., July 1, 2007) (emphasis added).

2005. In any event, it is beyond dispute that, in 2005, most PRB coal production was 2" coal, and since 2005, things have changed. Today the predominant PRB coal size is 3" coal. It is also beyond dispute that the switch from 2" coal to 3" coal has occurred for one reason: to reduce coal dust emissions.

VERIFICATION

I, Ralph W. Barbaro. Ph.D., verify under penalty of perjury that I have read the foregoing Rebuttal Verified Statement and know the contents thereof; and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement



Ralph W. Barbaro

Executed on: December 14, 2012